27 MAY 2021

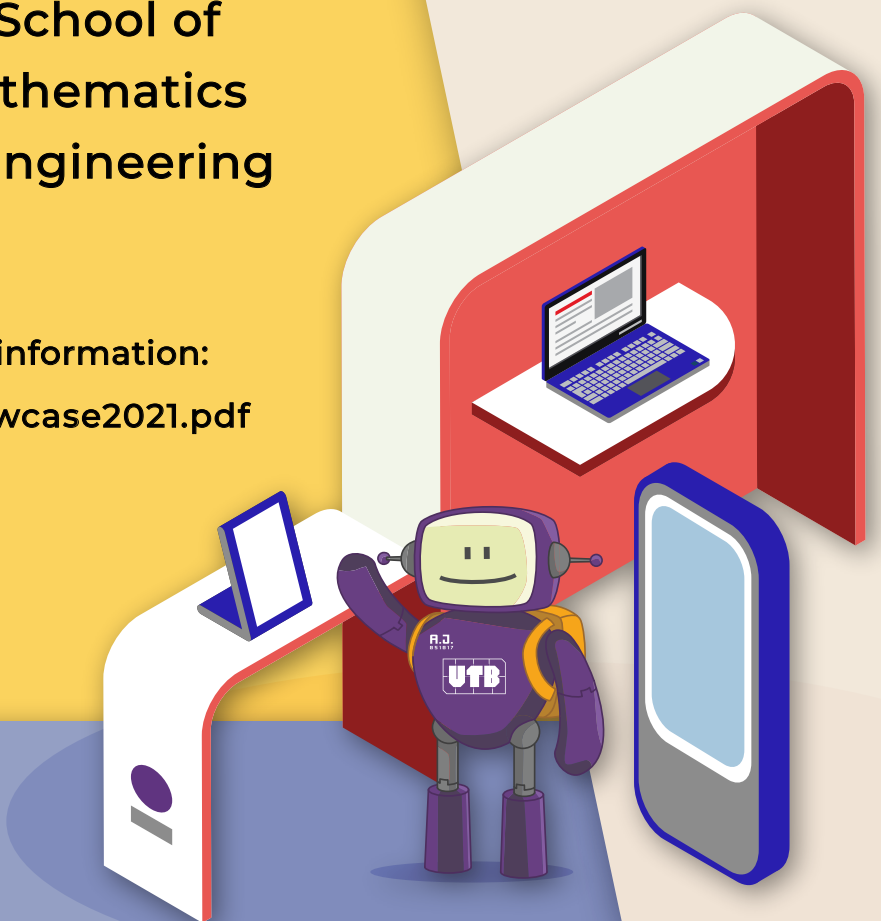
Multi-Purpose Hall,
Universiti Teknologi Brunei

9:00AM - 4:00PM

UTB PROJECT SHOWCASE 2021

The UTB Project Showcase will feature projects from School of Computing and Informatics (SCI), UTB School of Business (UTBSB), School of Design (SDe), School of Applied Science and Mathematics (SASM); and Faculty of Engineering (FEng).

Visit the following link for further information:
www.utb.edu.bn/UTBProjectShowcase2021.pdf



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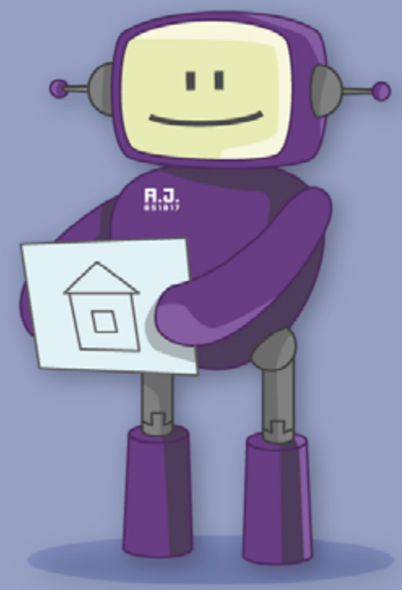

Mechanical Engineering

1
MD Amirul Amin Abd Salam

DESIGN AND FABRICATION OF AN AUTONOMOUS SOLAR POWERED LAWN MOWER

The conventional lawn mowers have been widely used in the gardening and agricultural industries. However,the manual handled lawn mowers consume a lot of energy and produce. The conventional lawn mowers also create a high level of noise and vibration The objective of this project, is to build an Autonomous Solar Powered Lawn Mower which avoids obstacles and is capable of fully automated grass cutting without the need for any human interaction. Student is expected to carry out design, analysis and fabrication of the product.

2
Isaiah Jayasuriya

DESIGN AND FABRICATION OF A MINI PULLEY-BASED CRANE

The aim of this project is to design and fabrication a mini motorized pulley-based crane. The system should consist of a frame and pulley mechanism to lift 1.0 kg. Student is expected to carry out design, analysis and fabrication of the product.

3
'Izzati Hanani binti Haji Ali Jafri

DESIGN AND FABRICATION OF A REMOTE CONTROLLED MOBILE FORKLIFT

A forklift is a powered industrial truck used to lift and move materials over short distances. The objective of this project is to design and fabricate a mobile forklift which can lift and move a 0.5kg weight from one location to another using a remote control device or mobile app. Student is expected to carry out design, analysis and fabrication of the product.

4
Jimmy Then Wee Loong

AUTOMATIC CLASSROOM WHITEBOARD CLEANING SYSTEM

Cleaning classroom whiteboards can consumes time before, during and after teaching. Automatic whiteboard cleaner will reduce the time and also the effort. The objective of this project is to design and fabricate an automatic whiteboard cleaner through an attachment for whiteboards in the form of a power driven cleaning apparatus which can be set in operation using a switch, thus eliminating the drudgery of manually cleaning classroom boards. Student is expected to carry out design, analysis and fabrication of the product.

5
Muhammad Yazid bin Abd. Hamid

DESIGN AND FABRICATION OF HYDRAULIC SCISSOR LIFT

The aim of this project is the design, analysis and fabrication of a prototype hydraulic scissor lift which is capable of lifting 100+ kg. Conventionally a scissor lift or jack is used for lifting a vehicle to change a tire, to gain access to go to the underside of the vehicle, to lift the body to appreciable height, as well as other applications. A Scissor lift is the type platform that can usually move vertically. This mechanism is achieved by the use of link, folding support in a crisscross pattern known as a Pantograph. The upward motion is achieved by the application of pressure to outside of the lowest set of support elongating the crossing pattern and propelling the work platform vertically. Student is expected to carry out design, analysis and fabrication of the product.

6
Aishah Shereen Binti Sairul Rhymin

DESIGN AND FABRICATION OF AUTOMATIC PNEUMATIC RAMMING MACHINE

Moulding is one of the important metals forming process in manufacturing components for various applications in industry. Casting of any size and shape can be made accurately. Automation in this field helps to improve the foundry environment and accuracy of the cast parts. Efficiency of moulding is affected by various parameters such as permeability, collapsibility, adhesiveness and so forth. The objective of this project is to design and fabricate an Automatic Pneumatic Rammer. This rammer is operated pneumatically. By using this rammer moulding sand will be packed evenly throughout the box.

7
Hoo Tien Liang

THERMAL ANALYSIS OF A ROTATING CYLINDER IN CROSS FLOW

The industrial applications of cooling a rotating cylinder in the presence of cross flow may include cylindrical cooling devices in plastics and glass industries, food processing and chemical processing industries among others. The heat transfer at the outer surface of a rotating cylinder, both in a still environment or in cross flow, can takes place in two extreme domination conditions: either (a) the cross flow domination, or (b) the rotational effect domination. The project objective is to study the airflow structure and convection heat transfer from a hot rotating cylinder with the presence of cross flow under different conditions using CFD techniques. In the project, the student is expected to: (1) Review the recent studies considering the convection heat transfer from rotating cylinders with cross flow and identify the governing parameters, (2) Gain working knowledge of simulation tools for CFD analysis, and (3) Carry out parametric study by developing appropriate models.

8
Yeo Kai Lin

ANALYSIS OF VENTILATION SYSTEMS IN KITCHENS

The ventilation system in kitchens is very important to extract the pollutants generated from the cooking process and maintain a good indoor air quality. Computational fluid dynamics (CFD) analysis can be used as a tool to obtain the detailed thermal and flow distributions inside the kitchen. Obviously the highest concentration of carbon monoxide (CO) in residential kitchens occurs during the actual cooking-period and need efficient ventilation system. The project objective is to propose and study the performance of the ventilation system in a specified kitchen in Brunei during cooking period using CFD techniques. In the project, the student is expected to: (1) Review the recent studies considering the ventilation systems in kitchens in Brunei, (2) Gain working knowledge of simulation tools for CFD analysis, and (3) Carry out parametric study by developing appropriate models.

9
Ng Jia Ying

EFFECT OF TEMPERATURE ON THE MECHANICAL PROPERTIES OF LITHIUM DISILICATE GLASS CERAMIC

Mechanical properties of materials are often influenced by their microstructures. Lithium disilicate glass-ceramic (LDGC) is widely used as load-bearing structure in engineering and medicine as crowns and bridges because of their excellent aesthetic, mechanical and biocompatibility properties. LDGC is obtained by the crystallization of suitable batch glasses through controlled heat treatments. Therefore, this project aims to determine the effect of temperature on the mechanical properties of LDGC. Knoop and Vickers indentations will be used to extract elastic modulus, hardness and fracture toughness at various loads to study the existence of the indentation size effect on the temperature-dependent measured properties. The measured properties at different temperatures will be used to obtain brittleness and plasticity indices. The outcomes of this project will provide insights into the optimization of machinability property for LDGC.

10
Nur Imanina Binti Shamsul Bahren

CHARACTERIZATION OF MECHANICAL PROPERTIES OF YTTRIA TETRAGONAL ZIRCONIA POLYCRYSTALS AT ELEVATED TEMPERATURES

Yttria tetragonal zirconia polycrystals (Y-TZP) are load-bearing structural materials for engineering and medical applications due to their excellent mechanical and biocompatibility properties. Therefore, in this project, the mechanical properties such as Young's modulus, hardness and fracture toughness of Y-TZP will be characterized by Knoop and Vickers indentations at elevated temperatures from 600ºC – 1100ºC. At each temperature, various indentation loads will be applied to determine the load effect on the mechanical properties of Y-TZP and analyse possible size effect phenomena. The measured properties at different temperatures will be used to obtain brittleness and plasticity indices which can then be applied to optimize

machinability property and insight for Y-TZP products.

11
AK Md Ammar Akmal Bin Pg Aliuddin

TEMPERATURE-DEPENDENT MECHANICAL PROPERTIES OF ZIRCONIA-REINFORCED LITHIUM SILICATE GLASS CERAMIC

Zirconia-reinforced lithium silicate glass ceramic (ZLS) finds a wide usage as a load-bearing structural application in biomechanical engineering due to their excellent mechanical and biocompatibility properties. Therefore, in this project, the mechanical properties such as Young's modulus, hardness and fracture toughness of ZLS will be characterized by Knoop and Vickers indentations at different temperatures ranging from room temperature to 850ºC. At each temperature, various indentation loads will be applied to determine the load effect on the mechanical properties of ZLS and analyse possible indentation or reverse indentation size effect. The measured properties at different temperatures will be used to obtain brittleness and plasticity indices which can then be applied to optimize machinability property for the material.

12
Mohamed Hamizan Shahul Hameed

AXIAL LOADING BEHAVIOR OF TRI-TUBULAR CONICAL ENERGY ABSORBER

In this project, Tri-tubular conical energy absorber will be designed, fabricated and tested under axial compression loading. Aluminum and glass/epoxy materials with one natural fiber/epoxy material will be used to fabricate cones and tubes of a different design arrangements. In addition to the tri-tubular conical energy absorber components, axial loading will be performed on bi-tubular cone-tube and single tube and cone components. Maximum Height and minimum diameter of the energy absorber components will be 120 mm and 56 mm respectively. Effects of cone and tube design parameters, material used and cone semi apical angle on the axial compression load-displacement relation and on the specific energy absorption will be drawn and discussed for all the tested tube and cone arrangements. In addition, maximum crush force efficiency and stroke efficiency will be determined and discussed. Crashworthiness analysis with final comparison will be performed on the results obtained from all the tested cone and tube components.

13
Muhammad Harith Syukri Bin Haji Amrinal

FAILURE MECHANISM AND STRENGTH IMPROVEMENT OF SINGLE LAP BOLTED JOINT OF GLASS/ EPOXY LAMINATES

In this project, Performance of single lab joints under tensile load will be carried out. Laminated plates of woven glass and CSM glass/epoxy will be fabricated using hand-lay-up method. The single lab joints will be fabricated according to D5961/ D5961M − 13 ASTM standards. Different fiber stacking sequence with and without steel reinforcement will be studied. Cylindrical shells made of Woven glass/epoxy, Steel and aluminum materials will be inserted at the inner surface of the circular hole of the bolted joint during the fabrication process to improve the performance

of the bolted joint. Effect of fiber material stacking sequence, steel reinforcement, and cylindrical shell influence on the failure mechanism and strength of the bolted joint will be studied. Load-displacement and stress-strain relations will be drawn and compared. Final comparison will be made for all the tested single-lap bolted joints.

14
Ak Md Nur Adi Syafi Rafiuddin Bin Pg Eliza

FINITE ELEMENT ANALYSIS ON PERFORMANCE OF COMPOSITE TUBES UNDER THREE-POINT BENDING

In this project, finite element analysis on the performance of empty and foam filled tubes of different cross section areas under three-point bending will be carried out. Synthetic and natural fiber/epoxy materials of different layers will be used. Effect of material used, hybridization of materials and design parameters of the tubes on flexural strength and failure mechanism will be investigated. Bending load-displacement response and maximum load will be drawn and discussed. Effect of fibre material stacking sequence and foam filler on the flexural strength and specific energy absorption will be studied. Crushworthness analysis on the fractured tubes will be performed where the failure mode of the fractured tubes will be noticed and discussed also.

15
Matthew Fong Jia Hau

TENSILE BEHAVIOR OF CURVED LAMINATE WITH CIRCULAR HOLE

Tensile behavior of curved laminates will be carried out. Curved laminates with and without circular holes will be fabricated using Aluminum, glass, coir/epoxy and hybrid materials of Al-glass/epoxy, Al-coir/epoxy and Al-glass-coir/epoxy. Test specimens will be fabricated according to ASTM D5766 standards. A test fixture will be designed to hold the free ends of the curved laminate during the loading process. Effect of fiber stacking sequence, fiber type, orientation angle and number of layers on the load-displacement relation will be investigated. Interlaminar strength (ILS) will be determined and discussed. Load-displacement and stress-strain relations will be drawn and discussed also. Effect of material used and design parameters on the applied load, stress and strength will be investigated. Failure mode of fractured curved laminates will be identified. Final comparison will be made between the results obtained.

16
Muhammad Haziq Bin Hj Awang Jaafar

INVESTIGATION OF THE MACHINING PARAMETERS ON THE SURFACE FINISH OF A COPPER BAR IN A TURNING OPERATION

The objective of this project is to analyze and compare the effect of machining parameters on the surface finish of copper bar via the lathe turning process. The materials supplied at UTB workshop is not known. Students need to identify the copper grade either to perform a microstructure test, hardness test, tensile test or other tests. A parametric study needs to be done to observe the best combination

of parameters, spindle speed, feed, depth of cut, and coolant system. The Taguchi experimental method using orthogonal array will be conducted on the specimen by setting spindle speed, feed and depth of cut at 3 levels, and coolant system (with coolant and without coolant). The surface finish measurements will be done using average surface roughness (Ra), maximum-to-peak depth within the sampling length (Rmax) and maximum-to-peak height within the evaluation length (Rt) parameters. The analysis of results will be done to reveal the parameter that has obtain the minimal surface finish on the copper bar during turning operation.

17
Mohd Alai Arziul Bin Abdullah @ William Lai

INVESTIGATION OF THE MACHINING PARAMETERS ON THE SURFACE FINISH OF AN ALUMINUM BAR IN A TURNING OPERATION

The objective of this project is to analyze and compare the effect of machining parameters on the surface finish of aluminum bar via the lathe turning process. The materials supplied at UTB workshop is not known. Students need to identify the aluminum grade either to perform a microstructure test, hardness test, tensile test or other tests. A parametric study needs to be done to observe the best combination of parameters, spindle speed, feed, depth of cut, and coolant system. The Taguchi experimental method using orthogonal array will be conducted on the specimen by setting spindle speed, feed and depth of cut at 3 levels, and coolant system (with coolant and without coolant). The surface finish measurements will be done using average surface roughness (Ra), maximum-to-peak depth within the sampling length (Rmax) and maximum-to-peak height within the evaluation length (Rt) parameters. The analysis of results will be done to reveal the parameter that has obtain the minimal surface finish on the aluminum bar during turning operation.

18
Justin Ong Yi Kiat

DESIGN AND FABRICATE PROSTHESIS ARM

A mechanical arm is a machine that mimics the action of a human arm is call prosthesis arm. Prosthesis arms are composed of multiple beams connected by hinges powered by actuators and controlled by a computer-controlled while doing a movement. In this project, you will design and do a mechanical engineering analysis for the prosthesis arm that can grab an object, hold an object, and transfer an object just like a human arm. Application for this research is in the medical field with prosthetics to perform the rehabilitation process for stroke patients.

19
Nilam Sari Abdullah

DESIGN AND FABRICATION OF LOWER LIMB EXOSKELETON FOR REHABILITATION EXERCISE

Lower Limb Exoskeleton is a wearable suit developed to assist the stroke patients in the medical rehabilitation process. This tool helps stroke patients and people with spinal cord injuries regain their mobility sooner, giving them computer guidance

to regain a proper gait. In this work, you will design, do a mechanical engineering analysis and do fabrication of low-cost lower limb exoskeleton suitable for patient rehabilitation, specifically in the presence of illness on postural equilibrium.

20
Amir Asyraaf Bin Aziz

DESIGN AND FABRICATION OF THE COMPACT AND ROBUST INTELLIGENT GOLF CADDY SYSTEM

Nowadays, golfers will carry their golf bags with trolley manually to the place where the golf ball was hit. Here, the Intelligent Caddy Robot (ICR) is proposed to reduce the load carry by the golfers based on three objectives. The first objective is to design a compact and robust ICR system. The second objective is to do a mechanical analysis on designed ICR system. The third objective is to fabricate an ICR system.

21
Siti Norhazimah @ Siti Az- Zahraa binti Hj Md Zahari

DESIGN AND FABRICATION OF WINDOW CLEANING ROBOT SYSTEM

Traditionally, the cleaning of buildings' windows is commonly done using manual labour by cleaners or cleaning companies. However, with the rapid increase in development of tall buildings, manual labour cannot be applied as the cleaning of high rise windows has become extremely inaccessible and a very dangerous procedure. Nowadays, window cleaning robots have been created to assist humans in order to reduce risks and costs of window cleaning by manual labour. The objective of this project is to design and fabricate a small climbing robot system which aims to clean and wash windows of tall buildings. The following features must be achieved: portable, small size, lightweight, automatically operated and is able to clean all corners of the window pane. Additional features may also be considered.

22
Siti Nursuhailla binti Hj Abu Bakar

DESIGN AND FABRICATION OF PORTABLE SANITISING BOOTH

In light of the current COVID-19 pandemic, safety, cleanliness and personal hygiene has gained much importance. By designing the portable sanitising booth, it will not only sanitise and decontaminate the booth but also for everyone who enters it for safety and protection. It serves to reduce bacteria and viruses; also to prevent further outspread of COVID-19 especially for those who work in close contact with groups, and those who are vulnerable or at higher risk. The objective of this project is to design and fabricate a portable sanitising booth that generally can be installed at the entrance of universities, offices, schools, supermarkets, etc. The following features must be achieved: simple and safe operation, reliable, user-friendly, low cost, sustainable, and portable. Additional features may also be considered.

23
Md Hanis Han bin Hj Md Ridzuan Han

DESIGN AND FABRICATION OF COOLING COIL ADAPTER FOR AIR HANDLING UNIT IN UTB

Air Handling Units (AHU) in UTB are not being utilised since the shutdown of the chiller air conditioning system back in 2018. This project aims to reuse the AHUs by converting the cooling coil to the conventional air conditioning system. Student will design and fabricate the adapter which enables the selected cooling coils to mount directly on the existing AHU.

24
Muhammad Harissuddin bin Mohd Hosenal

FLOW OPTIMISATION OF THE AIR COOLING SYSTEM FOR A COMPUTER CENTRAL PROCESSING UNIT

The central processing unit (CPU) of a core component of a computer that generates heat during operation. The heat generated has to be maintained at a nominal condition to ensure its optimal performance and also to prevent the CPU from getting damaged. In this project, student will study the air flow of a generic air cooling system of a CPU in order to design a pathway for flow optimisation.

25
Za'im Aqwa bin Mohaimin

DESIGN OF COMPOSITE LAMINATE PIPE FOR OIL AND GAS APPLICATION

The project will design the pipe structure using laminate composite. Different fibre material will be analysed where the pipe will be subjected to torsional, tension, compression and bending loading as stated for oil and gas application. First a reference on metal pipe used for oil and gas industry will be analyse for validation purpose. The loading requirements on the pipe for specific application will be collected and applied to the existing metal pipe to validate its strength and failure mechanism. Once validate, the project will employ finite element model to analyse the strength and failure mechanism of laminate composite pipe. Different parameters of laminate configuration and pipe geometry will be investigated to construct a chart for pipe design purpose.

26
Nur Amalina Binti Mohd Samin

WING-TYPE STRUCTURAL DESIGN SUBJECTED TO IMPACT LOADING

A wing-type structural comprising skins, ribs, stringers, leading edge, spars web and caps will be designed for its impact strength. Certain number of bays of structure will be tested for its impact strength by varying the thickness of skins, distances of ribs, thickness of ribs, thickness of spar web, area of stringers and spar area. The model will be based on existing wing geometry and commune material used for civil aircraft. The test will be using Finite element model where the impactor will be

modelled as rigid body with initial impact energy equivalent with bird strike. Finite element simulation allows determining the failure mechanism of the structure during impact and proposing the best structure design subjected to impact loading.

27
Awangku Muhammad Asyraf Bin Pengiran Haji Mat Rais

DESIGN OF ROAD CRASHED BARRIER USING FOAM-FILLED HONEYCOMB AS ABSORBER STRUCTURE

The project will propose foam-filled honeycomb as additional structure to existing road crashed barrier structure in absorbing the impact energy from crashed vehicle. The preliminary study on the foam-filled honeycomb structure mounted on a beam at specimen level has been carried out. The result will be implemented to design the full scale and real road crash barrier structure. Different parameters of the honeycomb will be analysed to determine the best configuration of proposed honeycomb added to crash barrier structure in absorbing the car impact energy. The project employs Finite element model to simulate the impact behaviour of additional honeycomb to the existing rail-road structure.

28
Mohamed Irfan Bazrul Jama

DESIGN AND OPTIMIZATION OF AN UPRIGHT WHEEL ASSEMBLY FOR PASSENGER VEHICLE

In an automobile, the upright assembly is a part of the suspension system that carries the hub for the wheel and attaches to the upper and lower control arms. It is also used to house the brake disc and calipers, as well as the steering tie-rod. In this project, students are expected to design the upright components which included upright tabs and hub. The various loading on the assembly shall be considered and the student is expected to apply mechanics principles to optimize the design while ensuring the strength to weight ratio is not compromise. The optimize design shall be modeled using the Finite Element Analysis (FEA).

29
Mohammad Ady Shazwan Bin Haji Ismail

DEVELOPMENT OF SIDE-GUARD FOR GRAVITY ROLLER CONVEYOR FOR MATERIALS HANDLING

Connecting rods are used in four-stroke engine and they have to sustain high cyclic loading which range from high compressive loads due to combustion to high tensile loads due to inertia. Therefore, the durability of the connecting rods is critical to ensure the successful transmission of loads during operation. The objectives of this project include the design and analysis of a connecting rod for a four-stroke engine, aimed at exploring weight reduction opportunities. A detailed analysis will be performed and supplemented by FEA analysis. Student is expected to have good knowledge in resolving combined loadings, mechanics theories, SolidWorks and FEA analysis.

30
Muhd Yazid Bin Haji Yakub

DESIGN AND OPTIMIZATION OF A THIN-FRAME QUADCOPTER STRUCTURE

Quadcopter is basically a helicopter with four rotors. It has been around for some time, initially developed as a toy, but today the scope of the Quadcopter has been extended to serve many functions including for surveillance, save & rescue mission, etc. The key success of the Quadcopter in any intended application depends on developing a reliable structure based on the type of rotor and propeller to be used so as to attain the necessary flight acceleration. There are many factors governing the reliability aspects and in this project the student is expected to design and optimize the structure to be as light as possible, meanwhile maintaining the strength to carry the load at a predefined acceleration.

31
Siti Rahmah Binti Haji Kamis

TETRAGONAL GRAIN SIZE EFFECT ON THE DENSIFICATION BEHAVIOUR AND MECHANICAL PROPERTIES OF Y-TZP

Tetragonal Zirconia Polycrystal stabilized with Yttria (Y-TZP) offers high toughness and strength due to a phenomenon known as transformation toughening. The densification behavior and mechanical properties, however, is dependent on the grain size of the ceramics. Therefore, the optimization of sintering conditions are prerequisite in the development of a highly dense and strong zirconia. In this work, the effect of grain sizes on the mechanical properties of Y-TZP will be investigated. Part of this work requires the student to do extensive literature review. There will be lab experiments and some computational work may also be involved in modelling the grain growth of the ceramic.

32
Anis Syufina Hj Mohd Saufi

THE EFFECT OF TWO-STEP SINTERING ON THE MECHANICAL CHARACTERISTICS OF ALUMINA

Alumina or aluminum oxide (Al2O3) has been used in many structural components, either as coatings or as solid piece due mainly to its excellent hardness and physical properties. However, the conventional sintering of alumina which is usually conducted at very high temperature (in excess of 1500 °C) to obtain high density, resulted in undesirable grain coarsening. This has an effect of reducing the mechanical properties. Many researchers have identified that grain boundary diffusion as the mechanism causing grain coarsening. Hence, this project explore the viability of controlling grain boundary diffusion through using a two-step sintering process and to study this effect on the mechanical characteristic of the material. Part of this work requires the student to do extensive literature review involving journal papers. There will be lab experiments and some computational work may also be involved in modelling the microstructure.

33
Awangku Yura Alif Bin Pengiran Yusofe

DESIGN AND ENGINEERING ANALYSIS OF A COCONUT PEELER MACHINE

The coconut peeler machine is commonly used in mass production of fresh coconut for commercial purpose. A major drawback with the commercial machine is that they are expensive and also heavy. In this project, it is proposed to design a low-cost coconut peeler machine for the local traders. The work involve design and engineering analysis of the optimum parameters for cutting, including selecting materials, analysis of cutting force, etc. The principles of sustainability will also be considered at the design stage.

34
Darren Lee Kong Hong

DESIGN OF INSTANT FREEZING (REFRIGERATION) SYSTEM FOR COLD STORAGE OF SEA-FOOD ITEMS

The sea food market in Brunei has thriving business. Many sea food items requires instant freezing to preserve the food quality and taste. Design of an instant freezing mechanism for such sea items would have commercial prospects. The student is expected to propose the Thermodynamic cycle and design the refrigeration system. The student is expected to: (1) Do a proper literature Review of the scope and application of the techniques (2) Gain working knowledge of Modelica Engineering analysis software, and (3) Carry out parametric investigations.

