

SCI // CC #01-2017
"All projects are a product of UTB"



THE PORTFOLIO

AN INSIGHT TO CREATIVE COMPUTING PROJECTS

2017

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PREFACE

The School of Computing & Informatics (SCI), Universiti Teknologi Brunei (UTB) has introduced a new Creative Computing Programme Area in 2013. The Creative Computing Programme Area is made up of two new creative courses, Bachelor of Science (Hons) in Creative Multimedia and Bachelor of Science (Hons) in Digital Media.

The main aim of the programme is to meet the demands of the fast-growing creative industries where highly capable and multi-skilled graduates are being sought after. The programme addresses the skills shortage by providing potential students with the fundamental knowledge and skills that will be attractive to future employers. The programme has been developed with good industry links to ensure that the graduates are equipped with the necessary knowledge and skills that meet the ever-changing and dynamic demands of the creative industries. The programme also inculcates research attitude in students by promoting problem-solving skills and engaging students with newly developed technologies in creative industries.

The year 2017 marks the first completion batch of the two new courses. The Creative Computing Programme Area has vowed to start a creative magazine that annually showcases the projects that are uniquely made by the students of UTB. Hence, The Portfolio: An Insight to Creative Computing Projects, the magazine is birthed.

Short Horror Film

Purpose

To create a short horror film using Todorov's theory and the Three Act Structure theory.
To measure the viewers' fear by using a device called Fingerprint Oximeter.

Synopsis

The short horror film is about the protagonist who was doing his project late at night in the office. He was then told by his friend about the creepy incident that had happened the week ago involving a person and a ghost that left the person sick. The protagonist's friend immediately left after he saw the ghost but not saying any word to the protagonist. As the protagonist was trying to leave, he began to hear a female voice crying. Worried, he then looked for the girl but found nothing. Soon he began realizing that he was not actually looking for a girl, but a ghost. Will the protagonist safely leave the building?

Theories

Todorov's Theory

The main idea of Todorov's theory is that all stories follow three structures. It begins with a state of equilibrium where everything begins normally, followed by disruption to the equilibrium where the antagonist is causing disorder towards the equilibrium and end with a resolution where everything is back to normal.

Three Act Structure Theory

It has three stages to help filmmakers to create tension and suspense in a movie. The three phases are Onset phase, Discovery phase and Disruption phase. Onset phase is when a chaos is created followed by the second phase, the Discovery phase where the chaos is discovered by the protagonist of the movie. The Disruption phase is when the protagonist is finally trying to eliminate the chaos caused and re-establish equilibrium.



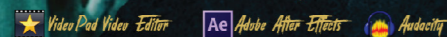
Method of measuring fear

The participants' heart rate bpm (beats per minute), was being measured first at rest. After their resting bpm has been measured, the participants were asked to watch the short horror film. Their bpm was still being recorded while they were watching the video until the end. The results were then compared and analyzed. If they were scared watching the short horror film, then their bpm would have become higher which means the short horror film was a success in evoking the fear emotion of the viewers.



Software

The software that were used for this short horror film production are



Muhammad Wafiuddin bin Awang Ahmad



I am Muhammad Wafiuddin. My friends call me either Wafi, Fi or Waf but my friends from other countries call me Sora.



Short Horror Film

Filming has always been a passion for me since I was a kid. I used to go to my dad's work at RTB and watch how filming is done and because of that I grew up to love about videography! For my FYP, I saw this as an opportunity to test my skills in videography and to find out if people would like my short horror film or not. Regardless of the result, I would still enhance my videography skills!

With just a small number of people and limited supplies, I can only say it was quite difficult but the experiences were worth it. It gave me and my crew the opportunity to sharpen our skills and knowledge in videography! There were moments where we had difficulties but that only made us stronger as we hate to give up doing what we love.

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3D ANIMATION SHORT FILM PROCRASTINATION



A short film that revolves around a young adult named Paul who fails to conquer his procrastination problem and eventually, realizes the consequence he has to face. The film is animated to convey a meaningful message about procrastination in order to engage and educate the audience by designing it in a comical aspect in 3D.