35
Muhammad Khairul Asyraf bin Shahari

DESIGN OF COOLING TECHNIQUE USING IMPINGING JETS AND INSERTS

The idea of this project is to explore different insert placed in impinging jet path to alleviate heat transfer. The shape of insert plays key role in enhancement of heat transfer at the target wall. The shapes explored are sphere, cylindrical triangular. These inserts would excite the jet leading to increased heat transfer. The student is expected to: (1) Do a proper literature Review of the scope and application of the techniques (2) Gain working knowledge of available CFD analysis software, and (3) Carry out parametric investigations.

36
Mohamed Elkhair Arif Mohamed Elkhair Elhag

DESIGN OF ACTIVE WINGLET FOR BETTER CONTROL OVER DRAG AND LIFT COEFFICIENTS OF COMMERCIAL AIRCRAFT

In the last two decades the introduction of winglet on airplane wing had effectively contributed in reducing the cost of air travel, in this project winglets are utilized to enhance the performance and efficiency of aircrafts. The technology aims to allow pilots to have control on the winglet orientation unlike current winglet technology on civil airplanes where the winglets are fixed in one position “Except Boing

777x”, this so called “Active winglet Technology” aims to take advantage of airflow characteristics above and below the wing to serve as winglet that reduce shaking due to vortices, winglets are completely lowered to wing level when taking-off to increase the lift force as a result of the increase in wing span, when the airplane is airborne the winglet return to original position to continue performing their existing tasks. The feature is not guaranteed to work specially when changing the orientation of the wing during flight, which is expected to cause unwanted vibrations. The CFD analysis should confirm if this proposed technology is feasible.

37
Angelyana Puyah anak Geruna

CHARACTERIZATION OF DEEP DRILLING WITH MINIMUM QUANTITY LUBRICATION

Effectiveness of lubrication plays and important role in machined parts quality. Although MQL is found to be environmental friendly and superior to flood cooling, its application is more restricted and depends on process. In case of deep drilling, the extent of lubrication and resulted cooling effect perhaps not same as in other machining such as milling and shallow drilling. In this project characteristics of deep drilling with MQL are to be investigated and empirical models are to be formulated.

38
Nur Qayyimah Binti Julkipli

OPTIMIZATION OF CARBON FOOTPRINT AND CLIMATE CHANGE: PERSPECTIVE OF BRUNEI DARUSSALAM

Urbanisation is a global trend due to a growth in population and economic activities. As more and more infrastructure and construction facilities are being built in cities, reducing the carbon emissions becomes a critical issue. Over the last decade, Brunei Darussalam has gone through high industrial development, technological advancement and more use of automotive vehicles which pose a threat to curb the carbon emission. Nonetheless, carbon emissions can also be reduced through careful selection of materials, minimisation of construction and demolition wastes, introduction of sustainable retrofit concepts, etc. and eventually combat climate change. In this project carbon footprint for a specific sector will be analysed and recommendation will be made to reduce carbon emission.

39
Ahmad Mu’az Mu’azzam Bin Hj Marsidi

RAINWATER HARVESTING AND ARTIFICIAL RECHARGE FOR AGRICULTURE WATER MANAGEMENT

In addition to strong economic foundation on petroleum oil, Brunei Darussalam is looking forward to diversify its economy in other sectors such as agriculture, tourism, local business, etc. However, agricultural productivity is challenged by increased water demand. As Brunei Darussalam is a tropical country receives annually 3000 mm of average rainfall, the fresh rainwater could augment the need for water demand in agriculture. A careful planning on collecting and storing this rainwater could be one of the possible solution. In this project, artificial underground aquifer

to avoid evaporation, filtration of sand and mud, pumping and distribution of water are to be designed based on onsite and lab based studies.

40
Khairunadiah Kiffle

DEVELOPMENT OF QUALITY FRAMEWORK FOR POULTRY FARM IN BRUNEI DARUSSALAM

There are many factors that affect the quality of poultry meat (flavour, colour, taste, nutrition...). Strain, diet, feed formulation, environmental conditions (litter, ventilation, lighting, etc.), vaccination, are the few of many factors that contributed to meat quality. Managing the total quality practice in the farm only can ensure the chicken quality. Individual and public health can be improved in the poultry pathway by implementing a complete management system in this research, one of chicken farms will be studied/analysed to provide quality management solutions.

41
Mohammad Amirul 'Afif Wafiy Bin Mohd. Amli

MINIMUM QUANTITY LUBRICATION FOR AN ECO-EFFICIENT TURNING

Turning is one of the most commonly used process to machine parts with desired size, shape, and surface finish where a significant amount of heat is generated at the tool-chip interface due to friction. The generated heat contributes to the tool wear and pose a negative effect on quality. The most common method of applying cutting fluids in turning process is by flood cooling which possess several harmful effects such as environmental pollution and high costs (about 20 of the manufacturing cost). Thus, it is vital to find a way to manufacture products using more sustainable techniques. MQL is an efficient and sustainable cooling method that is environmentally friendly and retains the positive benefits of conventional cooling. In this project a cost effective MQL system for turning operation is to be developed and applied to evaluate the effectiveness of MQL over flood cooling.

42
Siti Natrah @ Badriah Metassan

ANALYSIS OF PRESENT STATUS OF ENERGY INPUT IN RICE PRODUCTION IN BRUNEI DARUSSALAM

Agriculture is itself an energy conversion process, namely the conversion of solar energy through photosynthesis to food energy for humans and feed for animals. Equipment used in modern agricultural practices reduces labor, but consumes fuel and energy in the process. The first items that probably come to mind are diesel fuel being used in tractors, propane for grain drying, or the monthly electric bill. Modern agriculture requires an energy input at all stages of agricultural production such as direct use of energy in farm machinery, water management, irrigation, cultivation and harvesting. Post-harvest energy use includes energy for food processing, storage and in transport to markets. In addition, there are many indirect or sequestered energy inputs used in agriculture in the form of mineral fertilizers and chemical pesticides, insecticides and herbicides. In general, those regions with higher energy

consumption have higher agricultural yields. All this information will be analysis at the current rate of cropping intensity and future energy requirement in order to increase the cropping intensity from the present level of cropping intensity to 200 %.

43
Fatimah Sakinaw Binti Adanan

THERMAL PERFORMANCE STUDY OF A GAS BURNER-FAN COMBINATION DUCT SYSTEM TO BE USED FOR DRYING OF AGRICULTURAL PRODUCTS

The hot air produce by burning LPG (used for cooking purpose) can be forced through the duct systems to the bottom of a fixed bed agricultural dryer/dryers. The pressure in a gas cylinder is too high for most applications, at up to 2482 kPa. Gas regulators are connected to gas cylinder outlet valves to reduce the LPG-propane gas cylinder pressure to the much lower 2.75 kPa working pressure. This can be done by placing the gas burner at the center of the hallow duct system followed by a suitable fan to maintain the sufficient air flow at temperature around 500C, as most of the agricultural products drying air temperature. So, the objective of this research is to design, fabricate and to study the thermal performance of the duct system at different airflow rates and look for possibility of drying agricultural products.

44
Norali Izzul Bin Rozdy

EXPERIMENTAL DETERMINATION OF THE MANNING ROUGHNESS COEFFICIENT OF A LABORATORY OPEN CHANNEL BED

Hydraulic roughness is the measure of the amount of frictional resistance water experiences when passing over land and channel features. One roughness coefficient is Manning's n value. Manning's n is used extensively around the world to predict the degree of roughness in channels. Flow velocity is strongly dependent on the resistance to flow. An increase in this n value will cause a decrease in the velocity of water flowing across a surface. The investigation will be confined to laboratory channels streams for the purpose of computing the roughness coefficient by the Manning formula and compare with the Darcy-Weisbach friction factor which is more widely used in theoretical studies of hydraulic friction. The aim of this study is to investigate the variation of velocity with bed roughness in order to better understand the phenomena involved and to come to a more accurate determination of the different parameters influencing flow.

45
Mohammad Musa Bin Haji Ibrahim

FURTHER IMPROVEMENT OF POWER SOURCE OF SMALL ENGINE POWERED MANUALLY-CONTROLLED MOWER (GRASS CUTTING MACHINE) COMMONLY USED IN BRUNEI

Small engine powered but manually controlled small capacity mowers are commonly used in Brunei for grass cutting in parks, road sides, fallow lands and shady places. In previous study a small rechargeable battery powered motor was used as a power source to replace the small SI engine, but the problem was it could run only 30-

40 minutes. This time an alternative small rechargeable battery powered motor will be used as a power source so that it should run an hour at least by charging one time. Performance of the mower will be studied with both the power sources. Additionally, a survey will be taken to identify the mechanical problems face by the operators, accordingly improvement will be done on different sections (cutting, power transmitting, engine placement etc.), if necessary. Improvement may take for single section of the mower or different sections according to the survey findings. The whole research can be done in our lab. Emphasis will be given to replace the engine with rechargeable battery.

46
Mohammad Naqiuddin bin Haji Awang Rambli

DESIGN AND FABRICATION OF A WATERGATE FOR PADDY FIELD IRRIGATION

For watergate irrigation in paddy fields, a low cost, automated watergate system requiring low electricity power is needed. A potential concept is using a floating gate, where a container is filled with water for closing the gate, and water inside the container is sucked out for opening the gate. The fabricated watergate will be tested and integrated with Smart Alternate Wetting and Drying (SAWD) project currently ongoing in UTB.

47
Nor 'Adli Zhafri bin Hj Norshamli

DESIGN AND FABRICATION OF A MANUAL POWER GENERATOR DESK

A reliable, safe and low cost human-powered generator desk that is capable to generate electricity for charging any small electronic device. It should be able to generate up to 5 Volts 5 Amp DC and can be used by most people.

48
Vanessa Deba Anak Duwat

SOLAR DOMESTIC WATER HEATER - SOLAR THERMAL ENERGY UTILIZATION

Solar energy is a very large and inexhaustible source of energy. The power from the sun intercepted by the earth is many thousands of times larger than the present consumption rate on the earth of all commercial sources. Thus, solar energy could supply all the present and future energy needs of the world on a continuing basis. Out of different solar energy options, the solar thermal system may be taken into consideration for its simplicity and wide range of utilization and application. In this case the total global radiation is utilized for heating purpose. Like many other parts of the world, Brunei Darussalam is a sunny tropical country with a good level of solar insolation. This solar energy may be captured with the help of a flat plate liquid collector. A part of this absorbed heat is then transferred to a fluid like water passing through some tubes of suitable material and dimensions at low cost. It can be used for a variety of applications in which temperatures ranging from 50oC to 80oC are required. The main two components of the system are the liquid flat-plate collector and the storage tank. As water in the collector is heated by solar energy, it flows automatically to the top of the tank and its place is taken by colder water from the

bottom of the tank. The water is stored in the tank and may be used for domestic purposes in a typical Brunei family. The system is to be designed, fabricated and necessary performance study are to be carried out. In doing so the priority of using locally available materials and methods at low cost should be given. A cost estimation is also expected to be carried out.

49
Ronald Mook Wu Chong

DEVELOPMENT OF HYDROPHOBIC COATINGS FOR PLANT BASED STRUCTURE

Wood and bamboo are among plant based materials used for structural applications. These natural materials require surface treatment to improve their properties. For marine applications and preservation purposes, hydrophobicity of the structural material is needed. This project intends to explore the use of natural coating agents to induce hydrophobicity on bamboo surface. At least two types of natural coating agents will be tried, one of them being tung (Vernicia fordii) oil. Hydrophobicity will be measured using contact angle test. The student should also fabricate a contact angle testing device during this project.

50
Muhammad Hariz Bin Hj Ahat

DEVELOPMENT OF PLANT BASED WATER/OIL SEPARATOR

Oil/water separation is needed in processing plants, sewerage system, and oil spill cleaning, among others. Often, the oil/water separation process uses expensive or artificial materials which causes secondary pollution. For this oil/water separation purpose, oleophobicity of a material can be exploited. Wood and bamboo, which are plant based and are hydrophilic, will be exploited as the base material for this oil/water separator. It is expected that the wood will absorb the water, leaving none or very limited adhesion to oil. This means, water will pass through the separator, while oil will not. This study will use hardwood, softwood, and/or bamboo as the base material. When separation can indeed be achieved, the efficiency of the materials in performing the separation will be compared.

51
Aidan Koh Yong Meng

DEVELOPMENT OF PLANT BASED BIODEGRADABLE PACKAGING MATERIAL

Starch can be made as building block for environmentally friendly packaging material, potential to replace hydrocarbon based plastics. This project will use plant based starch to produce biodegradable/compostable/edible packaging. Thermal and mechanical processes will be applied for the fabrication. The developed material will be tested in terms of mechanical properties and biodegradability/compostability/toxicity.

52
Siti Aysha Binti Mahdan

EFFECT OF SURFACE ROUGHNESS ON CORROSION OF STAINLESS STEEL

Fabrication processes result in different surface roughness on the workpiece materials. Surface roughness might affect corrosion behaviour of metals. This project will evaluate the effect of surface roughness on corrosion behaviour of stainless steel. Multiple surface roughness on stainless steel will be produced using machining processes (e.g., turning/milling, grinding, and polishing) and their corrosion behaviour will be examined using x-ray fluorescence spectroscope and potentiostat.

53
Kua Chun Hau

DESIGN AND FABRICATION OF CO2 CONTROLLING CHAMBER

The level of CO2 in the atmosphere is hypothesised to affect the quality of vegetables subjected to prolonged exposure to it. This project will design and fabricate a customised chamber capable of containing the vegetable plants and regulating the amount of CO2 inside it, noting that it has external CO2 gas source. The student should identify all design requirements, generate the design, and fabricate according to the design. The functionality of the chamber will be tested, including using CO2 detector. The fabricated chamber will be tested and integrated with project on the effect of carbon dioxide (CO2) level on nutritional quality of vegetables currently ongoing in UTB.

Civil Engineering

1a
Lim Ren Chin

BOUNDARY CONDITIONS OF BRUNEI RIVER COMPARED USING DELFT3D MODEL

Mangroves have a high level of resistance to the flow of water in rivers, influencing water levels and currents. As a result, it is important to consider the flow resistance factor in hydrodynamic models of water bodies associated with the mangrove vegetation. The Delft3D software is used in this research, the details of the software and the approach used to conduct the research are explained. This study describes a few hydrodynamic scenario simulations of the Brunei River. The study includes a detailed step-by-step guide on how to insert various boundary conditions and manning's values in simulation modeling of the scenarios. Two main topics are investigated by performing simulation modeling in this study: 1) a model comparison based on different boundary conditions, and 2) a model comparison based on different Manning's values. In both cases, there was a significant difference measured in water level. The effect of different values of flow resistance on water level while holding the boundary conditions constant demonstrates a direct relationship between them. Using the findings of this study, the water level at the observation point can be determined. Following that, the results address the severity of the water level in each case.

1b
Syahmi Bin Shamri

BATHYMETRY CALIBRATION OF THAMES ESTUARY

The data that is used in this study is based on the Thames estuary, UK. The aim is to successfully calibrated the bathymetry of the Thames river using HEC-RAS software, a simple 2D hydrodynamic model. Due to its versatility, this will allow more works to be done on Thames Estuary using HEC-RAS with the calibrated manning's n which is quite useful for decision makers. This study includes the factors that affects the performance and the results which also includes the understanding of the software to understand the results behaviour and the behaviour of the resultant tidal depth with different manning's and resolutions. The results will be validated to make sure the manning's n is calibrated.

3
Amir Fauzi Bin Haji Durahman

AN INVESTIGATION INTO THE INFLUENCE OF FINE CONTENT AND DUST RATIO OF AGGREGATE DISTRIBUTION ON THE MECHANICAL PROPERTIES OF BASE STABILIZED PAVEMENT – DRY CURING CONDITION

Base layer is one of the most important components within a pavement design. And within it contains several properties that which if the factors affecting it are not carefully monitored, will have an effect on the performance of the pavement. Those characteristics may include strength, stiffness, durability; resistance to fatigue cracking, and permanent deformation. And within those characteristics, lies many factors contributing to them. Base layers are typically made of unbound aggregates. Along the basis of the its character, base layer components are nowadays modified in order to produce a longer lasting and stronger material. Those altercation may include altering its aggregate gradation, or stabilize the unbound aggregates with cement or polymer. This project investigates the effect of altering the aggregate gradation of a polymer stabilized pavement. The aggregate gradation used as the control group is of Brunei's Flexible Pavement upper limit specification, with a 0.75% polymer content. The maximum dry density, optimum moisture content, and unconfined compressive strength (UCS) trends will be the main study of this project. Those trends will be seen by varying the sand fines and clay content, which are governed by a dust ratio of 0.6 and 1.0, from the control group. UCS trends from 3 curing periods, 3, 7, and 28 days, are also studied in this project. Based on the results, UCS trend; while it does not necessarily show any particular gains, shows a consistent trend among the 3 curing periods. From there, the correlation between the maximum dry density trend and the UCS trend are further derived and analyzed.

4
Rakinah Haji Ibrahim

AN INVESTIGATION INTO THE INFLUENCE OF FINE CONTENT AND DUST RATIO OF AGGREGATE DISTRIBUTION ON THE MECHANICAL PROPERTIES OF BASE STABILIZED PAVEMENT – WET CURING CONDITION

This project uses different dust ratio and fines content to determine the effect on mechanical properties. the dust ratio used in 0.6 and 1.0 and fines content are 8%, 12%, 15% and 18% respectively. The sample undergo compaction before they went through wet curing condition in water tank. The results show that the highest strength developed for sample with 0.6 dust ratio and 8% fines content. As the number of curing period increases, the strength developed alo increases. This trend also happened in the same samples undergone dry curing condition.

6a
Ruhaezeat Bin Haji Sambas

IMPLEMENTATION OF MOVING-AIR CAVITY FOR DOUBLE PITCHED ROOF AS A PASSIVE COOLING TECHNOLOGY

Air-conditioner plays an important role in reducing thermal discomfort of the building occupants. Nevertheless, prolonged used of this system results in higher electricity consumption and therefore, active and passive cooling technologies are introduced to reduce the dependency on air-conditioner while achieving the desired building comfort. The purpose of this project is to identify the most efficient passive cool roof system that can reduce the attic temperature and simultaneously to achieve

the desired building comfort. Due to this, several experiments were carried out by using a model which was equipped with different passive cooling technologies and halogen spotlight was used to imitate the heat from the Sun. Few assumptions were made before conducting the experiments due to limitations detected during the equipment testing. A total of four roof configurations were used in this project which are normal roof that acted as a control and three passive cool roof systems such solar reflective coating and combinations of solar reflective coating to both aluminium MAC and plastic MAC. The temperature of the attic and the enclosed region for these passive cool roof systems were measured using LM35 sensor to investigate rate of heat transfer from the roof surface into the attic region and further heat transfer from the attic into the enclosed region. Comparisons were made from these values and among all roof configurations, the normal roof which incorporated both SRC and aluminium MAC showed a greater reduction in attic temperature by 2.45^{o}C compared to other roof models. As a result, this low-cost and eco-friendly design helps to reduce the thermal discomfort of the building occupant without affecting the environment.

6b
Dk Nurul Fasihah Binti Pg Haji Damit

DESIGN OF SUSTAINABLE COOL ROOF SYSTEM

Cool roof design is a roofing system that has a special ability to reduce heat transmission and cooling demand A study on double-skin cool roof design that has a thermal reflective coating and cavity ventilation system shows a huge reduction in attic temperature. It is believed that attic temperature can be reduced even further by reducing the angle of the roof pitch. This idea is based on Charles's law where he stated that temperature of a gas is directly proportional to the volume of a container. However, an experimental study has not been performed yet to support this statement. Therefore, this study proposed a research to investigate the effect of roof pitch on the temperature of the attic using a double-skin cool roof design. A controlled experiment was also conducted to create a baseline for this research. Based on the results, the temperature difference between the highest and lowest roof pitch for the control and cool roof design were 4.39 Celsius and 2.45 Celsius accordingly. The reduction of 1.94 Celsius in the attic temperature from 4.39 Celsius to 2.45 Celsius proves that double-skin roof design has significantly improved the attic air temperature on the roof pitch design.

11a
Nursalamah Binti Haji Awang Abas

TREATMENT OF WASTEWATER FROM POULTRY FARM USING CONSTRUCTED WETLAND

This project is to discuss and evaluate the performance of Horizontal Subsurface Flow (HSSF) system located at UTB. Each set of HSSF cell will be planted with different type of plants; local plant which is Pandanus amaryllifolius (Pandan) and Nypa Fruticans (Nipah), and one common plant; Bulrush. There are total of 6 cell that are being used in these experiments, including the cell with no vegetation (act as control), 2 cells are

without biofilter while the other 4 cells contain biofilter. The substrate used for all the cell is coarse sand. The concentration of total solid, total suspended solid, total volatile suspended solid, ammonia, phosphorus and nitrate were analysed in both inlet and outlet to determine the pollutant removal performance of the HSSF under different types of plant as well as the effect of using biofilter in terms of filtration performance. After several sampling and laboratory tests, the removal efficiency of the HSSF for total solid ranged from 0% to 99.6%, total suspended solid ranged from 0% to 98.4%, total volatile suspended solid ranged from 0% to 8.08%, ammonia ranged from 25% to 90%, phosphorus ranged from 50% to 100% and nitrate is 0%. Based from the results obtained, it is found that constructed wetland cell that are planted with Pandan and Bulrush has a greater removal efficiency compare to cells planted with the local plant, Nipah. Also, the cells that uses biofilter have better pollutant removal performance compare to cells without biofilter.

11b
Mohammad Faizul Wafiy Bin Mohamad

TREATMENT OF WASTEWATER FROM POULTRY FARM USING CONSTRUCTED WETLAND

Constructed wetlands (CWs) is an alternative wastewater treatment method that is cheap to construct and less technical manpower in operating and maintenance. Therefore, this paper aims to investigate the removal efficiencies from the outlet by selecting various species of plant and the suitable substrates.

13
Nur Syaidahtul Ehsan Binti Lamat

IMPACT OF ALTERNATE ROAD LIGHTING ON ROAD SAFETY: AN EVALUATION USING GIS

This project narrows down the possible causes of alternate road lighting impact on road traffic accidents by investigating the compliance of the road lighting along the road sections that have been implemented with the alternate road lighting. The road lighting intensity is to be compared with the available standards to check for any road section that has lighting intensity that is lower than what is recommended. Hence, the lighting along a section of the road with implemented alternate lighting is to be measured. Afterwards, the data is to be computed into the ArcGIS software and plotted onto a map to show the road section with the results and subsequently show the road section with or without compliance. To know whether the road is in compliance or not, an existing standard needs to be used as a comparison. The result of a non-compliance may correspond to higher impact of the alternate road lighting. A Road Illumination Measurement System is used for the measurement of road illumination, where the results are computed into ArcGIS onto the selected road section. Later on, different standards are compared and the most suitable one is chosen as the main standards to be referred to in this project.

16
Abdul Mujib Haji Alauddin

A REVIEW OF PEDESTRIAN CROSSING IMPLEMENTATION IN BRUNEI DARUSSALAM

The study questions the safety performance of pedestrian crossings in Brunei. This report uses a methodology that assigns the value of the level of safety using the existing treatments on the pedestrian crossing facilities. By conducting a speed survey of sites existing in Brunei. This report has found that combinations of traffic calming measures and safe pedestrian crossing design leads to better level of safety.

17a
Syasya Nur Qashrina Binti Yahya

RELATIONSHIP OF LENGTH OF BURNING AND INFILTRATION WITH CONSTANT WEIGHT FUEL

Wildfires are usually triggered by both natural causes and human activities. In recent years, the occurrence of wildfire become more frequent due to the increase in temperature especially during the dry season as the side effect of climate change. Due to less amount of precipitation and low frequency of rain, fuel composed of dry vegetation will increase in flammability and may spread the fire into larger area. Fire can shift the characteristics of soil which affects the infiltration activity. This report evaluated the effects of burning on constant weight fuel by: (i) comparing water repellency from three burned plots of different length and unburned soil; and (ii) using double ring infiltrometer device to compare infiltration test from soils with varying ash cover. Cogon grass (Imperata Cylindrica) was selected as fuel due to it being abundant which can be obtained easily within the University. Cogon grass fuel was arranged in a steel drum filled with sandy soil. As a result from the burning, the amount of ash produced for 3 hours burning is lower than 1 hour burning. The average infiltration rates for the burned plots are (i) 0.029 cm/min for 1 hour burning; (ii) 0.097 for 2 hours burning; and (iii) 0.089 cm/min for 3 hours burning. The combined analysis of strength of soil water repellency, infiltration, and ash characteristics following fire demonstrate decrease in total infiltration results primarily from thickness of ash rather than fire-altered soil characteristics.

17b
Haji Md Ariez Dzulkhairi Bin Haji Mat Yassin

RELATIONSHIP OF LENGTH OF BURNING AND INFILTRATION WITH CONSTANT WEIGHT FUEL

The following parameters are to be determined: the fuel by-product distribution, soil water repellency and influence of ash on infiltration rate. Sandy soil from University Technology Brunei (UTB) was collected and used in this study to compare the infiltration rates of bare soil with ash covered burned soil. Two types of forest fuels were used in the burning process which was Meranti and Kapur wood. The fuels were burnt on a controlled plot to examine the effect of weight of fuel on the length of burning and the infiltration rate of the soil. Most studies and

research on this topic have been done in Mediterranean climates and environments, and very few in tropical-equatorial climates, so this study was conducted in Brunei Darussalam's environment. The forest fuels were burned in durations of 1,2, and 3 hours to produce varying ash thickness. In terms of water repellency, there is no significant change as all the burning duration produced similar results which shows that fire and ash does not mainly cause water repellency in soil. There has been an ongoing debate that ash seals the surface pores and creates surface sealing that in turn reduces infiltration rate but other studies and authors stating that ash can store and absorb water. The results from this study have shown that ash and in particular wood ash, has the capabilities to produce both effects to make infiltration impede and facilitate.

20
Dk Nuraini Bte Pg Hj Noralisham

A COMPARISON STUDY OF THE PROPERTIES OF LOCALLY PRODUCED 52.5 PORTLAND CEMENT IN BRUNEI DARUSSALAM

This project is to determine the effects of using 52.5 PCC in construction work and comparing this cement with others such as OPC and OPC with 15% fly ash substitution. The experimental methods that have been used were prism mortar method and normal concrete compressive test. A water-cement ratio of 0.75 has been utilized as consideration for using non-standard in prism mortar method. This ratio is kept constant throughout the entirety of the project alongside in normal concrete compression test. Compressive strength results are taken at age of 2, 7, 28, and 56 days. Based on this, the strength of 52.5 PCC has found to be able to exceed the strength of OPC at later age strength of 56 days. Hence, using this cement in construction is taken as an improvement of OPC and further able to withstand higher compression strength.

21
Syaza Nur Ain Binti Haji Sulaiman

FEASIBILITY OF BRICK FACTORY WASTE PRODUCT AS PARTIAL CEMENT REPLACEMENT IN CONCRETE IN BRUNEI DARUSSALAM

The rising concentration of carbon dioxide in the air has become a concern which requires action to be taken. One of the contributors of the rising is the production of cement. One of the initiatives to reduce the production of cement is to reduce the use of cement in concrete. Reducing the amount of cement in concrete will reduce the strength of the concrete hence, in order to compensate, partial cement replacement is used. An experiment was conducted to determine the feasibility of brick dust to act as a partial cement replacement. The cement were partially replaced with 10% and 15% of brick dust. The sizes of brick dust used were 300 µm, 150 µm, 75 µm and 63 µm for each percentage. Mortar prism samples of size 40 x 40 x 160 mm were produced using the cement incorporated with brick dust. The samples conformed with EN 196-1:1994. A total of 105 mortar prism samples were produced. The curing ages of these samples are 2, 7, 28 and 56 days. Compressive strength was performed on these samples. The result shows that brick dust of size 75 µm gives the

highest compressive strength than the other sizes for both percentages with 10% replacement being the highest compared to 15% replacement. The brick dust size which gives the optimum compressive strength of the mortar was used for concrete work. 36 concrete samples of size 100 x 100 x 100 mm were produced. The same curing ages and test as performed on the mortar prism samples were used on the concrete samples. Both mortar prism samples and concrete samples showed that the compressive strength increases as the curing ages increases. The compressive strength of mortar prism samples increases with brick dust of size 300 µm to 75 µm but started to decrease when the size of the brick dust is 63 µm. This may be due to the large surface area of the brick dust which absorbs more water from the mix hence reducing the amount of water used to react with cement.