BACKGROUND

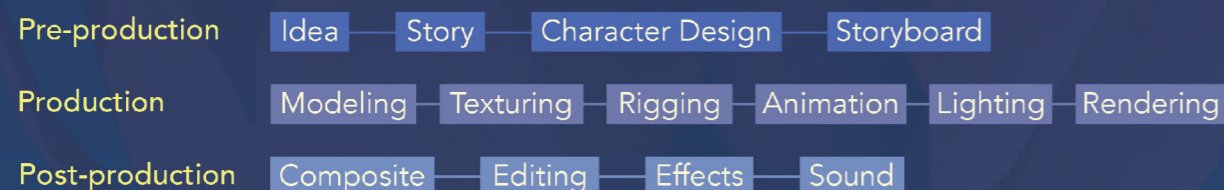
3D Animation

A technique that can make objects look more realistic by using computer-generated images that creates more depth compared to the flat 2D animation. A dynamic kind of medium that creates an impact in a unique style when telling a story that draws attention from the viewers whilst entertaining them.

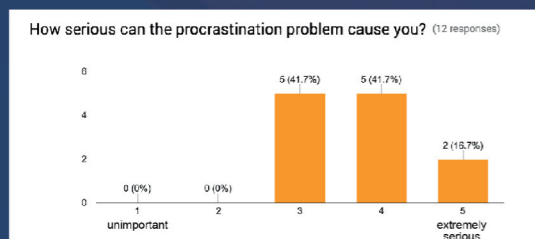
Procrastination

The action of postponing the important tasks to carry out insignificant ones. Presented in many unique ways, procrastination can be prevented at the beginning to preserve time. Failing to believe that procrastination will occur, as it is an impulse, might make it difficult to conquer it.

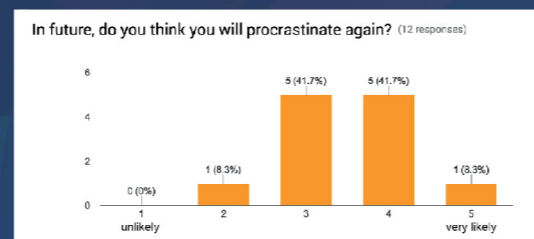
ANIMATION PRODUCTION PROCESS



FINDINGS



The survey is based on their experience with procrastination. It reveals that the majority of the respondents encounter slightly serious problems with 41.7%; quite serious with another 41.7% and extremely serious with 16.7%.



The figure is ensued from after the respondents view the animation. Most respondents will quite likely to procrastinate with 41.7% and another 41.7% will somewhat likely to procrastinate again despite the animation.

FUTURE WORK

- ▶ The film could be further improved by:
- ▶ Creating better models with intricate details and necessary riggings.
- ▶ Linking relevant sounds and music with the story in the presence of dialogue.
- ▶ Extending the time length of the film.

CONCLUSION

The film is aimed to engage the audience with visual insight of the storyline and educate them about avoiding procrastination before it is too late. By adding emotions, movements and sounds to the characters, the animation can be portrayed aesthetically without dialogue.

BSc (Hons) in Creative Multimedia



Quraishia Sarah Binti Abdul Ghani
BSCM/01/015/13

Quraishia Sarah Binti Abdul Ghani

“ Hello. My name is Quraishia Sarah Binti Abdul Ghani, but you can call me Sarah. I am very fond of motion graphics and animation. ”



3D Animation: Procrastination

I want to convey a message about procrastination through a 3D animation where everyone can view and enjoy.

My overall experience in building the project was tiring but enjoyable at the same time, because I'm doing something that i like to do and exploring my creative ways throughout the journey makes it more bearable. I gave tremendous amount of focus and effort in completing the project, no matter what challenges I encounter

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اوپنورسیتی ٲيكنولوژی بروني
UNIVERSITI TEKNOLOGI BRUNEI



**3D VIDEO ANIMATION:
HOW DRUGS AFFECT THE HUMAN BRAIN**
HAMIZAH SURYA BINTI HJ ZAINAL
BSCM/01/010/13
BSc (HONS) IN CREATIVE MULTIMEDIA



INTRODUCTION

The brain is an interesting organ of the human. It is essential for everyone to get the basic knowledge of the human brain. The brain is able to store memories, learn behaviors and give personalities to the human. A 3D video animation are able to tell a story and gives knowledge to the audiences beyond the naked eyes. This project showcase movements that are happening in the brain such as how a drug affects the brain.

FEATURES

The 3D video animation will show the animation of the brain's structure, some of its parts and the chemical reactions in the brain. There are explanations on the brain's functions and how drugs such as cocaine and methamphetamine affects the brain. The video has a 1280x720p resolution and produced in mp4 format.

OBJECTIVES

- Promotes the 3D video animation.
- Create awareness on the danger of drugs to our brain.
- Educate and provide better understanding on how drugs affect our brain.

CONCLUSION

With this developed 3D video animation, it is hoped to be displayed in hospitals and commercial areas with mixel TV.

SCREENSHOTS



Brain parts and neurons including its functions.






Cocaine blocks dopamine transporter, dopamine accumulate in the synapse leading to postsynaptic becomes hyperactive and causes euphoria. Meth blocks dopamine transporter as well as increase the release of dopamine causing postsynaptic to dangerously high level and gives user rush feeling.



▪ miza.surya@gmail.com

3D Animation: How Drugs Affect The Brain

I have decided to do this project because there are not many use of 3D animation in the country. Therefore, this is an opportunity to promote 3D animation and with my topic, to create awareness on the danger of drugs.

It was a great experience developing this project. Not only it increases skills, it improves my knowledge on the topic itself.



Hamizah Surya binti Hj Zainal



I am
Hamizah Surya binti Hj Zainal,
known as Miza.



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FICTITIOUS
SUBDOING THE AUDIENCE IN A 360° IMMERSIVE DIGITAL ENVIRONMENT
by Woo Siew Leing @ Sabrina, BSCM/01/013/16

Fictitious is an emotions engineering journey to study how design elements; **colours, shapes and forms and sound** can evoke emotions. Able to view in both monoscopically and stereoscopically, Fictitious features two imaginary worlds built to evoke calm and happiness in Blithe and fear and anxiety in Eerie, where the grass isn't always greener on the other side.

AIMS

- // To be able to manipulate human psychology through the level of arousal
- // Evoke negative and positive valence of fear, calm and happiness
- // Prove the project's understanding and application of design elements are able to evoke the intended emotions
- // Bring audience a different kind of ambient art immersive digital environment

OBJECTIVES

- // Creating an emotion evoking 360° immersive digital environment that brings audiences to a unique world of its own
- // Engross audience into the immersive environment with the study, understanding and application of emotions engineering by demonstrating how design elements such as colours, shapes and forms and sound will affect human psychology level of arousal and valence to induce intended emotions

TARGET AUDIENCE

According to National Center for Education Statistics, children age 11 and above are more exposed to computer and internet usage.

77.1% 15-17 YO | 68.3% 11-14 YO | 53.5% 8-10 YO | 31.4% 5-7 YO

Hence, Fictitious targets general viewers as low as ages 11 years and above.

USER REQUIREMENTS

- // Internet Connection
- // Youtube and Facebook

DEVELOPING TOOLS

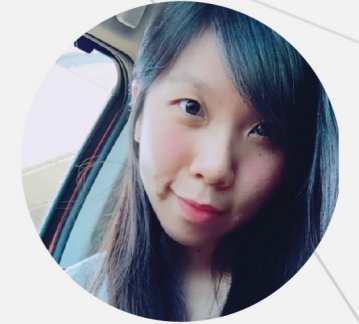
Domemaster3D

DEMONSTRATING METHOD

To demonstrate that Fictitious is able to evoke emotions, measuring of the heart rate with an oximeter is carried out as a test. The fluctuation of heart rate represents the response of the brain processing the emotions felt that causes the heart to create a heart rhythm pattern.
(Dr. Rollin McCraty of the Institute of HeartMath)

"Interesting and something new!", "Wonderful quick escape", "A joyful ride!" - Fictitious audiences

Woo Siew Leing @ Sabrina



I am Woo Siew Leing, better known as Sabrina, the face of Leing Woo Designs. My passion for multimedia design has no limits.