22
Nurul Fatin Nadhirah Binti Md Noor Zainuddin

RECYCLED MATERIALS IN CONCRETE

This report is done to investigate the suitability and feasibility of replacing cement by waste paper sludge ash with the aid of addition of Calcium Oxide. The percentage of cement that was being replaced was from 10% up to 30% replacements at 10% increments. The percentage addition of Calcium Oxide was at 1%, 2% and 3%. The curing period for the concrete cubes were up to 28 days of curing. The tests that were done includes the workability of the concrete mix, the compressive strength of the concrete cubes at 3, 7, and 28 days of curing, and the percentage of water absorption of the concrete cubes after 28 days of curing. After obtaining the results, the discussion regarding the findings are also included in this report. From the analysis and observation of the information gathered, it was determined that the optimum cement replacement is at 10% and the corresponding optimum percentage of addition of Calcium Oxide is at 3%.

25a
Nur Syifaa' Hidayah Binti Sa'ad

COMPARISON OF THE STRUCTURAL PERFORMANCE OF A BUILDING RETROFITTED WITH TRADITIONAL METHODS VERSUS ONE RETROFITTED WITH FRP

The main purpose of this project is to study the behaviour of reinforced concrete with an application of FRP laminates and traditional retrofitting method used to retrofit deformity in structures. Reinforced concrete structures especially in Brunei are susceptible to cracks and corrosions due to hot and humid weather condition that will helps to speed up the reinforced concrete structure deterioration process where long term exposure to high temperature throughout the life span of the building will contribute to the changes in the concrete properties. Building retrofitting helps to minimize the dependency of constructing a new structure that will result in contributing a positive impact to the environment whereby it helps to lowering the carbon emission from the related field thus leads to a more energy efficient environment. In addition, retrofitted building is proven to be effective in achieving the initial performance, strength, and ductility of the structure. Comparison of traditionally retrofitted building and building retrofitted by

using CFRP laminates has been conducted in this research by comparing the maximum deflection for each retrofitting method. In addition, load-displacement graph has been developed proving the performance and behaviour of FRP laminates on reinforced concrete beam with traditionally retrofitted building. Further elaborated in this report is the typical type for both Traditional and modern retrofitting method together with the finite element analysis software used to illustrate the structural model.

25b
Nur Amalina Hafizah Haji Md Hassan

COMPARISON OF THE STRUCTURAL PERFORMANCE OF A BUILDING RETROFITTED WITH TRADITIONAL METHODS VERSUS ONE RETROFITTED WITH FRP

A reinforced concrete (RC) building must fulfill performance requirements to ensure that it is safe to be used such that the load capacity of the building must be greater than the applied load. Over time, applied load can outreach the capacity of an RC building. Some of the many contributing factors include increased in applied load due to a change in the purpose of building and damaged structural elements thus reduced building capacity. Firstly, the building must be evaluated to decide if it requires retrofitting. A thorough study must be done to select the most viable retrofitting method in accordance with the building type, environmental condition, degree of performance to be enhanced, and so on. Fibre reinforced polymer (FRP) retrofitting is becoming increasingly popular as an alternative to the traditional method. Finite element analysis (FEA) methods can be used to predict the behavior of retrofitted RC structures. This analysis can be performed on many FEA programs, such as ANSYS. This project will use ANSYS to assess the behavior of a traditionally retrofitted and an FRP-retrofitted building. The results will determine if the FRP-retrofitting method can be more effective than the traditional methods in terms of their structural performances.

26a
Ak Mohamad Mizan Bin Pengiran Damit

PERFORMANCE OF GREEN ROOFS WITH RESPECT TO WATER QUALITY

The research of green roof has been carried out all over the world. Green roofs are known for their ability to retain water and reduce runoff volume depending on the type of green roof used, and they are classified into two types: intense green roof and extensive green roof. Due to its lighter weight structure, extensive green roofs are used in more buildings than intensive green roofs. This research investigates the performance of green roof with three different type of substrate which is topsoil, mix of 60% topsoil and 40% biochar and mix of 60% topsoil and 40% coco peat in terms of saturated bulk density and efficiency of water retention. The substrate has a thickness of 35mm and was supported by timber green roof prototype with 9 o'clock flower as vegetation. The result obtain from the experiment of saturated bulk density are 0.822 kg/L (Topsoil), 0.68 kg/L (topsoil and biochar) and 0,737 kg/L (topsoil and biochar) and the experiment of efficiency of water retention are 32.1% (topsoil), 46.6% (topsoil and biochar) and 49.0% (topsoil and coco peat) within a period of 20 minute.

26b Michael Lai Hing Fatt Performance of green roofs with rice husk biochar
The purpose of this study is to determine the effectiveness of the green roof with the added soil amendment, rice husk biochar. From this research paper, the water retention capacity and the presence of nitrate concentration is to be determine with Portulaca Grandiflora Cultivars (sedum) in order to evaluate the water quality and quantity performance. The results shows that the green roof with topsoil as the substrate has water retention capacity of 32.12% while the biochar mix of 40% has higher water retention capacity of 46.62%. Meanwhile the concentrations of the nitrates is found to be lesser in the biochar mix at 0.0425 mg/L while the topsoil green roof at 0.1 mg/L.

27
Suaibou Adamu

POLLUTANTS REMOVAL FROM SANITARY LANDFILL LEACHATE THROUGH CHEMICAL OXIDATION

Municipal landfill leachates are typically highly polluted and often need treatment prior to discharging them into water bodies. For activities in urban landfills, the option of effective leachate treatment equipment remains a major issue. Leachate being one of the causes of ground and surface water pollution may cause serious problems on our waters if measures are not taking to treat and disposed them properly. In this study several treatment methods are studied and summarized in the literature review each of which is described in terms of strength and weaknesses along with their key control parameter and some main problems from a technical perspective are also discussed. Chemical oxidation is proposed to be appropriate for the treatments of this leachates but also gave credits to other treatments processes .

Landfilling of solid waste is the disposal route used in all Brunei cities. However, from an ecological point of view it is far from being sustainable, the waste disposed is very wet and generates large amounts of highly polluted leachate. It may cause significant impacts to the natural and human environment. This research presents the study of partially treated leachate collected from Sungai Paku landfill in Tutong district Brunei Darussalam and treated by chemical Oxidation using persulfate, hydrogen peroxide and a combined persulfate/Hydrogen peroxide to determine the removal efficiency of Chemical Oxygen Demand (COD) in order to meet the discharge standards. In case 1 the experiment was carried out using persulfate alone ,the results show that the pH ,reaction time and dosage influence the removal efficiency of this parameter. Thus, with a pH = 5.0 , reaction time of 45 minutes, and a persulfate dosage of 3M the removal efficiency reaches 80.6% of the COD. In second case the experiment was carried out using hydrogen peroxide as an oxidizing agent . The results obtained shows that with a pH = 8.0 , reaction time of 45 min, and a hydrogen peroxide dosage of 5M the removal efficiency reaches 80.4% of the COD and case 3 experiment was carried out with the combination of both persulfate and hydrogen peroxide at optimum conditions of pH = .0 , reactions time of 45 minutes and a dosage of 4M persulfate and 4M hydrogen peroxide , the results yield a removal efficiency of 83.5% of the COD .

In Conclusion ,based on the amount dosages used and the economical point of

view , hydrogen peroxide is considered more preferred and efficient for removing Chemical oxygen demand from sanitary landfill leachate using chemical oxidation.

29a
Nur Izzah Haziqah Binti Abd. Latiff

ROAD SAFETY AUDIT ENHANCEMENT FOR RTA HOTSPOT VALIDATION

Road Safety Audit (RSA) is a systematic process of examining the safety performance of locations along roads. RSA is commonly practiced in many countries to identify road safety hazards and provide remedial measures for the hazards identified. Because of the resources constraint to carry out remedial measures, there is a need to prioritize and rank locations audited according to the risk level by quantifying the RSA findings for each location so that the limited resource can be allocated effectively. Therefore, it is vital to examine and analyse existing RSA quantification methods in order to determine the reliability of the quantification methods. Thus, this paper focuses on that aspect of RSA which is looking into the credibility of RSA quantification methods. It was discovered that the methods studied for this paper all have elements of subjectivity in the methods. To put it in another way, the existing methods analysed for this project rely on experts' opinions or judgement in order to determine the numerical risk value of RSA findings. Due to that, this project introduced an improvisation to an existing method by substituting the expected risk rating based on judgements with actual risk rating from historical data. An arterial road, Jalan Jerudong was used as a case study for this project for the improvised method. Some changes to the method were also made in consideration for the way RSA is conducted in Brunei.

29b
Nurul Hakimah Binti Haji Hamzah

ROAD SAFETY AUDIT ENHANCEMENT FOR RTA HOTSPOT VALIDATION

Road Traffic Accidents (RTA) result in approximately 1.35 million of people's deaths, which causes economic losses to victims, their families and to the nation as a whole. Road Safety Audit (RSA) has been one of the many helping tools involved in improving the road to be safer, with highly efficient and cost-effective engineering tools. The aims of RSA are to determine any issues or factors that can raise safety hazards to the road users, and to suggest or proposed mitigations to the identified safety hazards. However, as RSA are usually qualitative analysis, it does not give value on the safety hazards identified. There are not many research or studies that conduct quantitative analysis on RSA findings. Hence, this study shall contribute to the expansion of studies on quantifying the RSA findings.

The objective of this study is to quantify the findings from RSA. The quantification should be objective, and it should be able to validate the result of RTA hotspot. The existing quantification methods such as International Road Assessment Programme (iRAP), Analytical Hierarchy Process (AHP) and RSA Risk Rating (RSAR) tool has been reviewed, however these existing methods involved subjectivity, and some are just very complicated to execute without the proper

software. Hence, this study came with a new method – an improvisation from the RSAR tool developed by J. Jones. The new method involves using historical accident data and RTA hotspot data to eliminate most of the subjectivity.

The result by using the new method is able to quantify the RSA findings. The results also show that RTA hotspot risk level does not define the risk of location of interest, as most hotspot are joint together due to overlapping hotspot to become one long hotspot and the results of RTA hotspot risk level are collective due to that.

In conclusion, the new method is able to quantify the RSA findings. However, along the process of quantifying the findings, it is still susceptible to subjectivity, especially on giving the qualitative risk rating to the safety hazards identified. This means that the new method still does not eliminate subjectivity 100%. Recommendations are given for future research on this new method.

30a
Ganny Sim Zhi Hao

THE EFFECT OF UTILIZING WASTE MATERIALS IN CONCRETE

This project was carried out to study the effect of using Eco Process Pozzolan (EPP) together with Pulverized Fuel Ash (PFA) to partially replace Ordinary Portland Cement (OPC) and the workability, compressive strength development and rate of water absorption were analyzed. In terms of compressive strength, the ages of 2, 7, 28 and 56 days were assessed, whereas for water absorption rate, only cubes at 28-day old were tested. Concrete of M30 grade with w/c ratio of 0.4 was designed. EPP is obtained via the process of calcination of Spent Bleaching Earth (SBE) which is a byproduct of edible oil production, whereas Pulverized Fuel Ash (PFA) is the byproduct obtainable from the combustion of coal. The study involved fixing the amount of replaceable cement to be 20%, by the two supplementary cementitious materials (EPP and PFA). The replacement by either of the materials is done at 5% intervals, with the remaining portion filled in by the other material. The results obtained from the workability test, development of compressive strength and rate of water absorption were then compared among the other mixes with different combinations of EPP + PFA. It is concluded that with the inclusion of both the EPP and PFA, the workability is reduced and therefore with the aid of admixture MasterGlenium ACE8538 the workability is enhanced. It also shows that with the use of admixture, the early and later age strength is greatly improved. The mix combination of (15%PFA + 5%EPP + admixture) gives the highest later age strength among all the mixes.

30b
Kong Kah Nien

THE EFFECT OF UTILIZING WASTE MATERIALS IN CONCRETE

The project aims to study the feasibility of concurrently utilise EPP and QD as respective partial replacements for OPC and natural fine aggregate. EPP is a waste material derived from SBE and QD is a waste obtained from quarry sites, which can be used to replace the depriving natural sand in the construction

industry. The amount of EPP replacing the OPC is set to be 20% as it is considered to be the optimum amount of cement replacement based on past researches. For FA, it was partially replaced on the basis of 10% intervals. The possibility of full replacement of FA by QD was also studied. SP was added to the mixes with QD as it is expected that the workability will be greatly reduced due to both EPP and QD. The aspects of concrete such as its compressive strength, workability, water absorption and cost were studied and compared. This will evaluate the suitability of using the concrete with such combinations in the construction industry. In this research, the workability of M30 concrete of w/c ratio 0.4 was evaluated via the slump test, compressive strength was evaluated for the ages of 2, 7, 28 and 56 days. For water absorption test, it was intended for the mixes at the curing age of 28 days. It concluded with the fact that EPP adversely affects the properties in concrete such as workability, compressive strength and water absorption, even though it reduces the price of cementitious material, due to its lower price than OPC. The inclusion of SP, however, alleviates the negative effects due to EPP, by improving the concrete's strength, workability and water absorption, although it will raise the price of overall concreting. Further concurrent replacement of FA by QD improves the strength and water absorption, but not the workability. Concreting price is just slightly higher in the optimum mix, i.e. 10% QD than in the control. There is a limitation of amount of replacing QD, where it is not recommended to go beyond the replacement of 20%, considering the aspect of compressive strength.

31
Muhammad Nabil Faiz Bin Mohd Naim

EVALUATION OF OIL-CONTAMINATED SAND

Brunei is one of many countries that highly relies on oil production. A lot goes through in the process of oil production, and during these processes, oil contamination could likely occur if it is not properly supervised. A lot of decontamination efforts have been done when oil contamination occurs which most of them are proven to be quite costly. Therefore, this study aims to investigate if contaminated sand could be used for geotechnical properties instead of being decontaminate. Varying percentages of diesel contamination was used, and the setting time of the contaminated sand was also investigated if it has any effect. Triaxial test was done for each samples that are at its maximum dry density to determine the maximum load they are able to carry. The result shows 1.0% diesel contamination is the optimum contamination in this study. The result also shows that the higher the setting time, the more the maximum load the contaminated sand is able to carry.

Electrical and Electronic Engineering

1
Abdul Qawiy Bin Abd Razak

SMART FARMING FOR A LIVING PHARMACY, EXPLORING BRUNEI'S MEDICINAL FLORA

Medicinal plants can be defined as plants that contain therapeutic properties or have some beneficial pharmacology effects on the human body. Before technology advancement, medicinal plants play a major role to help treat and cure people around the world. Brunei flora is quite wealthy with various plants that have medicinal benefits, such as the rombusa vines (Passiflorafoetida), bawang Dayak (Eleutherinebulbosa), serai wangi (CymbopogonnardusL), misai kucing (Orthosiphonaristatus), Halia Bara (Zingiberofficinale), to mention a few. These medicinal plants are more renowned today due to the people having more knowledge and more research conducted regarding the plants. In relation to this, the two main objectives of this FYP are to learn the best practice of the farming side for a living pharmacy and to design a smart farming system that is suitable to grow these local medicinal plants specifically to cater not only for the farmers, but to the people who are also interested in growing their own medicinal plants that are suitable in a weather like Brunei Darussalam. Based on other researched papers, the urban farming with sprinkler irrigation system was chosen as it still uses the traditional way of using soil to help and provide the required nutrients as well as structure can be easily applied anywhere due to its smaller size. The plants of White Turmeric, Black Turmeric, Stevia, Red Betel and Javanese Ginger were selected for this research for the two systems. These two systems were separated with two different organic compound of Soya for System A and Coffee for System B. From this, the results has found out that the organic compound found in soya indicated with some promising result for all of the five plants in comparison with the organic compound of coffee where only the plants of Black Turmeric and Red Betel showed some positive results while the other three struggled to grow and provided with a negative outcome. To conclude this FYP, the electronic sensors were successfully executed by providing enough power from the solar panel to charge the battery with the help of the solar charge controller. The Wi-Fi application allows the user to be able to monitor the data from the plants.

2
Mohamad Hamizan @ Sufri Bin Suhaili

DESIGN AND IMPLEMENTATION OF SMART HYDROPONIC SYSTEM FOR A LIVING PHARMACY

Hydroponics has been existed and practiced by many civilizations in ancient times for thousands of years which uses water mixed with nutrients solution for the method of growing plants without the use of soil. The unpredictability of environmental changes could influence the bioactive substances in plants. In account to this, the

main objective of the project is to build an automated hydroponic system based on Deep Flow Technique (DFT) with the adoption of local materials and resources which can sustain the growth of vegetable and medicinal plants. This system basically controls the flow of nutrients to the hydroponic plants using microcontroller, which saves up time when doing maintenance. The hydroponic system with the integration of various sensors was assembled for the growers to continuously monitor so it can be applied practically anywhere to save space as the land is quite limited nowadays. With the presence of Internet-of-Things, data can be gathered for comparison of two different nutrients, organic and chemical. It will also allow the growers to work more than one hydroponic system and cultivate simultaneously. Therefore, cultivating plants in a more controlled environment could improves the concentration of bioactive substances.

3
Chang Toon Tiam

BUILD YOUR OWN SMART VACUUM CLEANER ROBOT

This project involves the design and manufacturing of a smart robot vacuum cleaner capable of autonomous room cleaning as well as include a charging station. Many literature including journal articles and product documentation from various websites were reviewed to explore the state of art of existing smart robot vacuum cleaners made by researchers as well as by appliance manufacturers. Using the information extracted from the literature review, a prototype design was constructed using SolidWorks 2016 and some components were selected for the prototype model. The chassis and hardware designs were manufactured using the Ender 3 V2 3D printer for precise and clean finish. The navigation algorithm and vacuum function was tested and the performance was not as expected.

4
Mohammad Afiq Bin Haji Hassan

COVID-19 DETECTION USING DEEP LEARNING WITH CHEST X-RAY IMAGES

Due to the COVID-19, many patients are affected by the virus and various symptoms experienced by the patients. For severe patients, the virus is already entered the respiratory system of the patient which then leads to the lungs area. COVID-19 diagnosis can be done using medical imaging such as CT-scan, X-ray and MRI images. However, it is difficult to determine if the pattern or characteristic is from COVID-19 symptoms. In this study, a detection system for COVID-19 is introduced using deep learning technique with chest X-ray (CXR) images. The system classifies based on the X-ray image, whether a patient is COVID-19 positive or negative. For the training model, the datasets of CXR for COVID-19 and normal are taken from online such as GitHub and Kaggle where previous studies used it too to build the COVID-19 detection system. Since the system uses deep learning and image classification, convolutional neural network (CNN) is implemented using VGG-16 layers where it was proved that it can produce higher accuracy compared to other architectures based on the previous studies such as AlexNet, Inception etc. After the training model completed, the performance is evaluated using techniques such as confusion matric, performance

metrics and analyzed in terms of its accuracy and losses. If the accuracy was already closer to 100% (from previous studies), the system is reliable which can be implemented in real life where it can assist the radiologist or doctors on diagnosing the patient CXR. The study had done many approaches on building the most accurate and reliable model. The result showed that the pretrained and from scratch model able to get better performance and higher accuracy based on the training accuracy and confusion matrix. However, the study decided to choose the VGG16 model from scratch with preprocess function for datasets as the best approach. The training accuracy graph showed better performance during training and validating. In addition, the confusion matrix also produced better predictions which produced higher percentages on the performance metrics and the accuracy successfully obtained about 97%. Due to these, the predictions using new input images are also successful. Then, the study created a simple GUI so the others can interact with the system easily without looking at the real code. Lastly, a small computer called Jetson Nano 2GB was also implemented to make the system portable for the radiologists or doctors.

5
Rahimah Binti Jofferi

DESIGN AND DEVELOPMENT OF LINE-MARKING ROBOT

The system to be designed and developed in this Final Year Project is called a Line-Marking Robot in which the robot sprays white line on the surface such as the road and football field autonomously with the guide of Global Positioning System (GPS), magnetometer and DC motor encoder. The robot can also be controlled manually using a mobile application via Internet which uses NodeMCU ESP8266 as its microcontroller. A DC oil pump is the main component of the system as it is responsible for spraying lines on the surface with high pressure. Feedback control is implemented to the system that involves hall sensor encoder, magnetometer and GPS device for a great precision output. Analysis and calculation have been performed to determine the most suitable system design for a higher stability, efficiency, robustness and sustainability. This report explains and illustrates the concept design and operation of the system. Raspberry Pi 4 Model B and Arduino Nano are used to control the sensors operation and the robot maneuver. The system uses aluminium and iron material for its chassis and airless tire for its wheels for good suspension and traction. Brushless DC motor is used for the locomotion of the system and is controlled by a 10 A dual-channel motor driver (MDD10). A 10 mAh power bank will supply power to the computing unit and a 9000 mAh lead-acid battery will supply power to the rest of the components. The system design in terms of mechanical and electrical section is successfully developed and tested. This report also explains whether the developed system is suitable for the application.

6
Matt Dennis Bin Matrantis

INVESTIGATION OF DIRECT AIR CAPTURE TECHNOLOGY TO ALLEVIATE THE INCREASE OF ATMOSPHERIC CARBON DIOXIDE (CO2) LEVEL IN BRUNEI DARUSSALAM

The alarming increase of level of carbon dioxide (CO2) concentration in the

atmosphere has brought numerous worldwide concerns which give a significant impact on our society. Intergovernmental Panel on Climate Change concluded that in order to combat the treat of this issues the world must decrease the atmospheric CO2 concentration as early as possible and must realizing the Paris Agreement's aim which is limiting the rise of global temperature below 1.5 degree Celsius at the end of this century. Direct air capture is one the technology that could help to mitigate this CO2 atmospheric concentration Therefore, this project aims to design, program, simulate and fabricate a prototype direct air capture (DAC) using microcontroller Arduino (ATMEGA) with several sensors and actuators.
The system design is divided into two parts: CO2 capture chamber and heating & cooling system. The CO2 chamber consist of temperature, humidity, carbon dioxide regulation and monitoring system. While the heating & cooling system consists of continuous flow of water pump and controlled timing submergible heating element.

7
Norhafizah Amal Aisyah Binti Haji Yunos

THE DEVELOPMENT OF AUTOMATED SYSTEM TO DETERMINE THE POTENTIAL EFFECT OF ELEVATED ATMOSPHERIC CARBON DIOXIDE (CO2) LEVEL ON NUTRITIONAL QUALITY OF LEAFY VEGETABLES

The advancement of industrial sectors, along with an increase in human activities such as the burning of fossil fuels, has resulted in an increase in atmospheric carbon dioxide (CO2) levels. As technological advances have accelerated over time, issues that might arise in everyday life can be addressed by the application of modern technology, and it has therefore become a necessity in our lives. As smart farming is now widely regarded as the agricultural industry's future, traditional farming techniques can be gradually replaced by modern techniques with the use of smart and automated systems along with Internet of Things (IoT). IoT is now widely regarded as the wave of the future industrial revolution. This project aims to determine the potential effects on nutritional quality of leafy vegetables as a result of elevated atmospheric (eCO2) levels. With the integration of sensors, motors, actuators and most importantly, the IoT into the device, the parameters can be remotely monitored with different CO2 concentrations. This project offers data as a benchmark to assist local farmers by looking into the nutritional quality of leafy vegetables as a result of elevated atmospheric (eCO2) levels, with the goal of achieving a healthy and green environment as well as a high yield in crop cultivation.

8
Muhammad Fathi Bin Kamis

DESIGN OF NETWORKED CONTROLLER FOR DC MOTOR USING PARTICLE SWARM OPTIMIZATION

Living in the 21st century brought about the development of all forms of technologies especially in the communication technology point of view. This does not come with ease without the challenges that give rise to such advancement in the first place such as delay in sending information, data storage, power consumptions,

cyber-attacks, etc. Therefore, artificial intelligence is the common pathway that were taken by many scholars in the modern world in order to compensate these problems particularly in the deep learning world. In this project, application of particle swarm optimization will be used in order to design a controller making use of DC motor as the first attempt in experimenting the possibilities of long-range control systems that also utilizes the Internet of Things (IoT) based system to get the expected results. This report will also touch upon the relevant literature reviews of past researched papers consists of optimization technique and IoT in accordance to the aims of this project. Since this project mainly uses DC motor as the based output system, therefore, theoretical aspects of DC motor and associated control system which includes the identification of parameters and modelling was also mentioned as well as the initial hardware design. In the realization of hardware after thorough consideration, a complete instrument setup was finalized for the measurement of speed of DC motor which was then used for the overall system identification by using an optimization algorithm namely Particle Swarm Optimization (PSO). Modelling and design of control system was also implemented using PSO which were settled by means of Wi-Fi communications. In conclusion, this project can be considered to be a steppingstone for other forms of applications especially when it comes to parameter identification and optimization utilizing IoT which is very beneficial in terms of industrialization side.

9
Mohammad Nazhan Naziran Bin Naim

SOLAR PANELS SYSTEM KIT FOR HOME APPLIANCE APPLICATIONS

In the last few years, fossil fuel depletion and environmental pollution has pushed the development of the use of renewable energy in Brunei. Most widely used renewable energy is solar energy. Photovoltaic (PV) modules are used to absorb the solar radiation from the sun to convert it into DC electricity. This DC electricity will then be stored in a battery bank or converted into AC electricity for home appliances. Solar energy has been popular these days which leads to many researches to be studied on how to implement solar energy with the use of IOT technology. Currently, the automatic system is being preferred over the manual system. With the rapid increase in the number of users of the internet over the past decade has made the internet a part of life and IOT is the latest and emerging technology. Home automation using IOT technology is a system that uses a computer or mobile device to control basic home function and features automatically through the internet anywhere around the world. This project implements using IOT to control and monitor the home appliances. With the help of ESP32 and Blynk app, both are the main component and software to create an IOT controlled system to switch ON or OFF any electrical household appliances by pressing the virtual button in the digital dashboard of the Blynk app. A switch is also used to manually turn ON/OFF the LED bulbs just in case the Wi-Fi does not work. Furthermore, the Blynk app is also used to monitor the battery voltage, DC solar performance as well as AC power consumption. These data are very consistent with the readings because of the accuracy of the sensors. The results of the monitoring will be displayed on the Blynk app and tabulated using Excel. A simple cooling system will also be constructed to help reduce the heat on the surfaces of the PV modules to increase the efficiency and prolong the lifetime of the PV modules. Google Assistant is also used to help the user control the home

appliances using voice recognition. IFFT is also used as a bridge for the Blynk app and the Google Assistant.

10
Mudrikah Bin Matali

WIRELESS DATA ACQUISITION SYSTEM FOR SOLAR POWER SYSTEM

The project contains the detail of the data acquisition system, which was done wirelessly to collect the measuring data from the solar panel of the Photovoltaic System for real-time monitoring. Data acquisition is the process of converting the measuring signals of the sensors to a readable data, which is collected in the computer. The process includes sensors, signal conditioning process and eventually the data is collected in the Personal Computer for analysis from the DAQ device wirelessly. The studies of similar proposed PV system were also analyzed for monitoring the measurements, such as voltage, current and temperature which elaborate different measuring techniques used in their respective sensors as well as mathematical equation for solar irradiance. Initially, the ESP-01 was used in the wireless data transmission testing from the Arduino to LABVIEW but there was some technical problem and time constraint. Thus, the transmission of the data wirelessly via radio frequency, was implemented, RF sensor (434 MHz), which utilized serial communication between the module and the computer. A demonstration of the wireless transmission of sending data to LABVIEW was shown. Moreover, the LABVIEW can also save the reading of the data with interval, which can be set to the user's desire.

11
Awang Abdul Hadi Bin Haji Awang Isa

DESIGN AND IMPLEMENTATION OF ELECTRIC VEHICLE

In this project, the design of the electric car is presented and to optimally design the electric car, a literature review is conducted. This study focuses on all the valuable details available on configurations of electric vehicles, battery energy sources, electrical machines (motors), charging strategies, optimisation strategies, impacts, developments and the potential paths of future developments for electric vehicles. It aims to have an overall view of existing EV technologies and provide opportunities to assist in future researches in the automotive industry. The proposed design of EV was also created in this project. The focus is on the performance, cost, controllability and safety aspect of the EV, and the use of each component in the design has also been presented.

12
Ahmad Rahimi Bin Haji Rusli

AUTOMATIC BRUNEI NUMBER PLATE RECOGNITION SYSTEM

Automatic Number Plate Recognition (ANPR) also known as Automatic

License Plate Recognition (ALPR) has been a topic that has been talked about in the field of computer vision. However, there are a lot of restrictions for ALPR implementation in the real world. In order to solve these problems, this paper proposes an ALPR system based on state-of-theart YOLO object detector. Convolutional Neural Network (CNN) was trained to be able to detect license plates and recognize characters from the license plate with the use of Tesseract Optical character recognition. This system uses Raspberry Pi 4B and Raspberry Pi 8MP Camera Module V2 as its hardware in order to capture image of the license plate. The captured image is taken to the YOLO architecture and the architecture will detect the license plate and will be able to identify each character within the captured image. This proposed system was able to get 97% accuracy on detection and a successful recognition of the license plates with the use of tesseract OCR. On average detection would go as fast as 15 ms and as slow as 40 ms.

13
Nigel Chin Chee Liang

IMAGE ANALYSIS FOR MICROSTRUCTRE OF METALS

Metal microstructure analysis with microscopes is a common workflow in mechanical engineering. Capture and digital analysis of the output of microscopes for metallurgical studies is typically done with commercial image capture solutions, which are expensive for large deployments. This project seeks to redress such issues by developing an image capture and analysis platform out of off-the-shelf parts, as well as provide useful features such as Multifocus-image Fusion and sample size labelling.

14
Abdul Salam Bin Awang Aji

GREEN INTEGRATED POULTRY HOUSE MONITORING AND CONTROL BY SMART SENSORS AND ACTUATORS INTEGRATION AND INTERFACING

This project aim is to design, program, simulate and fabricate a poultry farming system using microcontroller with various type of sensors and actuators as well as solar powered resources. The system design is divided into five parts: automatic poultry house lighting system, automatic feeder system, rainwater harvesting system, automatic door gate system and incubator system. The system is also integrated with solar powered to supply power to the system in collaboration with solar integrated project by my colleague, Akmal Aqil Bin Hj Mustapa. There were plenty of work tasks which have been done since the early of semester 7. The project works comprised of various tasks such as study the characteristic and behavior of poultry, study and proposed the poultry house construction, design and components to be used based on the previous researches. Further elaborations of the work tasks are discussed on the literature review and methodology sections in chapter 2 and 3 respectively. In semester 8, all the hardware components are implemented to the real system for data collection and analysis.

15
Akmal Aqil Bin Awang Mustapa

DESIGN, SIMULATION, FABRICATION, AND INTEGRATION OF SOLAR ENERGY TO THE SMART INTEGRATED GREEN POULTRY HOUSE

The poultry house design was created using Autodesk Maya software and it consists of two chambers: the closed chamber where the chicken can sleep and go to the nesting box and open chamber for the chicken to get fresh air and have some open view to the environment. The hardware materials expected to be used to design the house are wood and metal as the frame of the poultry house while plastic mesh wire is used as flooring inside the closed chamber and metal mesh wire is used as a protection to prevent predator from harming the chicken. The poultry house was designed with other functions taken into consideration such as the circuit box where all the electrical components are stored in, the roof angle so that the solar panel receives the highest amount of sunlight in Brunei Darussalam, the nesting box for the chicken to lay eggs, main door that can be locked, a door that connects the closed chamber and open chamber which can be controlled to open or closed either manually or automatically, a gutter pipe system where the rainwater that falls from the roof and will be stored in the water tank, and waste tray attached under the closed chamber to collect the chicken waste which can be used as organic fertilizer.

16
Jamie Shim Chi Ming

IOT BASED SENSOR SYSTEM FOR O2 AND CO2 RATIO MONITORING UNDER THE MASK

The current outbreak of the COVID-19 pandemic has a ected worldwide with the number of cases and reported deaths increasing. Preventive measures were taken to tackle the pandemic including wearing face masks and manufacturing a vaccine. However, it is still in its early stages and could not be considered an answer to the pandemic. Some claimed that face masks could give breathing issues, however there is no proof to verify such claim. If health authorities intend to conduct studies on the e ectiveness of di erent face masks, they need a device to do so. Therefore in this project, the main aim is to design a monitoring device for masks. Research shows that N95, cloth and hybrid masks are the most e ective in preventing spread of COVID-19 but hybrid masks are replaced with cloth masks for the project. Comparing two modes of communication, Bluetooth and WiFi, Bluetooth can connect to multiple devices simultaneously but at the cost of coverage area, whereas WiFi can establish a connection at a larger distance and operates at a higher speed. The prototype consists of an alert system to notify surroundings when an individual is experiencing di culties. IoT is not only used to monitor data on an application, but to also record and analyze data on a website in real-time. Completed experiments proved that the alert system was operational with a pop-up noti cation appearing in the application. Readings are shown in both the application and website. They also show that cloth mask have the biggest change in readings for O2 and CO2.

17
Muhammad Wafiq Bin Haji Mohammad Syafien

DRIVER ASSISTED SYSTEM USING OBJECT DETECTION

Different ways of utilizing computer vision to aid drivers while on the road has been developed or proposed as road accidents can happen due to drowsiness or lack of concentration. Initially, the project was to have capability of detecting traffic signs, objects and pedestrians, and face recognition but was later changed so the project would focus solely on traffic sign detections. The project aims to develop a system that can detect traffic signs in Brunei. Two object detection models called TinyYOLO v3 and SSD-mobilenet-v2-quantized were implemented on the Raspberry Pi. These models were tested on the Raspberry Pi and was able to perform object detections. To achieve the aim of the project, the models needed to be trained using a custom dataset comprising of traffic signs images taken in Brunei. These images were then labelled according to their classes. Any necessary files required for the training were generated using the Python scripts that were provided by the model source. The TinyYOLO v3 training was executed on the Raspberry Pi itself and the SSD model training was executed on a PC. There were complications encountered throughout the training process. The precision (33%) and recall (56%) of the SSD model was calculated after it was tested with a small collection of Stop sign images from the German Traffic Signs Recognition Benchmark dataset.

18
Muhammad Wafiuddin Bin Haji Jemluddin

AUTOMATED CROP CARE SYSTEMS

Crop care is an extremely important aspect of agriculture as it is an act of protecting of the crops from the weather, pests, or nutrients deficiency. And this crop care includes the fertilization, pesticides application, temperature control and more. Precision agriculture and crop care has been developed together in recent times. And this paper outlines the development in the making of an autonomous robot with a function that can detect and cut weed plant via using ultrasonic distance sensor and small DC motor. Additionally, to avoid obstacle that in front of the robot by using ultrasonic distance sensor and servo motor. As well adding the feature to the autonomous robot which is the wireless sensor motes XM1000 to be able to collect the essential data for the growth of the plant from the plant motes for monitoring purposes such as light, temperature and the humidity of the environment and to communicate from one WSN motes to the other neighboring WSN motes. As for the conclusion, the communication of the WSN which is the broadcasting message using XM1000 WSN motes between the Robot motes and Plant motes in both simulation and hardware implementation was successfully done in this project as well the prototype robot has been developed.

19
Mohamad Norsyafiq Bin Suhaimi

STATIC AMERICAN SIGN LANGUAGE (ASL) ALPHABET TRANSLATION SYSTEM USING CONVOLUTIONAL NEURAL NETWORKS

In this project, a static Sign Language recognition system was produced using the famous Convolutional Neural Network (CNN) algorithm. CNN is widely known for its flexibility and high accuracy results and it was proven in this project as high accuracy of training model was obtained. CNN was used due to is flexibility, as layers and parameters can be changed and experimented. This project used three convolutional layers associated with ReLu activation function and max pooling layer which is then fed into the flatten layer to be inputted into the dense layer to give the corresponding output. The system used for this project was able to recognize some of the sign language. The training processes was compared between the GPU and CPU where GPU is significantly faster in training the images. Initially, the plan was to train the model using computer and deploy this model and its weights to RPi so RPi is only required to do image classification, but to complications in the process, Raspberry Pi was excluded and 720p webcam was used to detect the signs. CNN has a wide application where nowadays, big companies are using Artificial Intelligence which is related to CNN. But the main purpose of this project is to help detect sign languages to raise awareness about it.

20
Nurhanina E'zzati binti Mohd. Suhardi

AUTOMATED PORTABLE HAND-WASH STATION

As a result of Coronavirus disease (COVID-19) pandemic that happened last year, community has once again paid more attention to hygiene as this can help them to stay healthy. One of the simplest and basic ways to stay healthy is through hand hygiene where hand hygiene is a general term of hand washing. Therefore, this project report is dedicated to the development of an automated portable hand-wash station for outdoor purposes. As technological advancements have grown rapidly over the years, the automated portable hand-wash station can be developed using new technologies such as Internet of Things (IoT) and automation technologies. By implementing these technologies into the system, it provides simplicity and easiness for the people to wash their hands as well as convenient purposes in terms of the transportable and time-efficient method. Moreover, the system will also consist of other sub-systems such as hand soap dispenser system, hand dryer system and water level detection system. This project was completed in a year where in Semester 7, the making of the proposed system based on studying and understanding the literature review that consists of all the systems mentioned above has been achieved and then proceeded with the constructions of the hardware design along with implementing the whole system into the design in Semester 8. Hence, this project aims to create a prototype of a smart outdoor hand-wash station with IoT system for water level monitoring purposes using an automated system. The system comprises of the utilization of sensors and actuators in an automated system. In accordance with what have been proposed in this project in the last semester, the sensors that are used in the system are PIR motion sensor, ultrasonic sensors and infrared sensor module.

The system also focuses on implementing actuators such as water pump, servo motors and fans. Other than that, the water level detection system will be monitored through 'ThingSpeak' platform using NodeMCU Wi-Fi module. Project expenditure for the whole system is also calculated. Lastly, in order to make a successful hardware system, each of the sub-systems has been tested and found to be working perfectly before combining into one whole system.

21
Asruladly Phua

AUTONOMOUS LAWN MOWER

Lawn mowing is considered one of the most time-consuming activities and not to mention the risk of mishaps and hazards it imposes on the user, leading to death in severe cases. Robot applications of these man-operated lawn mowers have already existed quite recently. However, not many are available in the market. The purpose of this Interim Report is to design an Autonomous Lawn Mower that could pilot itself around a field to cut grass with little to no human interactions required and for less cost. This design was achieved by implementing a Global Positioning System (GPS) to estimate and guide the robot to cut the grass around a pre-determined perimeter. A derived conceptual design was achieved from assessing articles and research papers done in the literature review section. An actual product was developed based on this conceptual design and several necessary tests were performed to identify its strength and weaknesses. Due to the constricted time and major problems which affected the overall function of the system resulted in an incomplete project and as a result, the Autonomous Lawnmower was not able to achieve all of the objectives from this project.

22
Hjh Fatini Auni binti Hj Anuar Puasa

SMART CAMPUS INITIATIVE: CAR ENTRANCE, EXIT AND PARKING MANAGEMENT PROTOTYPE DEVELOPMENT

This report presents a smart campus initiative, namely: smart parking, which specifically focuses on car entrance, exit and parking management prototype development. An automatic system for a parking area is a growing need to improve its access and monitoring control. The smart parking system applies the use of sensors and technologies to increase efficiency and reduce parking complications. Smart parking features such as vehicle occupancy detection and Automatic License Plate Recognition System (ALPR) were investigated in this report. The system design and methodology of the smart parking system prototype were examined where Raspberry Pi 4 were used in conjunction with a camera and a sensor for ALPR, a servo motor that serves as a gate barrier of a parking lot, and ultrasonic sensors, LEDs and LCD for parking occupancies. This project promotes a low cost, but safe and sustainable parking system. The system was programmed using a computer vision library called OpenCV with Python. Using a deep learning algorithm called Tiny YOLOv4, the ALPR detects license plates captured by a camera, and recognises them using an Optical Character Recognition (OCR) technology called Tesseract.

The ALPR findings were validated using real Brunei license plate images, and the system achieved a detection rate of 97.1 percent and an overall recognition rate of 48.6 percent. This system is also applicable for real-time use. Lastly, the future work recommendations on improving the system were discussed.

23
Masyitah binti Hj Azamain

REMOTE PATIENT MONITORING

Over the years, health technology have been improving and heavily integrated in the healthcare system to aid the monitoring of patients over a distance. Heart conditions is are of the leading causes of death each year. This report details on how technology specifically with the use of wearable sensor to monitor patient condition remotely or wirelessly in an effective manner. The report also details on the implementation, testing and evaluation performed on the system along with the recommendation to refine the project and to be more user-friendly plus reducing redundancy.

24
Siti Munirah binti Ali Hamzah

EARLY DETECTION FOR DEPRESSION IN TEXT DEPRESSION

As there is a rise in mental illness in global population. There is also an initiative to raise awareness in preventing or delaying the development of mental illness. This project introduces an automatic speech recognition which will detect or identify the presence of Depression and/or Anxiety as these two illnesses are the leading illness that's affecting global population. However due to issues, the project was changed to depression detection using a text system, The system uses a Sentiment140 as a database for train data set and test data set. Main challenges of the project were the student's lack of knowledge in the background on creating an AI as well as the amount of training and testing required to design the model. Logistic Regression was tested to be the best model suited for text prediction with an accuracy of 77% for both train to test ratios of 80:20 and 70:30.

25
Nurfakhirah Hanizam @ Noorul Hayah binti Hj Zamain

CONTACTLESS TEMPERATURE SCREENING SYSTEM

In this day of viruses, the demand for a contactless infrared sensor has gone manifold. With the technological advancement nowadays, problems that may be encountered in daily lives can be tackled with new technology and hence, has become a part of necessity in our life. Therefore, this project is devoted to the development of a contactless temperature screening system. As this is a one-year project, this report is partially done in Semester 7 and continued in Semester 8. The system has been achieved based on studying and understanding the literature review that consists of designing a contactless temperature system, QR code technology, and the use of

a database. The method comprises the utilization of sensors, a camera, components such as LED bulbs, and a buzzer in an automated system. A contactless temperature screening system is designed to automatically monitor the temperature of a person entering a premise. The repetitive tasks of scanning a person's temperature manually (using a handheld IR thermometer) consume a considerable workforce and time. Hence, the contactless temperature screening system is designed to automatically scan their QR code via staff or student ID, then take their temperature and store it in the MySQL database or CSV format. Project expenditure for the whole system is also calculated. Lastly, to make a successful hardware system, the system is tested through programming by using Python IDE with the terminal found in Raspberry Pi before proceeding to implement the whole system. Afterwards, system implementation is done along with the results and analysis.

Petroleum and Chemical Engineering

Group 1
Muhammad Hassanul Ariffin Bin Haji Ibrahim
Muhammad Zaim Bin Ramli
Muhammad Izzan Fuad Bin Haji Sahari
Dk Siti Norfakhriah Farzana Binti Pg Hj Mohd Yussof

PRODUCTION OF HYDROGEN BY STEAM METHANE REFORMING OF BIOGAS WITH CAPACITY OF 4,900 METRIC TONNES PER YEAR

As an attempt to achieve one of Brunei Darussalam's Sustainable Development Goals (SDGs) which is to successfully transition to a secure sustainable energy, a study has been conducted to explore the potentials of utilising biogas as raw material to produce hydrogen gas via. a chemical plant. The hydrogen production plant is designed to produce 4,900 metric tonnes annually. Methane will be extracted from biogas and undergo the process of steam methane reforming to produce hydrogen. The plant is designed in such a way that it utilises an absorption column, two reactors and a pressure swing adsorber (PSA) as its major equipment. Piping and instrumentation (P&I) along with hazard operability (HAZOP) study are some of the major emphasis done in this project to consider the practicality of the proposed plant design in the aspects of safety, health and environment (SHE). Additionally, the challenges with regards to hydrogen storage has also been briefly discussed. Moreover, site selection, plant layout and economic evaluation have also been assessed. The hydrogen production plant has a capital cost of $50 million. The plant will offer an 11.8% return of investment (ROI) with a pay-back period of 8.08 years.

Group 2
Mohammad Idzan bin Idris
Swee Sze Yu @ Yvonne
Muhammad Amirul Hazman bin Md Zain

DESIGN PRODUCTION OF MALEIC ANHYDRIDE AT AN ANNUAL CAPACITY OF 50,000 METRIC TONNES PER YEAR USING N-BUTANE AS FEEDSTOCK

This report is to study the feasibility of producing maleic anhydride using n-butane as a raw material and achieve the capacity of 50,000 Metric Tonnes per Year. This includes the market study, literature reviews of various methods to produce maleic anhydride, material and energy balances and detailed equipment design.

The production route consists of a multi-tubular fixed bed reactor with a Vanadium Phosphorus Oxide catalyst, an absorber, a distillation column and a spray dryer to produce powdered maleic anhydride.

The maleic anhydride produce from the plant will be sold around BND 1.98/kg from this profitability analysis is conducted. The plant has a capital cost BND 59 million and generates an annual revenue of BND 106 million. The net return investment is 19.5% and the pay-back time is 11 years.

Group 3
Soo Kai Xin @ Christy
Muhammad Azib Bin Radzman
Wadhihah Binti Haji Zaini

PRODUCTION OF UREA

A research on the feasibility of the construction of a urea plant in Australia with an operating capacity around 800 000 metric ton per year is the focus of this report. This report evaluates the viability of the project through the study of the market, literature reviews, the balances of mass and energy, the engineering of the major equipment in the process, safety aspect of the process and the economic feasibility of the project. This report is influenced by the Stamicarbon total recycle method which was studied to have a very high conversion of approximately 90% and efficiency. It is a Bosch Meiser process where the feed are only ammonia and carbon dioxide. The carbon dioxide feed is received by the complete combustion of natural gas. The plant is proven feasible with an estimated cost of BND 808 million and is estimated to generate BND 110 million annually. The plant offers a net return on investment of 13.6%, with an estimated payback period of 11 years after the plant starts operation.

UTB School of Business

1
Abdul Qawi Abd Sani

IMPACT OF COVID-19 TO BUSINESSES

The report will briefly discuss the effect of Covid-19 especially to the businesses and to explain the situation beginning and during the phenomena of Covid-19 happened as well as discussing the actions taken to the businesses in order either to increase businesses revenue or survival of the business. The research aim is to study the impact including challenges of business during Covid-19. This study uses qualitative methods to collect information through structured questions by having interviews with the local businesses. Four businesses were selected as a sample of the study with interview questions prepared. A face to face interview was conducted and also recorded to analyze the effect of Covid-19 to businesses. As a result every business experienced the recession of their business during the Covid-19 outbreak.

2
Abdul Alim Abdul Fatra

AGRICULTURE (PADDY FIELD): IMPACTING BRUNEI'S ECONOMY (GDP) AND CONSUMER BEHAVIOUR

The research paper investigates on how the agriculture in Brunei especially in Wasan field impacting Brunei's economy (GDP) and consumer behavior. The study highlights the awareness and willingness on ensuring the growth and expansion of output continuously contribute to GDP. The scope of study was narrowed down to the study of local paddy in Brunei in compare with other countries. The topic was chosen as it is relevance on the support of local products and to boost Brunei's economy in agricultural sector and not really depending on oil and gas industry.

3
Rahimah Abdul Rahim

IMPACT OF SOCIAL MEDIA MARKETING ON CONSUMER BEHAVIOUR IN BRUNEI TOURISM

The importance in marketing using social media has long been a travel destination way to reach a diverse audience. With increasing roles of social media in promoting travel and tourism industry, this provides consumers with an opportunity to explore the different kinds and quality of travel related information. As a source of travel related information, the reliance on social media helped consumers discover new travel destinations and make decisions when planning the trips. Therefore, this research is designed to address whether social media marketing has an impact on consumer behaviour in Brunei Tourism.

4
Siti Norhafizah Abdul Talip

RESPONDING TO COVID-19 IN BRUNEI DARUSSALAM: CHALLENGES, MEASURES, AND ACCOUNTABILITY

The purpose of this study is to reflect upon the nature of some elements of the Brunei Government's response to the Covid-19 in the country. Upon the challenges happening during this pandemic, the government has implemented several measures to curb the outbreak. The Ministry of Health (MOH) is accountable to the government for delivering the information regarding the situation. By using desk research (or documentary), it has found that there are four types of accountabilities held; bureaucratic, performance, consumer, and public accountabilities.

5
Izzatul 'Aqilah Abdullah

AN EMPIRICAL STUDY OF THE INCREASED RETIREMENT AGE POLICY IN BRUNEI DARUSSALAM: APPLICABILITY TO UNEMPLOYMENT RATE AND ECONOMIC GROWTH (1999-2018)

The changes in demographic of a country and its welfare system have prompted the need to create more suitable retirement age policy. Brunei Darussalam have increased its retirement age policies from 55 years old to 60 years old for both genders. Some of the general opinions have believed that increasing the retirement age policies retained the workers therefore reduce the chances for those entering the labour force to apply for employment. Therefore, an empirical study from 1999 to 2018 aims to find any correlation of the increased retirement age policies to the unemployment rate and economic growth in Brunei Darussalam. The findings have disproved the general opinion that delaying retirement results in an increase of the unemployment rate in Brunei Darussalam.

6
Noradibah Abdullah

THE IMPACT OF LEARNING APPROACHES ON ACCOUNTING STUDENT PERFORMANCE

The higher education literature demonstrates that a student's approach to learning is a critical factor in determining the quality of the learning outcome. The objectives of this study are to explore the approaches to learning Accounting courses adopted by students in Universiti Teknologi Brunei (UTB). Further, the study considers gender differences in the learning approaches adopted by students and in the relationship between learning approaches and students' background. Finally, the study also examined the relationship between students learning approaches and academic achievement. The study also discovered that there is no significant relationship in gender differences in learning approaches as well as no significant difference in students' academic background with approaches to learning. This study provides guidance to educators to adopt effective teaching strategies to improve student

learning by encouraging the right approaches to learning in order to improve students' academic performance.

7
Nur Hikmatul Nikmah Abdullah

UNDERSTANDING PRO-ENVIRONMENTAL BEHAVIOR AMONGST UNIVERSITY STUDENTS IN BRUNEI

The main objective of this study is to examine the factors that influence Pro-Environmental Behavior amongst university students in Brunei Darussalam. Relationship between the dependent variable namely Pro-Environmental Behavior with the independent variables, which are Gender, Environmental Knowledge, Environmental Attitude and Environmental Awareness were investigated and analyzed. A questionnaire was distributed via online and offline across the campus of UTB and an overall total of 222 responds from the students were received. Based on the data analyses conducted, it is found that there is a significant relation between Pro-environmental Behavior with Environmental Knowledge and Environmental Attitude, which indicates that to having a good environmental knowledge and attitude is important when adopting Pro-Environmental Behavior as part of our life. Whereas, both Gender and Environmental Awareness shows no significant relations.

8
Dayang Khairunisa Ahmad

THE DEVELOPMENT OF ISLAMIC BANKING IN SOUTHEAST ASIA

This research was conducted to analyze and evaluate how Islamic banking has developed throughout the years in Southeast Asia, specifically Malaysia. Review papers, articles as well as document analysis are the main methods in the usage of this research. They are read thoroughly and then later on be compared to one another in terms of how they were explained and attempted. The study of this research will also evaluate if there are similarities and differences in how other studies were done and that how the conclusions differ from one another. It is found that there are similarities in the articles mentioning about the history of the development of Islamic banking but they all had different views and inputs.

9
Nursyahirah Ahmad

INNOVATION PROCESS IN ICT COMPANIES: CASE STUDY IN BRUNEI

This research aims to study how process innovation is being implemented in ICT companies in Brunei particularly in the service sector. The study reveals and proposes a novel implementation of the innovation process through interviews of the founders of selected local companies that are based in ICT. Based on the analysis of existing models, an innovation process model has been proposed in this paper

that makes it possible to analyze the process innovation in companies in the service sector. The results obtained indicate that ICT services require the implementation of innovation processes through phases which are human resource, monitoring,strategy, implementation and challenges."

10
Dayang Siti Nurizah Awang Mohamad Kula

A STUDY ON THE CHALLENGES IN AUDITING THE BLOCK-CHAIN BASED ACCOUNTING

Block-chain is a technology that deals with the distribution of property ownership and the keeping of a trustworthy financial ledger. In general, the majority of accounting professions emphasize the value of financial data in terms of calculation and analysis. The purpose of this report is to study on the challenges in auditing the block-chain based accounting. The paper will go through the challenges, as well as the issues and recommendations that come with the analysis of accounting practices in auditing block-chain technology based accounting.

11
Nur Husnina Awang Rosli

CONSUMER BEHAVIOUR TOWARDS ONLINE SHOPPING

The adoption of online shopping has been increasing considerably in Brunei but the factors affecting consumer behaviour is unnoticed. To enhance the study, there will be 3 objectives, which are identifying the frequency of consumers visiting online shopping, the factors affecting consumer behaviour towards online shopping and whether the frequency and the factors affect the consumer behaviour. So, it is important for a relevant organization to know factors that consumers are concerned about. To verify this study, 151 respondents participated. From this study, it revealed that all online consumers have a different perception of online shopping factors which accept the first hypothesis. Based upon the frequency level, reliability, customer service and privacy and security factors are the factors that had been concerned similarly by all the consumers. From here, it can be concluded that it rejected the second hypothesis. However, only website design has approved the second hypothesis. Thus, the aim of the study has been successfully achieved.

12
Nurul Shakinah Awang Sawal

PROBLEMATIC INTERNET USE, PERSONALITY TRAIT AND MENTAL HEALTH AMONG UNIVERSITY STUDENTS IN BRUNEI

Internet is widely used globally as a mean for communication, getting information and for entertainment purposes. However, if the internet is not used wisely, it may lead to a damage affecting someone's personality trait and mental health. The aim of this research are; to assess the use of internet by the university students and the

problematic internet use (PIU) generalization among them, to examine the mental health and personality traits of university students in Brunei, and to analyze and find out whether there is a relationship between PIU, Personality Traits and Mental Health. A total of 268 university students have completed the questionnaire. From the analysis, mental health is statistically significant predictor of PIU whereas personality trait is not significant. From the correlation coefficient, mental health has a strong and positive relation with PIU, unlike personality trait that has weaker relation with PIU.

13
Nur Munirah Haji Abd. Kadiroshman

THE PROS AND CONS OF USING SOCIAL MEDIA AS BUSINESS PLATFORM FOR SMES AND MICRO-BUSINESSES

The purpose of this research is to find out the publics and he business owners opinion on the advantages and the disadvantages of social media as platform for businesses as well as the best social media to use for it. A survey was conducted by spreading questionnaire and most respondent agree that social media is cost efficient and easy to use as well as allowing the businesses to connect with their customers directly. However, it is time consuming and there is a risk to the reputation of businesses due to bad reviews and trolls. The results also revealed that Instagram, Facebook and Whatsapp are the three most actively used social media in Brunei and the most used app to promote businesses.

14
Ayuni Fathiah Haji Abdul Rahman

FACTORS INFLUENCING DIGITAL PAYMENT ADOPTION BY MSMES IN BRUNEI

The purpose of this study is to investigate the factors influencing digital payment adoption by MSMEs in Brunei. Technology Acceptance Model (TAM) was used as a basis for the study by integrating it to the Technological-Organizational-Environmental (TOE) framework. The findings revealed that factors such as Ease of Use, Perceived Usefulness, Organizational Readiness, Top Management Support, Security and Privacy have a positive but insignificant influence with the digital payment adoption. While Government Support have a negatively significant influence and Competitive Pressure have negatively insignificant influence with the adoption. Background characteristic of the entrepreneur such as age and education level however discovered to have positively influenced the digital payment adoption.

15
Muhammad Wafauddin Bin Haji Abu Nipah

EFFECTIVENESS OF SITE VISITS ON STUDENT LEARNING AMONG HIGHER EDUCATION INSITITUES IN BRUNEI DARUSSALAM

Multiple research suggests that every individual has a different learning style that would be best in aiding in their learning and education. Generally, formal education is limited to the traditional form of education that is confined to the classroom where an educator would systematically teach the students. Site visits offer a different environment and medium in which a student can explore and obtain knowledge. This research aims to understand the views of current and graduated students from higher institutes in Brunei on the effectiveness of site visits on their learning. With the information gathered, local higher education institutes would gain valuable insights on how to improve the student learning experience as a whole and by extension produce higher calibre graduates and working professionals in the future

16
Muhammad Syazwan Haji Awang Bakar

INNOVATION TECHNOLOGY HELPS BUSINESS BETTER: A RESEARCH ON E-COMMERCE WEBSITE QUALITY ON CUSTOMER SATISSFACTION.

This study aims to study the implication of innovation technology on business performance. To achieve the aims customer satisfaction is identified as dependent variable, and 5 criteria of website qualities are identified as independent variables. An online questionnaire was administered randomly to the public with an age range between 18 – 60 years old to conduct this study. The data gathered is in a total of 81 respondents. This study is adopting a research study done by Rasli S. et al. (2018). The finding concluded amongst the five independent variables, only Information Quality and Security and Privacy have a positively significant relationship to Customer Satisfaction.

17
Nuraqilah Syahirah Yaqin Haji Haziz

THE EFFECTS OF IMPROVING LOCAL NON-FOOD PRODUCT PACKAGING TO CONSUMER'S IMPULSE BUYING BEHAVIOR

The main purpose of this study is to determine what motivates people to make impulse buying with the delivery of product packaging and the Personal factors and In-Store factors that influence impulse buying behavior in Brunei. The independent variables are packaging's graphic design, structure design, product information, color, personal factors, and in-store factors. The dependent variable is impulse buying behavior. The results from the study showed that personal factors, money availability had a positive relationship with dependent variables of influence impulse purchase, while packaging dimensions had a negative relationship in impulse buying in Brunei. In AIDA model, the results showed product information creates Attention, the structure design creates Interest, and Product Information on packaging encourages buying as Action in AIDA model. Thus, this shows that the AIDA model has helped communication from product packaging and has a relation in impulse buying behavior.

18
Siti Rohana Haji Ismail

THE EFFECT OF MENTAL HEALTH DISORDERS (ANXIETY & DEPRESSION) TO WORKING PEOPLE IN BRUNEI

Mental health disorders cases have increased over the years in Brunei Darussalam. The purpose of this study is to examine the effect of mental health disorder (anxiety & depression) on working people in Brunei. Therefore, a total of 142 respondents have been obtained for this research. From the study research has indicated that the employees have experienced some forms of mental health disorders during their working lives and it can cause illness and disability to themselves. Mental health disorders also can affect individual work performance and working environment. To conclude the study, there is a positive relationship towards mental health disorders.

19
Zul Fahmi Haji Jamil

WORK ENVIRONMENT AFFECT BEHAVIORAL CHANGES AND INFLUENCE EMPLOYEE'S PERFORMANCE

The objective of the study is to investigate work environment that affects behavior and influence employee's performances towards organizations and companies in Brunei. The method of the research used in the study is a survey method where questionnaires are designed and sampling techniques is based on stratified random sampling that was distributed to a certain population of Brunei Darussalam employees. The result shows that there is a relationship between work environment and employee's performances and it is certain that behavioral components of working environment have a greater effect on employee's performance than the phyiscal components.

20
Aimi Khairina Haji Marzuki

THE IMPACT ON THE USAGE OF E-LEARNING TOOLS IN HIGHER EDUCATION IN BRUNEI DARUSSALAM

This study aims to investigate the impact on the usage of e-Learning tools in among the higher education students in Brunei by measuring the students' acceptance level towards e-Learning. This paper also discusses the interlinkage between e-Learning and the Brunei Vision 2035 and Sustainable Development Goal (SDG) 4. The findings show that limited resources and facilities seem to be the main concern for most students. As a result, most university students are not prepared with a full implementation of e-Learning unless with proper introduction and adequate resources. This paper also shows that the adoption of e-Learning also helps contribute to the attainment of the Brunei Vision 2035 and SDG 4.

21
Muhammad Akmal Hariz Haji Mawardi

THE FACTORS OF ADOPTION OF E WALLET OF LOCAL PEOPLE IN BRUNEI DARUSSALAM

The research topic that are explored is the factors of adoption of e-wallet within the Bruneian populace and investigate their behaviors or what makes them interested to adopt this new form of way in making transaction. For this study, a total of 105 valid respondents were collected. In addition, contains in this research paper are past studies and literature reviews evidence that involves e-wallet adoption and its various factor discovered that compromises of perceived usefulness, compatibility, outlook & views, social influence, security & privacy concerns, simplicity and lastly personal innovativeness. From the findings of this research it is concluded that the seven factors investigated, they have a positive impact on the adoption of e-wallet except for social influence.

22
Muhammad Mahiri Haji Mazlan

A STUDY OF TOURIST SATISFACTION TOWARDS ISLAMIC ATTRACTION IN BRUNEI: A CASE STUDY ON CENTRAL BUSINESS DISTRICT

In a highly competitive industry, tourism is one of the industries that contributed to the growth of the economy in Brunei Darussalam. This research study is to understand tourist perception towards the service quality and to identify tourist satisfaction level towards the attraction provided around the Central Business District area. This research used the SERVQUAL method that includes 5 dimensions (Tangibles, Reliability, Responsiveness, Assurance, Empathy). A questionnaire was distributed randomly to the public through an online survey and interview. Therefore, a total of 202 responses have been collected for this research and analyse using SPSS software. It has been concluded that satisfaction has a significant relationship to the 5 dimensions SERVQUAL of service quality dimensions.

23
Mohamad Nur Wa'Ie Haji Mohamad

A STUDY OF USER ACCEPTANCE TESTING (UAT) ON MILLENNIALS IN USING BOOKTIA, AN ONLINE LOCAL VENUE BOOKING PLATFORM IN BRUNEI

This study is to understand the challenges of millennials' preference and criteria in booking a venue using Booktia a local online venue booking platform. A user acceptance testing was conducted with a total of 150 respondents that's is being tested randomly to the public. The main target user for this study is the millennials ranging age of 18 – 40. The statistical methods used are descriptive statistics, Non-Parametric Testing, Correlation analysis and Regression analysis. The dependent variable for this study is User Acceptance testing on Booktia. The independent

variables for this study are content, navigation, multimedia and usefulness. The finding concluded that, user acceptance testing shows a positive relation towards the 4 independent variables thus implicating that the millennials are accepting features and usage of Booktia upon testing it.

24
Siti Nur Fatinah Haji Mohamad Kamran

A STUDY OF CONSUMER PERCEPTION TOWARDS DIGITAL PAYMENT IN BRUNEI

The purpose of the study is to study of consumer perception towards Digital Payment in Brunei. Focus on the digital payment, their benefit and challenges. It is also to analyze consumer perception and satisfaction toward the usage of digital payment. The research has been gathered randomly from public based on online survey questionnaire. The study finding will conclude the users' perception more toward their dependency toward Cash payment in Brunei, even though they are willing to intention to adopt the digital payment in their businesses, in the future.

25
Nurulaqilah Haji Mohamad Rodzi

A STUDY OF FINANCIAL SELF – AWARENESS AMONG YOUTHS IN BRUNEI DARUSSALAM

With the recent development of financial markets, the need for individuals to be more educated and professional in handling their finances have become increasingly important throughout the world. By observing their saving and spending behaviour levels, this need can be determined. The purpose of this study is to identify the Bruneian youths' financial self - awareness towards their saving and spending behaviour which focuses on seven independent variables. While the objectives of the study were focused on investigating the relationship of financial self – awareness towards saving and spending behaviours of youths in Brunei Darussalam. This study uses primary data collected via distribution of survey questionnaires distributed to Bruneian youths over social media platforms. Quantitative data was analysed by using frequency analysis, descriptive statistical analysis and, univariate and multivariate analysis, while qualitative data was analysed by using Statistical Packages for Social Scientists (SPSS). The findings are then analysed to determine which variables would have a stronger impact towards spending behaviour.

26
Nursyafidah Adilah @ Diyana Haji Mohd Taib

EXAMINING THE FACTORS AFFECTING E-PAYMENT USAGE BY STUDENTS ACROSS HEIS

This study is conducted to investigate the awareness, usage and to examine the factors influencing the intention of students across HEIs to use the e-Payment system

in Brunei. In addition, this study used variables from the Theory of Planned Behavior that was created by Ajzen (1985) and the variables consist of attitude, subjective norm and perceive behavioral control. As a result, there is a significant relationship regarding the awareness and usage of e-Payment among HEIs students across Brunei. Furthermore, despite having negative impacts on both subjective norm and perceived behavioral towards behavioral intention in influencing students to use e-Payment systems, the findings indicate that both of the variables are significant. In addition, attitude have a positive impact, however, it is found to be insignificant towards the behavioral intention of students to use e-Payment systems.

27
Mohammad Zahiruddin Haji Ramlee

HOW DOES ATTITUDE OF BUSINESS STUDENTS AFFECT THEIR ENTREPRENEURIAL INTENTION

The study's aim is to find out whether attitude can affect entrepreneurial intention of UTB's business students and its alumni. The study uses an online survey questionnaire with 7-point Likert scale that consists of 35-item that was distributed to the business students via WhatsApp and Microsoft Outlook email. The questionnaire was adapted from Liñán and Chen's (2009) Entrepreneurial Intention Questionnaire (EIQ) and other researchers' as well. SPSS Version 20 software was used to analyze the reliability, validity, normality test and linear regression analysis. The study concludes that the attitude of the business students has an effect on their entrepreneurial intention.

28
Nur Amirah Haji Ramlee

THE EFFECTIVENESS OF HUMOR ADVERTISING IN BRUNEI'S RADIO NETWORK

In recent years, the use of humor in advertising has grown in popularity, especially in the radio industry. Since there has been little research on consumer feedback or reaction to radio advertisements in Brunei Darussalam, the aim of this study is to see if humor in advertising affects consumer buying decisions and how Bruneian consumers react to it. This study employs a qualitative research approach as well as easy sampling. The interview received a total of 73 participants. The data analysis was carried out using thematic analysis and Microsoft Excel, and the conclusion of this paper aids in clarifying the answer to the research's target.

29
Nurnadiah Haji Shamli

THE IMPACT OF COVID-19 ON EMPLOYMENT IN BRUNEI DARUSSALAM

The purpose of this study was to find the impact of Covid-19 to Brunei's employment pattern and how recent policy introduced by the Ministry of Finance and Economy can help decrease the likelihood of an already high unemployment rate in Brunei.

This study will be focusing on independent variables; gender, age, marital status and occupational status of an individual. The objectives of the study were to make investigation on the relationship between Covid-19 and employment in Brunei Darussalam. In this study, employment pattern used is also known as the employment type in Brunei Darussalam. This study used primary data collected by using survey questionnaires to be distributed to those working population.

30
Siti Afiqah Haji Suleiman

THE IMPACT OF COMPUTER TECHNOLOGY ON ACCOUNTING SYSTEM AND ITS EFFECT ON EMPLOYEES

This research sets out to understand the relationship between the usage of computer technologies on accounting system for the organizations in Brunei as well as the influences of the Computerized Accounting System towards the employees. The advancement of technology helps to enhance and improve the process of accounting concept in business operations rather than using manual accounting system or paper-based files. The main objective of this study is to identify the factor of improvement and the limitations of it towards the financial accountability of the organization in Brunei and towards the employees of the organization especially the accountants.

31
Muhammad Yusuf Halym Haji Zalani

CHANGES IN CONSUMER BEHAVIOUR IN RESPONSE TO COVID-19: A STUDY OF THE IMPACT OF CHANGES IN CONSUMER BEHAVIOUR TOWARDS THE CLOTHING INDUSTRY AND THE HOSPITALITY INDUSTRY

This study focuses on studying the changes in consumer behaviour in response to COVID-19 and how it has impacted the clothing industry and the hospitality industry in Brunei Darussalam. The study makes use of a survey questionnnaire, that collect information about the respondents behaviour before and after the pandemic. The results showed that the hospitality industry in Brunei declined, whilst the clothing industry in Brunei thrived. In the study, the research looks in depth behind the reasons for their outcomes and what the new consumer beaviours are.

32
Mohammad Raihan Harun

CONSUMERS PERCEPTION TOWARDS RIDESHARING SERVICES IN BRUNEI

This research aims to discover the consumers' insight and the adoption status of ridesharing services in Brunei. In addition, the study also attempts to identify the possible determinants that may affect the behavioral intentions of a consumer when employing the respective services. An online survey was conducted in the form of a questionnaire through Google form which was randomly distributed to the general public which gathered a total of 105 respondents. The study's implications and limitations were outlined, and several recommendations for potential researchers were suggested based on the results to present a better understanding and accuracy for the topic at hand.

33
Dk Nur Radhiah Hj Abd Rahman

A STUDY ON THE IMPACT OF WELLNESS PROGRAM ON EMPLOYEES' PRODUCTIVITY.

A healthy workforce recently becomes many interest to innumerable organizations worldwide today however, not many studies yet has been done in Brunei Darussalam related to the benefits and the impact it brings to organizations. This health intervention in the workforce is known as a wellness program or workplace health promotion. Hence, the purpose of this study is to study the impact of a wellness program on employees' productivity. The objectives of the study were to see whether the influence of leadership and the role of motivation plays a part in employees' decision to take part in the wellness program and its impact on employees' productivity through the wellness program used. Therefore, in this study, secondary data and primary data were used to measure the accuracy of the study. A feasibility study was also done to strengthen the reliability of the questionnaire before distributed to the participants. This research has proven wellness program does have an impact on employees' productivity.

34
Aina Nazurah @ Nabilah Hj Nordin

BOARD GENDER DIVERSITY AND ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) PERFORMANCE: EVIDENCE FROM ASEAN COUNTRIES

This study aims to investigate the impact of board gender diversity on environmental, social and governance (ESG) performances in ASEAN countries. The research objectives of this study are firstly to analyze each ASEAN countries' level of implementation of ESG. Secondly is to investigate the relationship between Board gender diversity on ESG performance of the firms in the ASEAN region and lastly to investigate the relationship between Board Gender diversity on the individual components of ESG. There is a total of 810 firm-year observations from 162 companies listed on the ASEAN-5 countries stock exchange collected from Thomson Reuters DataStream. The statistical methods used are descriptive statistics, ANOVA, Correlation analysis and Regression analysis. The result shows that board gender diversity does have a significant impact on the overall ESG performance of a firm. But when individual components are explored, the result varies. This study contributes to the growing interest of ESG performances and board gender diversity in ASEAN countries.

35
Nurliyana Hj Supian

FACTORS INFLUENCING ACCOUNTING STUDENTS' PERCEPTION AND ATTITUDE TOWARDS ACCOUNTING AS A PROFESSION

This study aimed to explore preconceived notions of the accounting students' attitudes and perceptions towards the accounting profession.This study used qualitative approaches towards graduates of undergraduate accounting students who do not work in the accounting profession. This method of approach uses semi-structured interviewws from a different institutions who choose accounting courses. The institute mainly from five Brunei university.

36
Zati Hamizah Hj Zainal Arifin

A STUDY ON PERCEPTION OF BRUNEIAN ON ISLAMIC BANKING PRODUCTS AND SERVICES

Islamic banking has been known as a practicable and success industry as it becomes a strong competitor to conventional banking with its well-known of the interest free bank or Syariah compliance financial services and products, which have been offered to not just the Muslim customers but also to the non-Muslim practitioners. The aim of this study is to examine perceptions of Bruneian on Islamic banking products and services by investigating whether knowledge, awareness and religion belief has affect the perception towards Islamic banking. The approach research is based on data collected using questionnaires with a targeted sample of 200 participants and analyzed by using regression analysis, the results shows there are significant of dependent variable (perception) with independent variable (awareness, knowledge and religious beliefs).

37
Muhd Afnan Hisyam Onn Hussin

FEASIBILITY STUDY ON THE EVENT MANAGEMENT OF ECO-TOURISM ACTIVITIES IN CENTRAL BUSINESS DISTRICT

The tourism industry has been one of the sectors that Brunei Darussalam has identified as a sector that can generate income for the country as it attempts to diversify the economy away from its high dependence on oil and gas. Not only that, the tourism industry also has the potential to reduce the rising number of unemployment within the country. One such category of the tourism industry that has the potential to grow is the eco-tourism industry. Brunei Darussalam has a vast rainforest growth and some of these have been identified as major attracttions such as the famed Bukit Sipatir in Kampung Subok and the well- known Bukit Sarang Helang located at the Tasek Lama Recreational Park.

38
Norsalwana Hussin/Bujang

THE STUDY OF ISLAMIC BANKING AND ECONOMIC GROWTH: COMPARISON BETWEEN ASIA AND MENA COUNTRIES

In this research paper, the researcher will examine the relationship between Economic growth and Islamic banking for MENA and Asia countries. The countries that represent MENA will be Saudi Arabia and United Arab Emirates. Malaysia and Indonesia will represent Asia. Annually time series data will be used for the economic growth and Islamic banking which is from 2015 until 2019. Islamic banking assets will be represent as Islamic Banking Finance (IBF) and for economic growth, it will be represent by Gross Domestic Product (GDP), Gross Fixed Capital Formation (GFCF) and Foreign Direct Investment (FDI). Augmented Dickey Fuller(ADF) have been used to find the stationary of the time series data. As for finding the relationship for Islamic banking with the economic growth, correlation have been used. From the results obtained, Gross Domestic Product have strong correlation with Islamic Banking compare with the other two variables.

39
Nur Aniqah Ibrahim

EXPORT DIVERSIFICATION AND ECONOMIC GROWTH INBRUNEI DARUSSALAM: AN EMPIRICAL ANALYSIS FROM 1990 TO 2019

Brunei Darussalam has pursued diversification policy since the launch of 2nd NDP and has yet to be successful. This research aims to determine whether export diversification has contributed to economic growth of Brunei between 1990 and 2019. Time-series analysis is conducted and results have shown that while diversification and growth rate of GFCF positively affect GDP, they are weakly associate. As expected, only the growth rate of mineral fuels export is statistically significant, contributing to growth of GDP The rationale for diversification, its determinants and ways moving forward are also explored in this paper.

40
Siti Nur Hijriah Ibrahim

GOVERNMENT APPRENTICESHIP PROGRAM IN BRUNEI: THE PROS AND CONS OF "I-READY"

This qualitative research study focusses on the government apprenticeship program in Brunei Darussalam known as i-Ready. This study aims to assess how this program has benefit and its drawbacks to the apprentices, participating companies and government. The data were collected by distributing online questionnaires targeting apprentices and interviews were conducted with participating companies and government agency. The overall findings have identified that this program brings in more pros than cons to all parties.

41
Rohadatul'Aisy Nabilah Irwan

FACTORS INFLUENCING CONTINUANCE INTENTION TO USE SOCIAL MARKETING AMONG SMALL ENTERPRISE IN BRUNEI DARUSSALAM

Social media marketing has been widely used as a new interaction and publicity tool by most businesses, especially the micro, medium, and small (SMEs) enterprises. Social media offers massive advantages, primarily in running their daily business activities. This study examined factors influencing small entrepreneur's continuance intention to use social marketing. Perceived usefulness, perceived ease of use, subjective norms, perceived risk, and computer self-efficacy have been casted as determinants of small entrepreneurs' behavioural intention to use social media. This finding indicated that the strongest predictor for behavioural intention to use social marketing is perceived ease of use.

42
Siti Farzana Fatin Ismail

A STUDY ON REENGINEERING THE AUDITING PROCESS USING ARTIFICIAL INTELLIGENCE

This research paper will explain more on the study on reengineering the auditing process using artificial intelligence. The uses of technology have been important in every type of work. This include for auditing work as their work are increasable and it is important to have technology that will help their work to be more effective and efficient. This research paper will further explaining the current auditing process that auditing firm has and how will artificial intelligence will reengineering the auditing process with this technology

43
Muhammad Asyraf Jaman

EMPIRICAL STUDY OF GOVERNMENT HIGHER INSTITUTIONS' WEBSITES IN BRUNEI DARUSSALAM

The study investigates the effectiveness of the government institutions' website based on the usability for students who are currently actively studying at the university and have recently graduated from the respective higher institutions in Brunei Darussalam. The factors of the website usability includes Effectiveness, Error Tolerance, Ease of Learning, Efficacy and Levels of Engagement. The research methods used was quantitative methods of online questionnaire surveys that consist of 21 items. The study results were analysed by using Statistical Package for Social Science (SPSS) Version 26 software for descriptive analysis, correlation and regression analysis. The findings show that the Effectiveness and Efficacy had a significant impact on the website usability.

44
Fauziah Jamil

A STUDY ON HOW FORENSIC ACCOUNTING CAN AID IN DETECTING AND PREVENTING FRAUD

The study investigates the impacts of forensic accounting on fraud detection and prevention. This study aims to determine the relationship between fraud detection, fraud prevention and forensic accounting. This research used data collected from secondary sources that have the same purpose concerning with this analysis. This research will also lead to the awareness of how forensic accounting which can be one of the ways to tackle the problem regarding fraud. Correspondingly, the result of this research would give better understanding the role of forensic accounting and how it can be a useful tool in detecting and preventing fraud from happening.

45
Izzatul Hakimah Johan Thani

AUDITING MOBILE APPLICATIONS AND SOCIO-BUSINESS DATA RISK PERCEPTIONS IN BRUNEI'S ECONOMY

Mobile apps provide benefits to users but also associated risks that personal information users disclose may be misappropriated by third parties. Drawing from the privacy-calculus theory, study assesses (1) what is the general population's perceived risk-benefit trade-off when applied to preventive risk controls when installing mobile applications? (2) Does the impact of permissions from local mobile apps effect the Bruneian general population's decision to install mobile apps depending on the category of the app itself? Findings were evaluated via PLS-SEM and regression analysis. Furthermore, study suggests practical information of the publics' behaviour towards data risk perceptions when using socio-business apps.

46
Muhammad Afiq Khairuddin Kamaluddin

THE FUTURE ROLE OF ROBO ADVISOR IN FINANCIAL SECTOR: A CASE STUDY

The study aims to understand the whole concept of Robo-advisor in general, to understand what happens when Robo-advisor or is used in financial sectors, to investigate what are the barriers of implementing Robo-advisor in general, to identify the potential strength and limitation in the adoption of Robo-advisor in general. The research methodology used to achieve all aims of the study is case study. The conclusion of this study is that there is a lot more disadvantages than the advantages of using the robo advisor as the case studies shows it in the aspect of behavioral biases, practical weaknesses causes by regulatory challenges and transparency aspect.

47
Nuranisah Kamaludin

A STUDY THE ACCEPTANCE OF MOOCS BY BRUNEI DARUSSALAM UNIVERSITY STUDENTS

A Massive Open Online Course (MOOC) is a platform where individuals can learn over the internet. The number of graduates inevitably increases each year, estimating between 3000 to 4000 graduates yearly. Number of graduates will eventually compete in the labour market. To be able to compete and outshine in an increasingly competitive labour market, students need to develop their 'personal capital'. One way to improve personal capital is to make a habit of lifelong learning. The purpose of this study is to investigate the acceptance level of University students to learn online courses (MOOC platform). The methodology use for this study are qualitative and qualitative approaches. Findings show that there is a positive relation between PEOU and intention to use MOOC and perceived benefits shows a significant result where student have the intention to use MOOC.

48
Pee Tick @ Jin Tick Koh

IMPACT OF LEADERSHIP STYLE ON EMPLOYEE'S PERFORMANCE IN SME ON FOOD INDUSTRY IN BRUNEI - A CASE STUDY OF "B-SMILE RESTAURANT"

The following objective guided the study: to identify the type of leadership style within the "B-Smile Restaurant" that contributes to employee performance, to investigate the leadership style if it does affect the employee's performance in "B-Smile Restaurant" and to examine the relationship between leadership style and employee performance in "B-Smile Restaurant". Primary and Secondary research are involved for researching my project. The method was used for this research is interviewing the owner of B-smile restaurant.The study has discovered that there is a significant relationship between leadership styles and the employee's performance of the food industry in "B-Smile Restaurant". Overall, it was found out that democratic leadership style is more implemented in "B-Smile Restaurant" toward the employees' performance than other styles of leadership.

49
Mizatul Munawwarah Mayasin

PERCEPTION AND APPROACH OF ENTERPRISE RISK MANAGEMENT AMONG BUSINESSES IN BRUNEI DARUSSALAM

Enterprise Risk Management (ERM) is an emerging concept that has limited recognition amongst businesses in Brunei. Although some form of implementation has slowly been adopted by few businesses, the research in the field itself is scarce despite its growing importance and relevance, especially in the pursuit of Brunei's national vision of Wawasan 2035, of creating a dynamic and sustainable economy. The purpose of this study is to explore the current business industry of their perception

and implementation of ERM. The study gathers informative, qualitative data from 12 representatives of different companies, from different backgrounds of industries. The data were collected either through an in-person interview, virtual interview, or written response. The overall perception had a similar yet wide range of reasons that reflects their experience and belief of its benefits. Implementation prospects showed that ERM is only recently implemented by most of the participants' companies, except for those who are from financial institutions.

50
Md. Aizzul Azinuddin Md. Omar

HOW UNN HAS AFFECTED CONSUMER BEHAVIOUR WHEN IT COMES TO SELECTING AND USING A LOCAL ISP (DST, IMAGINE AND PROGRESIF)

With the existence of UNN in Brunei, it completely changes the overall environment of the telecommunications market in the country, with each ISP now being able to provide similar services, customers have more choices to select from and ISPs now have competition with their respective ISP counterparts. This study explores the awareness of consumers as well as the factors that affect consumer behaviour when it comes to selecting an ISP for their mobile and home internet needs. ISPs in Brunei should pay attention to their customers needs and wants and they will be the determinant factors as to whether or not the ISPs will be successful in the market.

51
Muhammad Shalihuddin Md.Boestamam

PERCEIVED BEHAVIORAL CONTROL ON THE ENTREPRENEURIAL INTENTION OF UNIVERSITY STUDENT

The theory of planned behavior has proved its efficiency when predicting behavior of a person. However little have been done to find the relationship of entrepreneurial intention with perceived behavioral control and self-efficacy. This paper will derive an in-depth study of the relationship between entrepreneurial intention with perceived behavioral control and self-efficacy using data collection from the university student with an exposure to the entrepreneurship. The study will demonstrate and try to establish the reliability and correlation on how these factors cans influence the entrepreneurial intention of it. In addition, the interest of the university student toward entrepreneurship will also be investigated and documented, where theses can be become necessary in our education especially entrepreneurship study and how we can reform it based on these studies.

52
Fatin Nuramalina Mohamad Yusra

CONSUMER PERCEPTIONS OF ISLAMIC FINANCE IN BRUNEI DARUSSALAM

Islamic Finance in Brunei Darussalam is currently expanding where recently

conventional institution, Standard Chartered Bank has introduced the first Islamic finance products to be part of the institution's products but as a different department. With the current expansion, the Islamic Finance institutions in Brunei Darussalam should play an important role in educating the locals which could improve their level of awareness on Islamic Finance. This study is to find out whether the consumer perceptions are influenced by the consumer's awareness, knowledge and religion. In the study, it is found out that the consumer perceptions are influenced by the consumers' awareness and knowledge. Nevertheless, the consumers' knowledge in Islamic Finance needs an improvement.

53
Siti Nurqoidah Nuruljannah @Aliah Mohamed

A STUDY ON THE CONTRIBUTION OF WAQF TO POVERTY REDUCTION IN BRUNEI DARUSSALAM

Poverty is one of the socio-economic issues that the global dedicate to solve. Though, the interpretations and the methods to address poverty are diverse globally. To the government of Brunei Darussalam, alleviating poverty in the nation is attached to achieving the Brunei Vision (Wawasan) 2035. The purpose of this study is to examine the current contribution of waqf to poverty reduction and the potential of the waqf as a poverty alleviation strategy in Brunei Darussalam. This study utilized qualitative approaches through documentary analysis and interviews with the waqf institution in Brunei Darussalam, the Brunei Islamic Religious Council (MUIB).

54
Badruzzaki Mohd. Taib

PROFIT SHIFTING AND TAX AVOIDANCE OF MULTINATIONAL COMPANIES IN SOUTH EAST ASIA

Corporate tax is a burden and liability to company as they have no choice to pay on the rate of tax regulated by the authorities of the country. Tax especially to multinational company is a huge loss of money since they want to maximize profit as much as they can. The research aims on defining tax avoidance and profit shifting as well as identifying on profit shifting in South East Asia countries. the research used secondary data and studied 55 companies on six selected countries.. The paper also provides theoretical knowledge

55
Nadya Nabilah @Zuraynee Muhammad Abdul Ghani Firdaus

PARENTAL SOCIALIZATION AND FINANCIAL WELL-BEING: EXAMINING THE MEDIATING ROLE OF FINANCIAL BEHAVIOR

Financial well-being refers to the capacity of an individual to have enough money for non-essentials. For individuals to achieve financial well-being, they would need

to apply appropriate financial knowledge in return, this would shape their financial behavior. Parents may affect its financial behavior through various method such as disccusision and teaching, which could be identified as parental socialization. Therefore, The aim of this study is to investigate the relationship between financial well-being, financial behavior and parental socialization by exploring the role of financial behavior as a mediator.

56
Ayu Nadhirah Muhammad Azwan

ANALYSIS OF THE PERFORMANCE OF CRYPTOCURRENCIES DURING THE BEAR MARKET OF COVID-19

The aim of this study is to investigate how the bear market of Covid-19 affected the returns and volatilities of Islamic and conventional gold-backed cryptocurrencies; and conventional fiat-backed cryptocurrencies. The daily returns of Onegram, Hellogold, Paxgold and Bitcoin dated from December 1, 2019 until March 30, 2020 are used for analysis by using the ARMA – GARCH model. By comparing the results between each of the cryptocurrencies, it had been found that during the bear market of Covid-19, all the cryptocurrencies have decreased returns, but the decrease was only significant for the Islamic gold-backed cryptocurrency. As for the volatility, it was found to have increased for all the cryptocurrencies during the period. However, the increase is found to be significant only for the conventional fiat-backed cryptocurrency.

57
Dayangku Raja' A Rafatin N Pengiran Abd Rahma

NATURAL LANGUAGE PROCESSING (NLP) IN INTERNAL AND EXTERNAL AUDITING

The purpose of this research report is to discuss how Traditional approach in auditing has changed in implementing Natural Language Processing (NLP) in both internal and External auditing profession. Nowadays biggest advances in Natural Language Processing (NLP) has been used in accounting, finance and auditing to create the state of current knowledge and to analyze paths for future research. Besides, for better ways of handling the tasks that could improve the work performance or enhanced audit's effectiveness, improved communication and public services and most of the digitalize data will still not have structured and that is where the Natural Language Processing (NLP) comes in. Hence, by implementing the Natural Language Processing (NLP) method has improves the quality and the accuracy of audit work more efficiently and effectively.

58
Awangku Mohammad Al-Isyraq Pengiran Haji Abu Bakar

DRIVING FACTORS AND CHALLENGES FOR SMES IN UTILISING DIGITAL PLATFORMS

The use of Digital Platforms has been more relevant and commonly implemented

on SMEs in Brunei Darussalam. The aim of this study is to understand the extent of the common drivers for these SMEs to implement digital platforms as part of their business operations as well as the recurring themes in the challenges and obstacles of digital platform usage in Brunei Darussalam. The data was collected in both quantitative and qualitative findings in order to deeply comprehend and leave rooms for opinions and in depth interpretations. It was found that most SMEs value the ease of use use , relative advantages and increase in their performance more. SMEs would spend less for digital platforms, and rather use social media apps than having their own website. The findings also suggests that there is limited digital knowledge despite high IT accessibility.

59
Dayangku Amal Faizah Pengiran Haji Kamaludin

COMPARATIVE STUDY ON POVERTY IN ISLAMIC AND CONVENTIONAL ECONOMICS

Various scholars, hypotheses, and, in this case, economic perspectives have applied different strategies to eradicate or at least minimize the amount of poverty. The paper looks at past studies by various research that focuses on poverty alleviation by comparing traditional and Muslim economies. The study utilizes the approach content analysis to review and critically analyze the paper, focusing on the underlying factors, the different approaches to poverty alleviation as well as the influential differences made by Islamic economics and conventional economics. This method is carried out by conducting literature reviews that compares both of the perspectives, as well as papers approaches the topic separately. According to the report, the major factors contributing to poverty are individual, socioeconomic, and educational factors, while policies and Islamic solutions like zakat are frequently cited as the most effective tools for alleviating poverty. While both studies have been shown to be successful at reducing poverty, the Islamic approach has a greater impact.

60
Dayangku Fatin Nazirah Pengiran Md Said

EFFECTS OF LEADERSHIP STYLE ON EMPLOYEES' JOB PERFORMANCE IN THE ORGANIZATIONS

The study intends to identify the effects of leadership styles on employees' job performance in the organizations. Online research questionnaire were distributed to employees working with any organizations. The study focused on four leadership styles, which include transformational leadership, transactional leadership, authoritative leadership and laissez-faire leadership. The finding of the study indicated that transformational and transactional leadership styles have positive relationship with employees' job performance in the organizations.

61
Dk Nurul Mardhiah Naqsyabandiah Pg Haji Ibrahim

REVEALING CYBER SECURITY THREAT: SECURITY TECHNICAL AND MANAGEMENT APPROACHES – EVIDENCE FROM BRUNEI, INDONESIA, AND MALAYSIA

Technology is playing a major role in every aspect of a human being; shopping, online transaction, business, study, social to name a few, which means that almost all of an individual's personal information has become digitalized. At the same time, securing this information from data breaches has become one of the biggest challenges to many governments and agencies. This paper reveals several approaches taken by government and agencies to prevent cyber threats in Brunei such as in terms of technical, and management include legal, organizational, education and awareness as well as collaboration and compare it with Indonesia and Malaysia approaches.

62
Dk Nur Hanizafirah Pg Haji Zainal Ariffin

HUMAN RESOURCE ACCOUNTING MEASUREMENTS DISCLOSURE IN THE BANKING SECTOR OF BRUNEI DARUSSALAM

This research paper studied on the Human Resource Accounting and its practices and how it affects the firm's financial performances on the banking sector in Brunei Darussalam. The objective of this study is to investigate on what Human Resource is and how the banking sector uses them in the organizations. The researcher has collected a qualitative data from the selected banks, and analyze them using the thematic analysis method. This paper also serves as the first study on Human Resource Accounting in Brunei Darussalam. Results and findings of this study have shown that majority of the investigated banks did not widely practiced the Human Resource Accounting, and only the sub activities are being practiced in the banking sector.

63
Dk Siti Nornadiah Pg Hamid

A STUDY ON UNDERSTANDING THE IMPACT OF INTEGRATED MARKETING COMMUNICATION ON CONSUMER BEHAVIOR

The purpose of this research study is to understand in depth the possibility impact of integrated marketing communication on the consumer behavior. The data collection would be by using secondary data and this study will be gathering the information from the past researches, review papers and documents related to the topic of this research study which most of the articles found is on online. In this study, there is a proposed framework modified from the past researches framework model to help this study to visualize the information to be discussed in the discussion chapter to easily find out the impact of integrated marketing communication on consumer behavior. As a result of this study, it turns out that both psychological and the actual behavior are the most aspect that impact the consumer behavior through the

integrated marketing communication by using the blended communication out of all six channels.

64
Ak Muhd Zulazmi Pg Hj Kamaluddin

A STUDY ON THE IMPACTS OF PHILANTHROPIC WAQF IN ECONOMIC DEVELOPMENT: THE BENEFITS AND LIMITATIONS

Philanthropic waqf or cash waqf is a type of waqf which aims to encourage service to the society by creating waqf which utilizes monetary means. This research was conducted to analyze the impact of philanthropic waqf on the development of economy where this research will be looking into the impact of cash waqf, the management aspect of it, the beneficial aspects of cash waqf as well as the drawbacks or limitation of this type of waqf. The research will be conducted through review paper and document analysis methods, where articles from existing researches that are related to the chosen topic will be analyzed and compared.

65
Pg Siti Hani Naquiah Pg Hj Md Yusri

THE WILLINGNESS OF CONSUMERS TO USE ONLINE FOOD DELIVERY SERVICES DURING PANDEMIC

The purpose of this study is to examine the consumers' acceptance level towards the usage of Online Food Delivery application. The study collected a sample size of 105 respondents with data collected through the use of questionnaires. This study aims to investigate and examine the Perceived Usefulness, Perceived Ease of Use and Perceived Risk relationship with the intentions to use by implementing the Technology Acceptance Model by Davis (1989). The overall findings from this study shows that there is a negative impact towards the independent variables and the intentions to use.

66
Ak Muhd Shair Amsyar Pg Shahrel Annuar

MOTIVATION FACTORS OF ACADEMIC INVENTORS IN COMMERCIALIZING THEIR INVENTION

This study attempts to see why no. of Intellectual Property and commercialization is low in Brunei, Motivation Factors that will lead to decision to commercialize and suggest ways to commercialize their invention. A questionnaire was administered specifically to the Undergraduate, Postgraduates and Academic staff from 3 University's in Brunei (UTB, UBD and UNISSA) with age range between 18 – 60 years old and above through online survey tool in order to get data that will be used in this study. Therefore, a total of 104 respondents have been obtained for this research. The study also examined the Motivation Factors of Academic inventors in commercializing their inventions with the aid of Research Based theory model

and Valley of Death theory which proposed research framework has been created to develop relevant hypotheses. SPSS software will be used as a tool to analyze and interpret the data used in this study which several methods will be applied in the data analysis that includes frequency analysis, descriptive analysis, Test of Normality, independent t-test, Non-parametric test, correlation analysis, ANOVA and regression analysis. There are one dependent variables as explanatory used in this research study which are commercialization output. The findings concluded the motivation factors of academic inventors in commercializing their inventions which university support and motivation has a strong and positive correlations and the impact is significant to the dependent variable. Implications and limitation were drawn in the study as well as some directions for future researchers were also suggested on the basis of the findings in order to provide a better idea for their future research.

67
Dk. Siti Nurul Hafizzah Pg. Ali Hasan

FEASIBILITY STUDY OF MANAGING CULTURAL TOURISM IN CENTRAL BUSINESS DISTRICT – BANDAR SERI BEGAWAN

Tourism industry is important as it can generate revenues for the country. Developing and implementing sustainable, responsible and inclusive tourism products or services are the starting point to gain attractions towards the country itself. This study measured the service quality experienced by visitors at any event management held in Bandar Seri Begawan (BSB) using SERVQUAL model. The field research was conducted on 21 February 2021 at BandarKu Ceria, Bandar Seri Begawan, Brunei Darussalam. And online survey was also distributed among the vendors participated in BandarKu Ceria. The data obtained from a sample size of 200 respondents is analysed. Questions regarding cultures of Brunei Darussalam are also included in the survey questionnaire as to find out their opinions on the potential of cultural tourism. The results followed with positive acceptance towards the merging of culture and BSB event and revealed that the inclusion of cultural elements in an event can be an attractive factor for both local and tourist visitors.

68
Dk. Saadatul Ashikin Pg. Ariffin

THE EFFECTIVENESS OF SOCIAL MEDIA FOR MSMES

This study is conducted to identify the effectiveness of social media for MSMEs on social media marketing for the customers and social media engagement for the businesses. The dependent variable focuses on effective social media, types of social media (Instagram, Facebook and TikTok) and business accounts as the independent variable while online paid advertisements and influencers are the control variable. The impacts of the usage and effectiveness of social media are as follows; increase in sales, increase in recognition, increase in engagement and increase in patrons. The data for this study is collected through both qualitative and quantitative methods. An online survey questionnaire through Google Form distributed to the public and interviews were either through a face-to-face interview, direct message on Instagram or e-mail. The research findings are analysed using Jamovi. The result shows that

there is a negative impact between social media influencers and the types of social media used for doing online business with the effectiveness of social media for MSMEs. However, there is a significant and positive impact between sponsored posts and business accounts with the effectiveness of social media for MSMEs.

69
Shahratul Karmila Rosland

THE EFFECTS OF FINANCIAL LITERACY ON FINANCIAL WELL-BEING AMONG YOUNG ADULTS IN BRUNEI

This study aims to investigate the relationship between financial literacy and financial well-being among young adults in Brunei. Aside from measuring financial literacy as a single variable, this study also considered two separate components to measure the financial literacy of individuals – financial knowledge and financial skills. A positive and significant relationship was found between financial skills and financial well-being. Financial knowledge was found to have a negative but insignificant relationship with financial well-being. However, when financial well-being was further decomposed into two parts – expected financial future security and current money management stress. The study found financial knowledge to have a significantly negative relationship with expected financial future security and a positive but insignificant relationship with current money management stress. To understand these issues further, prospect theory was used for hypothesizing the effects of financial literacy and financial well-being.

70
Haddijatou Saine

CONVERGENCE OF BDAS NON-PIE WITH IFRS FOR SMES: A COMPARATIVE ANALYSIS OF PPE, INVENTORIES AND INTANGIBLE ASSETS

The goal of achieving a high level of convergence in accounting methods and choices has been an important agenda for the two leading accountancy boards, the IASB and FASB. This is so because convergence brings greater comparability and consistency in financial reporting. The purpose of this study is to investigate the convergence level between The Brunei Darussalam Accounting Standard for Non- Public Interest Entities and the IFRS for SMEs by comparing and analyzing the recognition and treatment of Property Plant and Equipment, Inventory and Intangible assets of both standards. Using document analysis, a form of qualitative research, this study analyses and compares the two accounting standards to find out the similarity and/or dissimilarity between the two standards. The finding reveals that there is a substantial level of convergence between BDAS NON-PIE and IFRS for SMEs in terms of recognition and measurement PPE, Inventory and Intangible Assets. The findings of this research are definitely beneficial to financial statement users such as investors and regulators and it also contributes to the literature and future research based on similar topic.

71
Siti Shahrizat Sopihan

THE FACTORS AFFECTING THE KNOWLEDGE AND AWARENESS OF TAKAFUL IN BRUNEI DARUSSALAM

This study attempt to investigate the factors that could affect awareness and knowledge of Takaful in Brunei Darussalam. The independent variables for this study are age, gender, occupation, religion, monthly income and level of education. While the dependent variables are knowledge of Takaful and Takaful awareness. An online survey tool was used to randomly distribute a questionnaire to Bruneians aged 18 years old and above in order to collect data for this report. Therefore, a total of 115 respondents have been obtained that will be analyze for this study. Microsoft Excel and Ordered Probit Model-Stata software are used as a tool to analyze and interpret the data used in this study. The finding concluded that monthly income and level of education has a positive relationship with both of dependent variables as the result from Stata showed a positive coefficient.

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Mohamad Rafaie Takong

A STUDY ON IMPACT OF LOCAL TELECOMMUNICATIONS' ONLINE ADVERTISEMENT TO USERS BUYING INTENTION

The research subject of interest is to analyze how local Telco's perform their online ads which leads to user buying intention as well as to assess their level of advertisement effectiveness. Therefore, contains in this research paper are past studies, literature review evidence, and sources regarding the general development of online advertising and also comprise of our own research in the structure of an online survey that had successfully garnered around 125 valid respondents. Furthermore, this paper will assist us in determining the advertisement status between local telco's companies in Brunei, also taking into account to help overcome the problem.

73
Nur Fadira Tamimi

DIGITAL MARKETING & ITS IMPACT ON MSMES

In the continuous improving digital world, the adoption of digital marketing has become a trend in business marketing strategy to outstand in Brunei's competitive market. It significantly impacts on Micro, Small and Medium Enterprises' (MSMEs) performance, however, the impact of digital marketing implementation on the success of MSMEs is inadequately established. In this research, it will outline digital marketing factors that affects MSMEs' strategic performance and financial performance. Followed by identifying the challenges faced by micro and small enterprises in Brunei including suitable social medias and the features provided to use by conducting both qualitative and quantitative analysis. And also discussed with each problem's approaches and possibilities that exist within the evolving digital marketing in Brunei.

74
Hanisah Zainul Ariffin

ARE BRUNEIAN FIRMS READY TO ADOPT CONTINUOUS AUDITING?

The emergence of technological development in auditing area has been growing. This research paper is to examine whether firms in Brunei Darussalam would adopt continuous auditing into a practice based on its benefits and limitations as well as the effects on the firm itself. With in-dept examination of the study would give an insight on what Bruneian firms will perceive on how emerging and evolving continuous auditing to the auditors and also, to the management of a firm which can lead them to implement the concept of continuous auditing.

School of Computing and Informatics

1
Dk. Siti Nur Diyana @ Dk. Siti Raudhah Bte. Pg. Shahminan

CURRICULUM MAPPING

With the ever-changing need of improving the curriculum of UTB, a web app was developed to provide a better solution to manage the curriculum mapping of UTB. This website was developed utilizing the technology of Django Admin with React.

2
Nursabrina Binti Abd. Zabar

CENTRALIZED SMART BOOKING WEB APPLICATION FOR SPINNING COMMUNITY (BRUSPIN)

BruSpin aims to centralize the booking system of all spinning studios available in Brunei Darussalam. To date, there are 5 active spinnning studios that utilized a manual-based booking system. Their current system allows the studio's owner to store and manage bookings through a paper-based system where they have to manually write down the booking details while the members of the spinning community can register the classes by texting the owner privately through WhatsApp. Hence, BruSpin aims to computerize this current system as a web-based.

3
Saidatul Ekma Binti Jamain

PRPB (PUSAT RUJUKAN PERKAMUSAN BRUNEI)

PRPB is a centralized system for e-kamus and data dictionary management. This system enables public user to search Brunei data dictionary online immediately both at website and mobile application inclusive with the advance technology of chat bot and provide back office systematic ways to manage their data management system effectively.

4
Siti Nur Majidah Binti Haji Abdullah

ZAKAT COMPLAINT MOBILE APPLICATION

A mobile application as an official platfrom for the Muslim citizen especially the zakat applicants and zakat recipients, to submit their complaint regarding zakat matters and to reduce information spreading on social media to prevent from fake news.

5
Noramalina Haji Jamaludin

HALALBN

HalalBN is a mobile application that allows users to make queries if they have any doubts about the halal-related matters, cleanliness of restaurants/premises, and smuggling issues within Brunei. The goal is to reduce the spread of information through social media.

6
Siti Zubaidah Binti Haji Ismail

G.O ON THE GO (ENHANCEMENT)

G.O on The Go is a mobile application, where user can view “Peraturan_Peraturan Am” document, view and download G.O past year paper, G.O practice quiz, and exam registration for 4 exams under PSD. The four exams are “Peraturan-Peraturan Am dan Peraturan Kewangan”, “Melayu Islam Beraja”, “Perkhidmatan Kesetiausahaan”, and “Undang-Undang Am dan Perlembagaan”.

7
Muhammad Rusydi Bin Haji Mahadi

BAHASA KITANI

A prototype mobile application “Bahasa Kitani”, whereas to educate and prevent 7 indigenous languages from getting extinct. With the availability of the app, it will be useful for reference, study and other purposes. As a result, certain words will be recognize, and it is an important step in the country’s progress towards achieving Vision 2035.

8
Muhammad Afiq Ezzat Bin Murah

UTB ENGINEERING LABS MANAGEMENT SYSTEM

System intended for UTB FoE members e.g., students to book equipment for use during classes and projects along with the appropriate laboratory. The administrator and technicians (from Engineering Labs) will use the system to update information regarding their equipment and schedule them for maintenance where required.

9
Ahmad Hanif Izzuddin Bin Haji Hamidun

UNI LIFE TRACKER

The platform is meant to help all the students and staff members of the University to efficiently keep track and record all student details and information, to help relevant staff make better decisions, while also allowing students to carry out basic administrative activities

8
Mohammed Abid Bin Samat

STUDENT PERFORMANCE EVALUATION IN STEAM PROGRAMS

This project is dedicated to Science, Technology, and Environment Partnership (STEP) Centre with the purpose to enhance the traditional paper-based performance evaluation in STEAM programs by integrating data management system which records participations data and generate analysis from the compilation of online surveys and the results from the program they have joined.

9
Syazwi Bin Sazeli

FIREFLY

A system that address the needs for community in the Water Village (Kampung Ayer) and also for tourist to hail water taxi for the means of transportation.

10
Haziq Rif’at Bin Hj Md Yamin

BILINGUAL TWITTER DATA SENTIMENT ANALYSIS FOR DETECTING DEPRESSION

A study in analyzing people’s emotion and behavior in the bilingual text specifically Twitter for detecting depression so early interventions can take place. Several processes and experiments were done to develop the machine learning models. The final output was to choose the most decent model in recognizing depression in the Twitter data.

11
Muhammad Amirul Adli Bin Rozailan

PICTIFY MOBILE APP

PICTIFY is mobile app that identify objects using Image Processing, provide translation and text-to-speech

12
Mohamad Khairul Haziq Firdaus Bin Mansor

AD HOC REPORTING OF STUDENTS PERFORMANCE

UTB Student Performance Tracking System (SPTS) is a web-based platform that allows lecturers to provide on-the-spot and up-to-date reports of all or a selected number of students in UTB such as the best performing students eligible for rewards, the demographics of students studying in UTB, the under-performing students that requires help etc.

13
Siti Fathin Maziyyah Amal Hayati Binti Haji Metussin

PUBLIC SERVICE DEPARTMENT HOUSING INFORMATION SYSTEMS

Public Service Department (PSD) Housing Information System is a web-based system that manages government housing under the Public Service Department (PSD) control and helps the Housing Unit to overcome their difficulties they currently faced. This system will helps the Housing Unit to easily manage the houses information, house owner information and tenants information.

14
Nurul Asyiqin Binti Muhd Seheden

KAMPUNG MANAGEMENT SYSTEM (KMS)

Kampung Management System (KMS) is a web-based working prototype that mainly be use to manage the Kampung's related data. Implemented with the goals to modernize the existing traditional method of organizing, searching, managing and collecting of data into a digitalize one using a centralize platform.

15
Azrina Ahmad

SMART TRACKER OF ICTC ASSETS

Smart Tracker of ICTC Asset is a web-based asset management system designed for ICTC @ UTB to manage assets records and handle issue tickets submitted by UTB Staff. This system also incorporates with Bluetooth Beacon sensor that is capable to notify System Admin if an asset is being stolen.

16
Fatin Afiqah Binti Dahrin

IVOLUNTEER

A Web-Based and Mobile Web-App platform used to centralise announcements and events in UTB and to ensure clarity of information as well. Thus, pave the way for a clutter-free system.

17
Siti Nur Nadhirah Binti Julaihi

GUARDIANS OF THE SEA

Guardians of the Sea is a platform that calls upon the public to support the cause of cleaning up coastal areas and beaches through organizing beach clean-up events or to participate as volunteers for the events.

18
Muhammad Afiq Bin Mohd Rosli

SCI FYP MANAGEMENT & ASSESSMENT SYSTEM

A system that address the requirement School of Computing and Informatics final year project. From the dessimination of project synopsis from staff to the allocation until the allocation of marks at the final.

19
Mohammad Nur Husaini Bin Ismail

SMART ATTENDANCE MONITORING USING FACIAL RECOGNITION

Exploration into the study, application and implementation of facial recognition technology utilising Histogram of Oriented Gradient, Deep Convolutional Neural Network and Face Landmark Estimation in an attendance marking system for the use of the classes in the university.

20
Aida Ruzana Arifin Binti Bungsu

360° VIRTUAL REALITY ENVIRONMENT: BE A RESPONSIBLE PEDESTRIAN

Using 360° VR as a platform to promote the responsibility as a pedestrian in keeping their lives safe. The video portrays the pedestrian being irresponsible and just cross the road without any care.

21
Ahmad Syahmi Bin Salim

QUALITY OF NETWORK WITH DATA ANALYTICS [QONDA]

QONDA is a system that is capable to monitor home internet network performance and deliver real-time analytics which can benefit regulators and service providers who want to enhance the experience and quality of service of their network.

22
Zulhazreen Bin Burhan

PRICE REPORTING APP

Checking prices of groceries online via mobile app of any store in Brunei

23
Nuruljannah @ Nur E'zzati Binti Mat Lajim

NAHKERAJA

The unavailbility of a centralised micro-job platform that would cater to income-earning activities has led to the development of NAHKERAJA which is a freelance job web-based system developed in hope to be a one-stop centre providing job opportunities assisting employers who are in need of assistance in performing handyman tasks or micro-jobs and job seekers who are willing to perform these tasks.

24
Rozairul Nazril Bin Mohd. Daud

ICT INFILTRATION

A study that shows how deep is the ICT infiltration in Brunei Darussalam or in other words, how knowledgeable are the residents of Brunei towards Info-Communications Technologies especially towards the use of its services and devices.

25
Wan Syiffawiaam Alya'a Farhah Binti Zulkiflee

ONLINE COMMUNITY MARKETPLACE

As the name the system serves as an online community marketplace.

26
Nurulain Binti Haji Fauzul

PUBLIC SERVICE DEPARTMENT INQUIRY MANAGEMENT SYSTEM (PSD IMS)

PSD IMS is a customer service oriented and customer-friendly centralized web-based system that can ease the process of managing and attending customer's inquiries efficiently and effectively. It can also act as a portal for customers (government employees) to submit and monitor their inquiries.

27
Mohammad Zulfadli Bin Haji Mustapha

MOE DA SERVICES

The MOEDAS system will be used to aid increasing the efficiency in the operation and the process services within the Ministry of Education department in the area of room booking and apply for training for employees.

28
Muhammad Rafie' Syazwan Bin Muhd. Rusydi

SENTIMENT ANALYSIS ON PRODUCT REVIEW

(N/A)

29
Nurul Hayyattul Hafizzah Binti Hasbi

INFORMATION EXTRACTION: CASE OF PRODUCT DETAILS FROM BRUNEI E-COMMERCE WEBSITES

The main aims for this project is to extract data from local e-commerce websites for data classification and data analysis purposes. Data extraction from the web is one of the best ways to get useful data especially for a business that wanted to expand their market or improve their products.

30
Awangku Muhammad Wafiy Bin Pengiran Haji Amir Isa

TEXT ANALYTICS FOR DOCUMENT GEOTAGGING

Geotagged PDF documents based on location information extracted from the content of the document and other additional information and developed a map-based interactive interface that can to facilitate filtering, searching and browsing those documents based on the geotags

31
Lee Chee Hong

APPLYING MACHINE LEARNING TECHNIQUES IN THE PREDICTION OF PERMEABILITY IN COAL SEAMS

Obtaining the permeability of coal seams from unconventional reservoir is a challenging task but required to determine the commercial status of the coal. A Machine Learning (ML) solution was thus proposed to predict permeability values after extraction and conversion of sensors data into ML-friendly format.

32
Haji Mohammad Faez Bin Hj Md Jaini

ESSENTIAL DNA PROFILING SEARCH ENGINE DATABASE

An essential DNA profiling search engine database is a system for managing DNA profiles that contains information on criminal records. The goal of the project is to store DNA profiling and receiving of cases. A dashboard to provide visualise data for generating reports. To develop a search engine function for DNA profiling. Intentionally it a database system to used for Forensic agency. Basically it will aid the forensic experts in retrieving DNA profile.

33
Abdul Matin Bin Haji Abd Rahim

RADED ANALYTICAL ENHANCEMENT (RAE)

A study to develop a Machine Learning model to predict the road accident's severity and assess its key influence to assist in the road safety measures. As a result, a model-based on Tree Algorithm has proven to provide a piece of valuable information towards road safety management.

34
Muhammad Noorur Raziq Bin Abuzar

PREDICTIVE SLEEP QUALITY THROUGH LIFE AND FITNESS LOGGING DATASET ANALYSIS

A study that intends to perform analytical tasks on the raw lifelog and fitness data containing various daily living parameters and sleep data to investigate hidden valuable patterns between one's sleep and fitness. This also explores the possibility of using Machine Learning techniques to predict one's sleep quality to better understand factors contributing to an improved general well-being.

35
Lyana Anak Berawoh

PREDICTING READINESS TO TRAIN USING SUPERVISED MACHINE LEARNING

This project aims to build a machine learning model using the PMData Sport Logging Dataset which is to predict a player's readiness to train for the next day using the player's previous's day overall wellness.

36
Amal Hazimah Binti Mohamed Yusoff

STAFF WORKLOAD MANAGEMENT SYSTEM USING WISN

A web based information system for Human Resource manager to monitor staffing situation that uses methodology and algorithm of Workload Indicators of Staffing Needs that was introduced by WHO to generate calculated workload result of understaffed or overstaffed situation in Healthcare centers.

37
Noor Afiqah Maisarah Binti Noor Azlin

BGPSEC MULTI SECURITY MODELS PATH VALIDATION STUDY

A study on BGPSEC on path validation and the effect of having multiple security model by Lychev et al on the internet.

38
Muhammad Hafiiz Yaziid Bin Haji Zaini

VIRTUAL EMAIL SERVER PENETRATION TESTING

This project investigates current risk analysis practice in Universiti Teknologi Brunei (UTB). The main aim of the project is to explore the possibility of introducing a working risk analysis model that can be easily adopted.

39
Vincentius Billy Devanandha

ORNTG - OPTIMISED RANDOM NETWORK TOPOLOGY GENERATOR

A python-based tool that generates random network topologies on the Autonomous System (AS) level. The generated topologies can be used for experimental study on network researches e.g. path validation, protocol implementation.

40
Muhammad Firdaus Muhibbuddin Bin Haji Mustafa

SDN SECURITY TESTING ON APPLICATION, CONTROL AND DATA PLANE

A research and project that applies SDN security testing on application, control and data plane.

41
Awangku Muhammad Khairul Amir Bin Pengiran Darma Putra

FEASIBILITY STUDY ON COGNITIVE IMPROVEMENT IN RECALLING PASSWORD Y USING ANCHORING MEMORIES

A study regarding a login system by recalling the password using anchoring memories in cognitive improvements in terms of another alternative from the simple recalling without aids. With the help of different images ties in with each own individuals memories in terms of emotion related like happy memories, sad and mundane memories. Then choose specification of image point that shows that image emotion stated.

42
Shahrimmarlyanna Haryaty Binti Karim/abdul Karim

MODELING RISK ANALYSIS

A study on modeling of risk analysis.

43
Muhammad Afiq Bin Amirul Elfri

DETERMINING PADDY CROP HEALTH FROM AERIAL IMAGE USING MACHINE LEARNING APPROACH

This project looks into the meaning of the object indication in multispectral aerial image particularly paddy fields. Then explore and determine the crop health by using machine learning approach.

44
Mohamad Zuhair Arif Bin Shahrum

IOT FOR WATER HYDROLOGY IN PADDY PLANTATION

An IoT device that deals with water hydrology in paddy plantation to better prepare farmers for unpredictable weather and climate change.

45
Muhammad Ihsanuddin Bin Haji Md Yassin

FLOOD DETECTION & MONITORING SYSTEM

An attempt to adopt the use of sensors to help in detection of water level and early warning system for flood mitigation. The IoT system helps in flood detection and monitoring system.

46
Muhammad Zulhilmi Bin Zainal

REMOTE IOT SECURITY DEVELOPMENT FOR GATE SECURITY MONITORING

An IoT device to support in mitigating external security threats for current IoT projects, that focuses on their gate fence security, held at Badas regions.

47
Mohamad Hafiz Bin Awang Jumat

WEB-BASED & MOBILE APPLICATION MONITORING AND ALERTING SYSTEM FOR PEATLAND WITH LORA

A system which monitors peatswamp forest with the help of wireless devices which enable the user to remotely monitors the parameters of the environment and also notified user via email if an abnormal behaviour detected

48
Dk Nurul Saiyidah Binti Pg Md Jeffery

LORAWAN-BASED SMART SEWERAGE MONITORING SYSTEM

An end-to-end project using LoRa communication technology and IoT devices to monitor the condition of sewer or pipes. The primary aspect of the this project is that it can obtain and receive data from all of the sensors installed in different locations, analyze these data, and alert relevant authorized if any actions is required. In addition, another major contribution of this project are the introduction of a novel forecasting algorithm and the revelation of correlation between the sewage water level and the rainfall, which will aid in prioritizing certain areas that need more attention in an emergency circumstance, i.e.: water overflow, pollution.

49
Nurul'ain Mardhiyah Binti Haji Mohd Sofri Khan

SMART LORA BASED NOISE LOGGERS FOR DETECTING LEAKAGE IN WATER DISTRIBUTION NETWORK

A web-based and mobile application system that monitors the noise levels of water pipelines in the water distribution network and notify user(s) of any possible leaks via email and/or mobile notification. The project uses prototype LoRa based IoT devices to record reading and send data remotely to the monitoring platform. Machine learning was also introduced to locate the location of leakage.

50
Muhammad Fauzan Bin Haji Salleh

SMART WASTE BIN SYSTEMS USING BEACON TECHNOLOGY

A system that consist of multiple Trash Bins that can communicate with a single Node that will collect all the information and send WhatsApp message for actions.

51
Izzat Aizaq Bin Romzi

IOT FOR AVIAN CONTROL (BIRDS) ON PADDY PLANTATION

An IoT system that help to distract bird in the paddy plantation.

52
Mohammad Safwan Nasrun Bin Haji Daud

IOT BASED SHRIMP FARMING

IoT based Shrimp Farming that monitor water quality and automate the process. Actuators like fan, pump and heater are used to switch on automatically when the threshold value are violate. At the same time, it also able to notifies the user.

53
Amal Azimah Zahidah Binti Ali Ajis

IOT BASED ENVIRONMENTAL CONTROL AND MONITORING SYSTEM FOR INDOOR MUSHROOM CULTIVATION

Project that explores the possiblity of using IoT technology to monitor and control the environment in indoor mushroom farms and to promote mushroom farming in Brunei by making it more accessible and appealing to farmers.

54
Haji Mahran Bin Dr Haji Morsidi

BLOCKCHAIN REWARD SYSTEM

Looking into the possibilities of using Blockchain as a reward system within UTB. Generated a framework as a guideline for local development, along with the examples of software chosen. Then carried out for a simulation (specifically for MTSE) with the use of smart contracts.

55
Nur Rahmah Bte Abdul Rahim

ABANDONED - 3D ANIMATION SHORT STORY

A 3D short story animation evoking emotions to raise the awareness of abandoning their pet.

56
Mohammad Nazirul Nizam Bin Mat Serudin

3D ANIMATION SHORT STORY - PORTRAIT

A 3D animation Short story to raise and measure the awareness about dementia using art of storytelling, video theories, techniques and principles of animation.

57
Muhammad Faiz Bin Sani

HOPE - 3D ANIMATION SHORT STORY

A semiotic 3D animation short story that symbolize the struggle of people with anxiety and depression who seek the remaining hope to escape the dark mind world.

58
Muhammad Attalarik Nashrullah Bin Awang Haji Bakar

FOLKLORE - A FANTASY 3D ANIMATED SHORT FILM

A 3D animation short story based on the local Bruneian folklore of “Gua Harimau” in Bukit Tempayan Pisang, Serasa.

59
Melanie Chua Jing Wenn

THOMAS - 3D ANIMATION SHORT STORY

A 3D animation short story about a boy name Thomas who is bullied. One day Thomas could not endure it anymore and decided to make a life or death decision, an effort to be closer to his mother.

61
Dk. Nuraqil Yasarina Pg Mohd Yassin

FIRE DRILL SIMULATION FOR SCI LT

Immersive virtual reality to provide the users effective high risk fire drill training that can help them understand how to properly respond to fire hazards and evacuate the building safely and quickly.

62
Naderah Nabelah @derah Hj Mohd Faderin Lee

3D ANIMATION - HEARING THE SIGN LANGUAGE

A short 3D animation about a Deaf girl who is shy but yearns to communicate with others.

63
Mohamad Kadir bin Zaini

VIDEO GAME WITH TRAINED AI

A project to determine the feasibility of training and implementing AI (reinforced learning agents) in commercial video game.

64
Muhammad Arif bin Asri

AUGMENTED REALITY BOOK: A STUDY ON THE VISUAL IMPACT OF IMMERSIVE TECHNOLOGY TOWARDS READERS

Augmented Reality (AR) is a one of the technologies that enhances the reality by overlaying digitalized objects in real-time. It can be considered as an immersive technology which is able to provide a sense of immersion to the users and improving their engagement with their environments. For this project, it is to find out the effectiveness of AR as an immersion technology towards the readers' ability to interact and have an immersive learning experience. The research will be carried out into five phases: research and planning, data collection and compilation, prototype development, testing, and finalizing findings of the study. The expected outcome of this research project is to determine whether the theory of effectiveness in immersive learning is achievable or otherwise.

65
Mas Fatin Nadhirah Binti Mahdini

REUSEABLE 3D CHARACTER RIG

A 3D character rigging, UTB A.J. A rig capable of performing character animation that involves features designed to be used as easy for the animator to reuse for learning and creating various animation.

66
Mohammad Wafiyuddin bin Haji Bakar

TRAINING A 3D ROBOTIC ARM USING PROXIMAL POLICY OPTIMIZATION AND SOFT ACTOR-CRITIC

A project in which machine learning algorithms are applied to a robotic arm in order for it to learn the inverse and forward kinematics formulas necessary for autonomous movements in a 3D simulated environment.

67
Sharifah Nur Amanina Binti Shaikh Hj Abd Mutalib

EXPERIENCE DEMENTIA BEHAVIOUR USING INTERACTIVE 360

An interactive 360 that gives audiences an experience with a person with dementia and their behaviours.

68
Mohammad Edy Aswandi Bin Awang Haji Matassan

STUDY ON HOW FOLEY CAN INFLUENCE EMOTIONS IN 2D & 3D HORROR ANIMATION

A short 2D & 3D horror animations that used foley sound to elicit human emotions.

69
Nurulazlina Binti Haji Zulkiffle

INTERACTIVE VIRTUAL REALITY: THE WILDLIFE OF BORNEO

An Interactive Virtual Reality is created as a tool in order to raise awareness on the rapidly increasing rate of endangered wildlife of Borneo through an experience of immersive environment.

70
Muhamad Najib Bin Abdul Hamid

INTERACTIVE VIRTUAL REALITY : ASH-SHALIHEEN MOSQUE

As part of the Islamic Tourism, an Interactive Virtual Reality(IVR) has been created for users to be able to see inside the Ash-Shaliheen Mosque. This IVR is suitable for Tourist and Public.

71
Nurwathiqah @Fatin bte Ali

INVESTIGATION ON THE IMPACT OF COGNITIVE COMPUTER GAME ON MEMORY RECALL

A game that can test memory recall on images with Spreading Activation and Miller's Magic Number theories to help improve recall is created and proven to be effective.

72
Alvin Yong Chie Yew

POSTER OF THE 21ST CENTURY - UTILIZING MOBILE AR TO ENHANCE PROJECT POSTER

A mobile AR app is created to work on sample project posters from previous intake of creative computing due to the posters alone not able to effectively deliver information on multimedia projects.

Applied Mathematics and Economics

1
Nur Syafiqah Syairah Binti Haji Anuar

THE EFFECT OF RENEWABLE ENERGY CONSUMPTION TO ECONOMIC GROWTH

Countries around the world are moving ahead towards a low-carbon future through the implementation of solar, wind geothermal and other renewable energy sources. Germany and China areworld leadersin renewable energy in terms of harnessing and consumption. China and Germany have expressed their commitment to set the target of obtaining a percentage of 35% and 65%, respectively, of its electricity from renewable energy sources by 2030. The aim of this study is to evaluate the effect of renewable energy on economic growth in China and Germany by comparing results obtained using Powell's (2016) quantile regression estimator (QRPD). A total of 27 years isobserved from the year 1990 to the year 2017. Findings from this study show that the effect of renewable energy has a varying impact at different quantile values of economic growth. However, most results illustrate that renewable energy negatively affects economic growth and only contributes positively to economic growth at the 30thpercentile of GDPPC. Findings from this study suggest that countries need to be detailed in formulating policies on transitioning towards the usage of renewable energy.

2
Muhd. Afif Raziq Bin Muhd. Sofian

THE EFFECT OF UNEMPLOYMENT IN TERMS OF MENTAL HEALTH AND SOCIAL BEHAVIOUR IN BRUNEI

This study investigates the impact of unemployment towards mental health and social behaviour. The measure of the variable mental health and social behaviour will be combined into one variable. With a total of 54 respondents who have experienced unemployment, here we find out the effect of unemployment in terms of mental health and social behaviour. Using the test of mainly correlation matrix and regression analysis to test the relationship. By adding factors that could cause mental health and social behaviour such as mindset of unemployment and average family income to find out if there are relationships between them. The main independent variable is mostly towards unemployment which are mindset, years of experience and the agreement whether unemployment affects mental health or not in their views. The result gotten from this is that there is a significant relationship with gender, years of experience and unemployment affects mental health.

3
Asqina Nur Aiman Binti Haji Noh

THE EFFECT OF POPULATION GROWTH ON FOOD SECURITY IN ASEAN COUNTRIES

Ensuring the wellbeing of a population is vital for a nation's growth in terms of social and economic development. As a result, the challenge of attaining food security is being addressed globally and this is not an exception for ASEAN. Hence, this paper aims to examine the effect of population growth on food security for 9 ASEAN member states. Food production index was used as the dependent variable while population growth is the independent variable. The control variables include labor force participation rate and income per capita growth. Thus, using OLS regression to estimate panel data from 2001 to 2016 (16 years) leads to the conclusion that population growth has an insignificant negative impact on food security in the ASEAN region. Despite the fact that this finding indicates that population growth does not have much of an effect on food security, it is still crucial for ASEAN to continue taking precautionary measures and for the government to continuously keep track of the population's status regarding food security.

4
Mohammad Yazid Bin Dahlan

PREDICTIVE POWER OF THE OIL PRICES IN THE FORECAST OF INDONESIA'S REAL INTEREST RATE USING THE BAYESIAN METHOD

This paper investigates whether using real oil price data would improve Indonesia's short-term interest rate forecasts using three-month treasury bill rates. This study adopts Bayesian vector autoregressive models using various measures of oil prices and compares their forecasting results to those of models that do not use this dataset. The real oil price data is further disaggregated into positive and negative components to see whether this improves the model's forecasting efficiency. The full dataset contains quarterly indicators of Gross Domestic Production (GDP), consumer prices (CPI), real effective exchange rates, interest rates (three-month Treasury bill rate), and real oil prices for the period 2000q1 to 2020q4. For the out-of-sample period 2016q1 to 2020q4, this study conducts static and dynamic forecasting methods to forecast the out-of-sample period. When comparing their out-of-sample through the evaluation methods such as RMSE, MAE, MAPE and Theil's U, the results show that the model that provides real oil prices data outperform the model that does not include this information of oil price, based on the use of static forecast. However, the model that considers either positive, negative, or combination of both components of the oil price does not provide a better performance forecast than the model without real oil price data. As a result, real oil prices do matter when forecasting the short-run interest rates but not for the disaggregated oil price data.

5
Lai Chee Chiang

HEALTH AND ECONOMIC BENEFITS OF ACTIVE PHYSICAL EXERCISE FOR BRUNEIANS

This study aims to provide a systematic review of quantitative research relevant to the health and economic benefits of active physical exercise among Bruneians. The independent variables used are social influence, cultural influence, heredity influence and environmental influence and control variables used are gender, age, education, employment, income,and body mass index (BMI) with the level of health. Methods:This study links three methodologies. The dependent variable, level of health, is tested withequality of means with each control variable. Secondly, estimation of the association between level of health and the 4 independent variables using ordinary least square (OLS) regression with data on 193 individuals in Brunei Darussalam through a questionnaire. Lastly, the regression istested with 4 diagnostic checks: Normality, Serial Correlation, Heteroscedasticity and Ramsey Regression Equation Specification Error test. Results: All independent variables have effects on the level of health except heredity environment. Results:Exceptfor heredity influence, the analysis shows that social, cultural, and environmental influence have impacts on the level of health of the population. Health benefits are measured with the combination of physical and mental health. Majority of the samples are within the normal range of BMI. Based on the questionnaire, increaseinproductivity ismore than half of the sample size after engaging in physical exercise.Also,there is a result in significant economic benefits for the global economy.

6
Dk Nurul Fatin Syakilah Binti Pg Hassbolah

THE IMPACT OF ICT ON ECONOMIC GROWTH IN BRUNEI

Although there are few studies shows a negative impact of ICT on economic growth, most research papers shows that ICT has a positive impact on economic growth. With a changing infrastructure and a unified Telecommunication Service Provider in Brunei Darussalam, various industries in the economy may be affected differently. In this study, the economic growth is explained by the individual spending on ICT, the government expenditure on ICT and exports on ICT, given that data on ICT investment is limited. The data covers the span period of 2000 to 2020. Autoregressive Distributed Lag ARDL approach is used to test the models. The result shows that individual spending on ICT have impact economic growth positively in the long run. However, the government spending on ICT is proven to inhibit economic growth in Brunei. Thus, it is highly recommended for the government to reconsider the use of policies in facilitating the ICT infrastructure.

7
Nurul Nazirah Binti Mohd Hassan

THE IMPACT OF ECONOMIC GROWTH AND ENERGY CONSUMPTION ON CARBON EMISSION IN MALAYSIA: ARDL APPROACH

The existence of the environmental Kuznets curve (EKC) in Malaysia from 1971 to 2014 is investigated in this report. The effect of real GDP per capita and energy consumption on CO2 emissions is empirically analysed within the EKC system for this purpose. To investigate the long-run relationship between the study variables, the Autoregressive Distribute Lagged (ARDL) bound test was used. The study also used the Dynamic Ordinary Least Square (DOLS) approach for robustness. The Granger causality test is used to determine if the variables are causally related in the short run. Empirical results of the ARDL bound test approach suggest the presence of the EKC hypothesis for Malaysia. The Granger causality test results indicate that economic growth and carbon emissions have a bidirectional relationship. Energy consumption and carbon emission also have a bidirectional relationship, while other variables uni-directionally cause the CO2 emissions. The proof of the environmental Kuznets curve hypothesis is supported by uni-directional causality from other variables to CO2 emissions, which occurs in countries where the EKC is validated.

8
Nadhirah Binti Nurul Ruzaini

THE CAUSAL RELATIONSHIP BETWEEN OIL PRICES AND THE VALUE OF BRUNEI DOLLARS EXCHANGE RATES: A TIME-SERIES ANALYSIS

The purpose of this study is to find the causal relationship between changes in oil price, GDP growth rate, and changes in foreign exchange rate using panel data from the year 2010 until 2020 for four oil-exporting countries (Brunei. Iran, Iraq, and Saudi Arabia). This study implemented the panel Vector Autoregressive (VAR) model to test the Granger causality of four oil-exporting countries. This paper tested the variables for their stationarity and cointegration. From the result of this study, significant causality runs from the change in the oil price to GDP growth but not the other way around. Thus, indicating that there is a one-way causality from changes in the oil price to GDP growth. Unfortunately, this paper did not find any causality between change in oil price and change in foreign exchange rates and the causality between GDP growth rate and change in the foreign exchange rate.

9
Muhammad Amin Baharudin Bin Haji Zakaria

DETERMINANTS OF MARKET SPILLOVERS FROM MAJOR EQUITY MARKET

This research examines whether there is a causal relationship between the major emerging international equities market returns. Applying Vector Autoregressive (VAR) as our main methodology to analyse the relationship between equities indices by using daily time series data from January 2nd, 2000 to September 30th, 2020. Our empirical analysis shows that shocks in SPX causes a major spillovers impact towards other markets which are DJI, STOXX50 and TOPIX. And, shocks from other market does not causing spillovers in SPX. The empirical results provide an evidence the existence of international spillovers across the major equities indices which are supported by the impulse response and variance decomposition. Further studies need to be done, to look into how spillovers behave during crisis for example 2009 global financial crisis and 2020 COVID-19 pandemic affecting the emerging market.

10
Nur Fazillah Binti Abdul Hamid

THE RELATIONSHIP BETWEEN EMPLOYMENT RATE AND FOREIGN DIRECT INVESTMENT

The rising unemployment rate in Brunei has become a major concern for the government and its people. In 2018, there is a sharp decline in the unemployment rate. Brunei Darussalam is a highly dependent country on its primary resource Oil & Gas and recently diversifying its FDI to other markets than Oil & Gas. Hengyi Project in 2019 has make a significant impact on Brunei's economy. This paper studies on the impact of foreign direct investment (FDI) inflows on unemployment rate in Brunei Darussalam for the period 1991 to 2019. An Autoregressive distributed lag (ARDL) model is used to determine the long run relationship between the variables. Other econometric models included in this study are bound testing to test the cointegration, Error Correction model for short run analysis and residual diagnostics to check the serial correlation, normality tests and stability test. The main findings revealed that foreign direct investment net inflows will decrease the unemployment rate since it is statistically significant and the increase in FDI, reduces the unemployment rate both in long and short run.

11
Muhammad Faiz Bin Hj Abd Rahman

THE IMPACT OF INFLATION ON INCOME INEQUALITY

This paper aims to study the impact of inflation on income inequality. The study was conducted using the ARDL cointegration analysis based on data from Indonesia between 1998 and 2019. The findings reflect previous studies and resulted in having a positive relationship between inflation and income inequality. The findings reflect that an increase of 1% in inflation would lead to an increase of 0.0837% in income inequality. Furthermore, the study also found that economic growth harm income inequality whereby an increase of 1% in economic growth would result in a decrease of 0.2429% in income inequality.

12
Nur Durriah Fakhriah Haji Yunos

CONTRIBUTION OF TOURISM SECTOR IN ECONOMIC GROWTH

The objective of this paper is to analyze the role of tourism in France's economic growth. We used a model of real gross domestic product (GDP) and international tourism. We tested two empirical measures proxy used, namely, real international tourism receipts and the real number of arrivals, to discuss the relationship between tourism and economic growth. Methods used in this study are ECM, cointegration analysis and Granger causality analysis to demonstrate the direction of causality between the variables. Using annual data for France between 1996 and 2019 obtained from world bank data, our results reveal there is a cointegration relationship between tourism and economic growth for the proxy tourism receipt. However, there is no cointegration between GDP and the proxy number of arrivals. In addition, our results for the Granger causality test indicate that GDP has a positive impact on the tourism industry unidirectionally. Since the result is growth-led tourism, the suggestion to develop an action to make for France contributes to the importance of policymaking and other tourism-related decisions.

13
Siti Salihah @ Siti Nabilah Binti Sahari

EFFECTS OF STUDENTS LEARNING DURING THE PANDEMIC OF COVID-19 IN BRUNEI DARUSSALAM

This research work is about the students' preferences towards online learning that have been practiced during the COVID-19 pandemic. At the beginning of this research paper, the researcher has gathered all responses and listed down the factors that are expected to affect students' learning process. Moreover, based on the literature review that has been collected, several aspects have been identified. However, in this research work, the researcher only focused on two factors of students' learning process. As doing this research, the researcher found that there are several main factors which are; (i) benefits of online learning and (ii) E-learning challenges that can influence the students' learning process in Brunei at the kindergarten, primary schools, secondary schools as well as higher learning institutions. Furthermore, this research is carried out using primary quantitative data collection and secondary data is used to support the gathered data from the respondents. This survey was distributed among the students in Brunei Darussalam. As from descriptive findings, the majority of students and parents preferred to have physical learning instead of online learning. This is because some students are familiar with online education platforms such as the Loom and Tencent meeting. Whereas, for the empirical findings, it has shown that benefits do have a significant effect on students' learning process in which the researcher will accept the alternative hypothesis for the e-learning benefits while rejecting the alternative hypothesis for the e-learning challenges. Besides that, a control variable, namely, home-schooling experience, also has a significant effect on students' learning process. These students might have experienced using different types of online education platforms.

14
Nurhafizah Binti Isham

IMPACT OF COVID-19 ON CONSUMER BEHAVIOUR TOWARDS ONLINE BANKING SERVICES IN BRUNEI

The purpose of this research paper is to analyze factors of the online baking that could influence online banking consumer behavior in Brunei. Moreover, the paper also tries to explain the relationship among reliability, quality services, security, ease of use and consumer behavior and to find some major variables for keeping high level online banking customer satisfaction. The method of data collection in this research is by collecting data through survey distribution via online and the analysis method that is used in this research is regression analysis which is the ordinary least square (OLS). The main result of the research is ease of use that has an impact on consumer behavior towards the online banking services and the rest of the results will be discussed in more depth in the study.

15
Muhammad Akmal Bin Adanan

IMPACT OF UNEMPLOYMENT ON ECONOMIC GROWTH IN DEVELOPING COUNTRY

This thesis paper studied the relationship between economic growth and unemployment across 7 ASEAN developing countries by examining its causality and contemporaneous relationship. The annual time series data on unemployment and GDP from 2000 to 2019 is used to conduct the analysis. High unemployment is one of the most important macroeconomic issues in ASEAN developing countries. Impacts of this relationship continue to be concerned by the policymakers such as whether the decline in economic growth that the current impact of unemployment may have on the country. In order to test the causality and contemporaneous relationship between the two variable, VAR model and Panel data regression model is used respectively. Before we estimated the two model, we first run Augmented dickey full test for stationarity of the variables. The results from VAR model shows insignificant result hence rejecting the hypothesis that there is causality relationship between economic growth and unemployment in ASEAN developing countries. The findings from the regression analysis revealed that the coefficient of economic growth is negative and significant leading to acceptance of the hypothesis that there is negative contemporaneous relationship between economic growth and unemployment in ASEAN developing countries. In this paper, we recommend the future researchers to focus specifically on youth unemployment rather than unemployment in general, which would benefit the government policymakers to help reduce the issues of unemployment.

16
Mohammad Zulhilmi Bin Haji Mahri

LIFE EXPECTANCY AND ECONOMIC GROWTH IN MALAY SPEAKING COUNTRIES

This study focuses on the causal and contemporaneous relationship from both directions between life expectancy and economic growth, using Vector Autoregressive (VAR) and regression model. Most empirical studies has done a cross sectional data analysis, while this paper will address this issue using a time series approach. We have also touched on the demographic transition theory to tackle this issue. The data that we have obtained form the World Bank covers from the period 1965 to 2018 and includes the countries Brunei, Singapore and Malaysia. We also looked on this issue as individual countries and also as panel data. We have found no causal relationship between life expectancy and economic growth, while there is a negative conteporaneous relationship between the two variables.

School of Design

1
Abdul Matin Bin Mohaimin

AKARADANGAN - UNIFICATIONS (POSTER AND MODEL)

Creating a relationship between 3 areas and unified in one area to admire one scene.

2
Ak Md Han Khairul Anwar Bin Pg Hassanal

STREET ART MIXDEV (POSTER)

Mix development focusing street art recreational facilities.

3
Ak Mohamad Haafizillah Bin Pg Amiruddin

ISLE D'AYER (POSTER)

Based on the islands of Brunei, this is a mix development building that emphasizes on natural features.

4
Ampuan Fatin Aqilah Binti Ampuan Haji Ali Yusof

GREEN I-LAND APARTMENT & HOMESTAY

The proposed buildings objective are to create eco-friendly buildings while giving the feeling of living in a modern urban development to the users and visitors.

5
Awang Mohamad Ariffin Bin Awang Morsidi

CONNECTIVITY OF SEPERATED PLACES IN URBAN CONTEXT (MODEL AND POSTER)

Connectivity is an essential factor in a sustainable and developing city. Thus by creating an interactive passageway on the Jame Asr Roundabout, Attractive and meaninful linkage of the seperated places could be achieved, yet human and the overall environment could perform in harmony

6
Awangku Muhammad Najmi Bin Pengiran Haji Muhammad

PINTU MALIM MARINA (POSTER)

Mix development of commercial and recreational at pintu malim, intergrating the identity of the area to the design.

7
Dayang Maziyyah Hurin Bte Awang Haji Rosli

0-E FACADE

Feasibility studies on the implementations of passive ventilation technology on Facade purposely for Microclimate Building

8
Dk Bibi Aqilah Bte Pg Abu Bakar

AIMRA'A SPORT

Proposed mix develop sport complex that consists of activities and cafe specifically for both muslim and non-muslim women in Gadong area to bring awareness and encourage them to do sports.

9
Dk Siti Fatimah Binti Pg Hj Abd Malik

RUDNEJA - MIXED USED DEVELOPMENT

(N/A)

10
Dk Siti Norhaziqah Ashura Binti Pg Hj Mohd Muhibbah

LE'PARK RIVERSIDE

The proposal is a mixed use development of walkable recreational and commercial to provide a pit-stop leisure centre and encourage the community to gather and enjoy the breathable view.

11
Dk Siti Nurul Nur Ashikin Binti Pg Junaidi

CATCHING RAYS (POSTER AND MODEL)

Catching Rays means a way to get some sunshine, particularly for relaxing purposes in this mixed use development located at Tamu Selera, Bandar. It create a balance with the surrounding between the existing and proposed building and also develop aesthetically attractive foodcourt and community center that brings in the local community with design elements that stimulate curiosity and enjoy.

12
Dk Nurhayatul Haziqah Binti Pg Damit

KUN ANTA

Mixed development in Bangar town with the concept of level Architecture and using the style of Vernacular architecture

13
Fatin Halwa Bte Rosman

THE SERENITY

The Serenity is envisioned placed for community that responds to the context and climate of Kg. Sg Bunga. The proposal brings back the concept of Padian through Path, routing and necessities throughout Brunei river.

14
Fatin Nursyamimi Binti Ahmad

AQUEOUS - MIXED USE DEVELOPMENT (POSTER & MODEL)

The proposal is to provide high quality buildings and site plans that will result in attractive, livable and pedestrian-friendly mixed-use development that includes shops, commercial and recreational.

15
Iman Hazira Binti A Jamil

BANGAR NATURA EMPORIUM

A mixed used development situated in Bangar town with the concept of 'capturing views' on its surroundings.

16
Johanas Bin Layang

IMPUN VALLEY (POSTER & MODEL)

Pekan Tutong regeneration project introducing mix-use developments to create place for leisure, commercial and residential area, place strategically on the existing hillside and appreciating the view of Sungai Tutong

17
Lu Shir Mao

THE SERPENT WALK (POSTER AND MODEL)

The Serpent Walk is a sculptural approach to a mixed-use development located in Pekan Tutong. It seeks to create a central meeting point for living, leisure, food, retail and recreational activities which, like a serpent, meanders its way towards a proposed waterfront area along the Tutong River.

18
Mohammad 'Iqbal Rezza Bin Abdul Rahim

THE LAST ONE - MIXED USE DEVELOPMENT (COMMERCIAL & RESIDENTIAL DEVELOPMENT) (POSTER & MODEL)

The proposal of this project is to link the surrounding site context into my building and also addressing the important view of the beautiful architectural building of The Mall gadong and also the landmark of Masjid Jame

19
Mohammad Azri Bin Haji Abdullah/ Haji Apdonglah

THE RIVER WALK (POSTER)

To provide a fishing center for the community in Kg Pintu Malim in order to make opportunities to provide a central hub for fish market in the area where people can buy and sell fish and to provide a fishing spot as the existing eco corridor is not well suited.

20
Mohammad Lutfi Bin Andul Wahib

THE PORT PLAZA(POSTER)

Designing a Mix Use Development building in pekan muara by implementing the identity of the muara town it self, the muara port.

21
Mohammad Nor Adha Shah Bin Sarugi

KENANGAN AVENUE

To promote and revive Pekan Muara by proposing Mixed-Used building developement which include commercials, residential and public space.

22
Muhammad Arif Safwan Bin Zalidin

TERRAKOTA (POSTER & MODEL)

A food cultured mix use development equipped with residential suites with the emphasis on views of the ceremonial road and important landmarks in Bandar Seri Begawan.

23
Muhd Syafiq Hilmy Bin Hj Yunus

SG. LAMPAI PARK (POSTER ONLY)

A mixed use development of a floating island, with the main purpose of maintaining the recreational activities such as skating, fishing and jogging

24
Muniratun Nazirah Binti Bwn Mudim Haji Awang Tamin

SWEETVENTURE - MIXED USE DEVELOPMENT (BANNER & MODEL)

The proposal is to to build another community mixed building whereas to facilitate and broaden the business as well the development in temburong District. Moreover, to expand the number of activities such as sports and family outings, this to stimulate the concept of attracting people to come by making the place as ananother new 'Pit-Stop' at the same time to broaden the employment opportunities in Temburong District

25
Najibah Binti Haji Abu Bakar

THE GATHERWAY

The place where the beggining of exploration started. The proposed buding is a mixed use development that encouragw people to get together and getaway

26
Norhashinah Binti Asri

THE HERITAGE WALK - MIXED USED DEVELOPMENT (BANNER)

The heritage walk is a mixed use development of market, retail and recreational area in pekan tutong. the idea is to create a building with connected pendestrian and street walk environment for new experieneces of shopping, leisure and lifestyle.

27
Nur Hasibah Binti Hosni

UNGGULZ TEMBRUG - MIXED USED DEVELOPMENT

A new mixed-used development @Temburong consists of Food stall, commercial, Inn, Offices with concept of unique column support structure

28
Nur Nabilah Fatin Mahfuzah Binti Abdullah

THE OMNE BENE SQUARE (MIXED USED DEVELOPMENT)

Proposed mixed used development consist of hotels,retail shops and recreational park with a concept of sustainability through the use of the materials and following the site context to produce healthy community aswell as balance and connectivity for buildings in Pekan Bangar, Temburong

29
Nurin Jazlina Binti Haji Mohamad Yahkop

THE CANOPY (POSTER)

Proposed mixed development of commercial and residential and how it helps in revolving Kg Sg Bunga.

30
Nurnajiibah Binti Haji Dollah

THE REVIVAL OF T-CITY CENTER (POSTER & MODEL)

The revival of T-city center as an iconic new revitalization to the Temburong district where it will have the connectivity between the catchment area to the site and a new way to intorduce modernization in Temburong district.

31
Nurul Hidayatul Za'Wiyah Binti Haji Yahaya

ATAP

It's a mix develop building that consist of one storey which is a digital museum. Digital museum focus more on rising Brunei's identity to promote tourism.

32
Nuurul Sofwanah Binti Azizee

THE RIVER LIFE (POSTERS AND BANNER)

Proposed Mixed used development of Commercial and Recreational area which includes Jetty, Otter Dams area, Capsule Hotel, Recreational, Cafes and 24 hours mini market.

33
Siti Maryam Binti Muhammad Rasyid

WALKS OF LIFE (POSTER AND MODEL)

Modest scale Mixed Use Development to enhance existing connectivity and connect people from various communities within the urban context (Jame Asr' Roundabout)

34
Teo Wei Fong

MANTA BRIDGE (POSTER ONLY)

Proposed Mixed Used Development of Connectivity and Circulation in Jame Asr' Roundabout

35
Zayanah Binti Zainal Abidin

INTERCONNECT (BANNER & MODEL)

This project aims to transform an existing roundabout of Sultan Hassanal Bolkiah highway into a bright, greener, friendlier and more attractive pedestrian friendly overpass.

36
Abdul Halim Ahmad Zakaria (Direct Entry 2019)

THE SKYLINE (POSTER & MODEL)

Proposed Mixed Use development in Pekan Muara to revive the existing urban fabric and create new building typologies.

Food Science and Technology

1
Syazwani Izzaty Hj Ramlan

FOOD PRODUCT DEVELOPMENT: PRODUCTION OF SOY MILK-BASED YOGURT FORTIFIED WITH CHIKU (MANILKARA ZAPOTA L) (POSTER)

Underutilization of food, especially perishable food leads to food waste, as spoiled or damaged foods are either discarded into landfills or simply disregarded such as in the case of overripe fruits from the trees. The aim of this project is to optimize the potential of a locally grown fruit – Chiku (Manilkara Zapota L) by incorporating it into soy milk-based yogurt, a healthier alternative to conventional yogurt using regular cow milk. The soy yogurt or “sogurt” is produced by heating soy milk at 82-90°C for 5 minutes and incubating them at 37°C for at least 6 hours. The cultures used are Kordel’s Mega Acidophilus capsules (containing Lactobacillus rhamnosus, Lactobacillus Casei, Lactobacillus acidophilus, and Bifidobacterium longum) and Nature’s way probiotic capsule (containing Lactobacillus Acidophilus, lactobacillus plantarum, Bifidobacterium lactis, Bifidobacterium infantis, Bifidobacterum longum, and inulin). The chiku is incorporated into the yogurt in 2 ways – (1) adding directly into the soy milk during initial heating, and (2) mixed with milk after it is heated in a water bath. Sensory analysis is conducted to determine its overall acceptability among consumers.

2
Nur Batrisyia @ Nur Syasya Binti Awang Mohamad Harkani

ASSESSMENT OF FORTIFIED HERBAL PASTA WITH POLYGONUM MINUS AND AMARANTHUS TRICOLOR POWDER (PRODUCT: PASTA)

Pasta serve as a staple food mainly around the world due to its low cost and convenience. Fresh pasta production has been increasing for few years to fulfill consumer’s demand but it is highly susceptible to microorganism contamination. When it is stored without any preservation, fresh pasta has short shelf life. Therefore, to ensure higher quality and hygienic characteristics, fortification techniques are applied during processing. In this study, the effect of fortification herbal plants into pasta were investigated. Fresh cooked pasta were made with four different samples; control plain wheat flour (C), plain wheat flour with whole meal flour (WM), plain wheat flour with whole meal flour added with Polygonum minus powder (PM) and plain wheat flour with whole meal added with Amaranthus Tricolor powder (AT). Cooking quality and sensory characteristics were investigated. Along with microbiological properties, pH and moisture content at chilled and room temperature storage were also investigated. The incorporation of 5% of Polygonum minus and Amaranthus tricolor powder into pasta samples was significant in determine optimum cooking time, cooking yield, cooking loss, and swelling index. A. Tricolor was found to be acceptable in terms of sensory analysis compared to P. Minus and whole meal pasta. There was slightly significant increase in shelf life determination with A. tricolor pasta compared to P. minus pasta during storage at chill and but not in room temperature.

Whereas, pH and moisture content gives no significant difference to fortified herbal pasta ($P<0.05$) during storage at chill and room temperature.

3
Nurnajiihah Binti Haji Abd. Samad

ANTIOXIDANT ANALYSIS OF DIPLAZIUM ESCULENTUM AND STENOCHLAENA PALUSTRIS (POSTER)

Medicinal plants are generally known for its health benefits and there has been ongoing research carried out to gather evidence on potential plants that could exhibit antioxidant activities. This study is conducted on underutilised local medicinal plants which are Stenochlaena palustris and Diplazium esculentum, locally known as 'Lemiding' and 'Pakis', respectively. The aim is to determine the effect of extraction time on antioxidant activities and to find out the total phenolic content (TPC) of the plant species. Maceration method was applied to extract the compounds from leaves of the plant in a distilled water at different duration of extraction i.e. 2 hour, 4 hour, 6 hour, 8 hour and 24 hour. From the results, 8-hour S. palustris aqueous extracts (77.6 ± 0.04%) and 2-hour D. esculentum aqueous extracts (48.8 ± 0.05%) exhibited the highest scavenging activities in each plant species. Quantitative results of phenolic compounds were found to be twice higher in S. palustris than in D. esculentum aqueous extracts. Phytochemical screening was also conducted and has detected the presence of reducing sugar, phenol and saponins in the plant aqueous extract. It was revealed that only in 6-hour S. palustris extracts and in 8-hour D. esculentum extracts contain traces of reducing sugar. However, further studies are required to prove the potential antioxidant activities of these two plant species.

4
Mohd Isam Ariffin bin Hj Sari

EVALUATION OF PROXIMATE COMPOSITION ON FORTIFIED HERBAL COOKIES (PRODUCT: COOKIES)

The development of functional food requires conventional food that can be consumed as part of a normal food pattern in which functional compounds can be added. Cookie is one of the most consumed snack items around the world because there are made from simple, cheap and easily available raw materials with a very acceptable taste. The nutritional values of cookies can be fortified by adjusting their formulations. This can be done by modifying and supplementing health-promoting ingredients such as an herbal plant. According to WHO, about 80% of the world population, mostly in developing countries still relies on herbal plants for primary health care. Herbal plants have been widely used as a flavouring and spicing most of Brunei cuisine. However, this has seldom been used in bakery products such as cookies. Therefore, this study aimed to formulate healthy herbal cookies by incorporating Murraya koenigii (curry leaves) and Gnetum gnemon (bagu leaves) powder individually at different levels into cookies as the food product. The powders were made by oven drying the individual herbal plant species at 40°C for 3 days followed by powdering using a commercial grinder. The ingredients used for the preparation of healthy herbal cookies were wheat flour, butter, sugar, baking soda, baking powder, Murraya koenigii powder and Gnetum gnemon powder. Six cookie samples were prepared, where each of the herbal plant species was incorporated individually into a cookie at 3 different levels as 1g, 5g and 10g. Further analysis was investigated by carried out proximate analysis in triplicate. The result shows that carbohydrate, fat, protein, moisture and ash contents in cookies ranged from 37.65% to 48.57%, 30.23% to 42.54%, 10.61% to 17.68%, 4.55% to 5.87% and 1.75% and 2.37% respectively. The incorporation of an increasing amount of both herbal plants from 1g to 10g significantly increased protein content and decreased fat content in the cookie. The result obtained also indicated that cookies fortified with Murraya koenigii and Gnetum gnemon have a better nutritional profile compared to simple cookie. In comparison to both the herbal showed that cookie fortified with Gnetum gnemon has a better nutritional profile than Murraya koenigii due to lower moisture and fat content, and higher source of carbohydrate. The utilization of Murraya koenigii and Gnetum gnemon in baking industries may increase the nutritional value of bakery products, thereby increasing the availability of healthy food products in developing countries.

5
Jhoorhanah binti Abdul Halim

FRUIT POST-HARVESTING INDICES FOR RIPENING AND SWEETNESS USING INVASIVE AND NON-INVASIVE METHODS (POSTER)

Sugar content is one of the good postharvesting and ripening measure. It is one of the frequent measured parameter in internal assessment of fruit quality as it only require simple procedures that can be done in a short period of time. The aim of this study is to measure the sugar content of post harvested tropical fruits during ripening stage using non-invasive method along with invasive methods and to create a refractometer calibration value by correlating the results. The total soluble solid (TSS) or degrees Brix of the fruits samples are measured at a period of time with a high-through-put manner using non-invasive IR-refractometer and invasive refractometer. The results obtained will be recorded to create a corrective calibration value. We found the local tropical fruit that could be monitored and calibrated using non-invasive method. This could be highly useful to pick correct maturation status of fruits. This particular sorting is essential for post-harvesting management for optimal fruit marketing with maximum consumption period.

6
Hasna Basirah binti Mazalan

DEVELOPMENT AND SENSORY PERCEPTION OF HALAL CHEESE MADE FROM PLANT-BASED MILK (PRODUCT: CHEESE)

This research focuses on formulating food products that were in line with the concept of halalan tayibban. Therefore, these were to be healthy, halal, lactose-free and suitable for Muslim consumption. As research has shown that plant-based diets have been correlated to positive health benefits to consumers, there was a need to highlight formulation with the use of plant-based milks. Thus, the aim of the project was to focus on preparation of cheese made from alternative plant-based milks. In terms of methodology, the study explores and utilises the use of conventional (microbial-based rennet enzyme and vinegar acidification method) and non-conventional (hydrocolloids such as starch rice flour, fish gelatine powder, agar powder) cheese making method to produce a value-added product. Several

cheese type products were successfully produced from coconut milk using only non-conventionally cheese making method. Each of the samples produced were assessed based on the fat content, moisture content, applicability (melting point and heating test at 250º and sensory analysis by panellist (n=20). Result showed that fat and moisture content did not significantly affect the sensory perception towards the samples. In terms of applicability, melting point of samples ranged from 43.0 to 50.2º depending on the concentration of hydrocolloids used. While, at 250º in the oven, samples started exhibiting browning between 5-7 minutes. From the result, the sample with the highest consumer acceptability based on sensory analysis could be determined. However, the sample could only be deemed as a prototype. Further optimisation of the product is needed before it can fully be launched in the Brunei market.

7
Zu Mirratin Munira binti Haji Mohammad Affno

THE SUITABILITY OF MALAY ROSE APPLE FOR JAM MAKING AND THE EFFECT OF SUGAR REPLACEMENT FOR UNREFINED SUGAR ON PHYSICOHEMICAL, SHELF STABILITY AND SENSORY ANALYSIS (POSTER)

In Bunei Darussalam, Malay Rose Apple also known as ''jambu'' is a seasonal fruit that often present in excessive amount due to high production and perishability. There are many health benefits that this fruit can offer as it is very nutritious especially the antioxidant content. The fruits are normally eaten raw and rarely being processed to maintain the quality as well as the availability, therefore in this study, the fruits are processed into jam to preserve them. Responding to consumer trend currently on healthy easy-to-consume food product, in this study also, the white sugar will be replaced with unrefined sugarcane and palm sugar which are more nutritious and more beneficial to health. As a result, replacemnet of sugar did not significanlty affect the physichomical but shelf stability and consumer acceptance. Overall, the fruits are suitable for jam making.

8
Nurshairah binti Samrah

DIFFERENT FORMULATIONS OF EDIBLE COATING INCORPORATED WITH CINNAMOMUM CASSIA ESSENTIAL OIL TO ENHANCE SHELF-LIFE OF FRESH CUT PAPAYA (PRODUCT: PAPAYA)

This project aims to optimize the edible coating and EO to be used on fresh-cut papaya and to investigate the effectiveness of the incorporation of Cinnamomum cassia EO as an antimicrobial agent in sodium alginate edible coating on growth of bacteria of fresh-cut papaya. The factors that were considered are the concentration of the coating with distilled water, appearance, colour, aroma, taste, dripping ability and the ability to coat. As for the EO, different concentrations were prepared and the antimicrobial activity was tested using Kirby Bauer disk diffusion method. Other than that, the sensory attributes, such as appearance, colour, aroma and taste of the EO with the optimized coating were also considered. It is found that 2% (w/v) of sodium alginate gives the best results in terms of appearance, colour, aroma, taste, dripping ability and the ability to coat. 0.2% of EO gives the best antimicrobial activity and does not affect the sensory attributes of the coating. Papaya slices were then dip coated with the optimized coating after thorough washing. The slices were drained for about 2 hours and then dipped in 2% of calcium chloride solution for 2 minutes. Then, samples were packed on polystyrene trays and wrapped using PVC film. The samples were stored for 7 days at chilling temperature and at room temperature. Results from the 7 days storage shows that there is no significant difference ($P<0.05$) in both microbial growth at room temperature and chilling temperature therefore the null hypothesis saying that EO's effect of microbial growth due to chance is rejected.

9
Kong Mei Ling

CHEMICAL COMPOSITION AND SENSORY PROPERTIES OF UPCYCLED UNSOLD BREADS BY FERMENTATION AND ITS DEVELOPMENT INTO TAPAI PUDDING DESSERT (POSTER)

Unsold breads are one of the main contributors of food waste. Unsold breads are breads that have become unsold as a result of consumer preference for purchasing fresh bread. Unsold breads are still rich in nutrients which can be utilized. This study proposes to explore potential of using unsold white bread loaves as a substrate for the fermentation of ragi (starter culture for tapai fermentation) as a means to upcycle unsold breads. Preparation of bread slurries and its fermentation were explored with variable conditions and were studied for its sensory and chemical characteristics (acidity. pH and brix). The optimal fermented bread slurry was influenced by the heating temperature of bread slurry. The optimal fermented bread slurry was then developed into tapai pudding dessert. Sensory descriptive profiling of tapai pudding dessert was performed and its shows that selected sensory attributes were negatively influenced by the addition of fermented bread slurry. However, overall acceptability score gives contradicting results due to certain similar attributes to the traditional tapai dessert. Fermentation of bread slurry using ragi starter is a novel approach of utilizing unsold bread therefore further studies are necessary to explore its potential even further.

10
Siti Nur Asyifa Nazihah bte Andey Asmara

DETERMINING THE EFFECTIVENESS OF LOCALLY GROWN FRUITS AND VEGETABLES AS BIO FERTILISERS (POSTER)

The utilisation of agricultural waste such as fruit and vegetable peel has caught many researchers' attention as well as the people in the agricultural industry such as producing bio-fertilisers. The public have become more aware of the environmental issue such as the emission of greenhouse gas from using chemical fertilisers and the long term side effect it has towards humans from consuming the crops that are exposed to chemicals. This actively demonstrates that there is a demand in the usage of underutilised products for the exact purpose of reducing the environmental pollution, more eco-friendly and safe for human consumption alternatives. However, there is still a lack of research and information about the nutrients available in fruit and vegetable wastes. The aim of this project was to develop bio-fertiliser by using the peel of four different types of locally grown fruits and vegetables which are banana, watermelon, cucumber and sweet potato using the solid state fermentation

(SSF) method. The bio-fertilisers were applied to pepper plantation with two different types of soil to determine their effectiveness. Different conditions were used to grow the peppers which were outdoor and indoor. The results of the experiment showed promising physical characteristics based on the percentage of the growth. Taking everything into account, bio-fertilisers are the cost-effective alternative of chemical fertilisers and possesses to be commercialised to enrich soil nutrients.

11
Salihah binti sawal

COOLING RATE OF BIG PRODUCE IN COLD STORAGE ROOM (POSTER)

Temperature is an important parameter that affects the quality of big produce such as shelf life and quality deterioration. Rapid removal of field heat through cooling is required so that it maintains optimum product temperature during storage. This project aimed to define the cooling time of fruits such as pumpkin, watermelon, pomelo and rockmelon with different mass, sizes and volume. Cooling coefficient can be determined by determining the seven-eight cooling time, TAT7/8 that define as the time needed to remove seven-eights (87.5%) of the temperature difference between the initial temperature of produce and the temperature of the cooling medium temperature with intention for produce to reach to the nearest cold storage room temperature. The procedures involved include measuring the temperature of the big produce at interior surface with various depth (cm) and exterior surface and then stored the produce at refrigeration temperature for 48hour duration using wireless data loggers called, DS1921G i-Button (Thermochron). DS1923 i-Button (Hygochron) were used to measure the storage temperature and relative humidity. The mean initial temperature for all fruits were calculated to be 24.5±2.14oC. The mean temperature for half cooling time (TAT1/2) and (TAT7/8) were estimated to be 12.3±0.867oC and 3.07±0.215oC. The mass content ranged from 1.50kg to 4.40kg with moisture content ranged between 88.28±0.958% to 93.6±2.5%. Volume of fruits were calculated and their values ranged between 0.0117 m3 to 0.0572m3. The seven-eight cooling time, TAT7/8 for each distance (cm) ranged from 9hr to 47hr for all fruits. Fruits that had lower mass such as rockmelon and pomelo had higher cooling coefficient compared to other produce and the mean ranged value for cooling coefficients of all fruits for each depth(cm) were calculated between 0.0635 hr-1 and 0.314 hr-1. Higher cooling coefficient indicated that the fruits had faster cooling rate. For future experiment, this project can be improved by measuring the temperature in a non-invasive way that does not damage the appearance and quality of big produce in a way that it can be commercialized in the market.

12
Chin Yee Ling

MODIFIED ATMOSPHERE PACKAGING FOR LEAFY VEGETABLES (POSTER)

Vegetables are a vital part of any balanced diet, but they perish easily due to their inherent properties. This becomes even more apparent in leafy vegetables. Some studies have pointed out that poor post-harvest handling and storage can lead to a greater loss of such leafy vegetables of up to a 30% loss after harvest. The aim of this project is to extend the shelf life and storage quality of Amaranthus Tricolour L.— commonly known as Bayam— with the use of Modified Atmosphere Packaging. The sample were stored at 4º and 25º. The parameters observed were colour, odour, weight loss, gas composition and antioxidant activity. The result of this study shows that the effect of elevated carbon dioxide has a negative impact on the colour and odour of the spinach sample. All samples show a steady increase percentage for weight loss with the lowest percentage being the sample exposed to 5% O2, 15% CO2 and balance N2. Most samples with elevated gas levels irrespective of storage temperature were found to fall short of acceptable marketability in terms of visual appearance.