Fictitious

Graphic design has always been a passion to me. I have always wondered how and why there are design principles needed to be followed when creating a design. I wanted to understand how designs could emotionally connect with viewers and if they actually do. Fictitious is an immersive 360° three-dimensional environment video that aims to demonstrate and understand how simple design elements are able to evoke intended emotions in viewers. It is also available to view with a virtual reality headset to enhance the feeling of being immersed.

"Dreams don't work unless you do," best describes the experience in building this project. The society today is in a primitive stage in developing 360° immersive three-dimensional videos. To be able to create Fictitious, it feels like an impossible dream that became a magnificent possible reality.

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Brunei

Site Venture

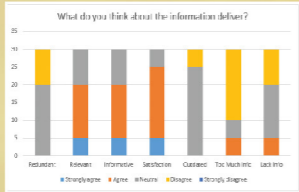
By: Siti Noor Maizatul Akmar Haji Sulaiman, BSDM/01/009/13

April 2017

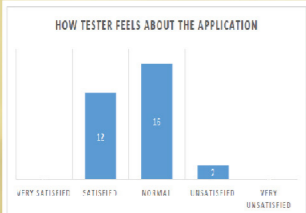
- To enhance user experience and understand about user's preferences.
- To provide an easy translation application for tourist.
- To provide a quick and convenient of providing information and navigation to the places.
- To promote local initiatives and improving the tourism industry in Brunei

An Android application implement with Augmented Reality Technology. This application is implementing the Location-Based System AR where is uses GPS to locate the place and Gelocation to retrieve the information about the place. It able to detect and track a word in real view then displaying the data retrieve. Futhermost, it gives information about the attraction sites, providing with a scenic view and a model of the building.

After tester used the application, they felt normal towards it. They feel the application is lacking of something but at the same time they feel appreciated with the application as it is Bruneian made.



From the survey, most of them felt neutral about the information deliver. Most of them satisfied with the information given. It is very helpful for some of them especially for the foreigner who tried the application.






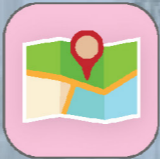
What is it?

Objective


Features

Analysis

Conclusion

- An AR word translation that translate an English word to Malay or vice versa. 
- An attraction sites provides with an information, a scenic view and a 3D model of the building. 
- An AR Geobased that navigate to the attraction site by displaying the names and brief information of the site. 
- A Map provide with a nearby place button from the user and search button. 
 - Can also give direction and distance from both places.

Based on the analysis, this application is able to perform perfectly well during the demonstration on the field. However, this project is still accepting any criticism as it is still under as prototyping application. The application need to be reviewed and evaluate whether the application can be implement publically or required more additional component or features.



اوبنورسيٲي ٲيكنولوٲي بروني
UNIVERSITI TEKNOLOGI BRUNEI

Brunei Site Venture

I wanted to do something related to one of the trends in technology today and that is augmented reality (AR). At the same time, I wanted to develop an application that could help users easily and conveniently enhances their experience when they visit Brunei Darussalam. Brunei Site Venture is indeed, an augmented reality tourism app for Brunei.

My overall experience in building this project was thoroughly enjoyable. I learned a lot outside of the module scope from school. There were always problems during the development, but with hardwork, patience and understanding, I was able to solve and overcome everything to create this project.



Siti Noor Maizatul Akmar Hj Sulaiman



Hi! My name is Maizatul. My friends call me Mai. I am an honest, simple and a cheerful person.



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ONLY AVAILABLE FOR ANDROID

LENSAR

THE FIRST AUGMENTED REALITY APP FOR BRUNEI TOURISM!

USER INTERFACE

AWESOME FEATURES

VIEW INFORMATION
Read information about Brunei's landmarks using Augmented Reality Camera

NAVIGATE
Plan your journey ahead with ease using Augmented Reality Navigation

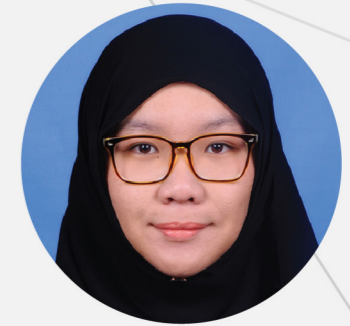


SPLASH SCREEN TIP SCREEN AR VIEW MAIN MENU INFORMATION SCREEN AR NAVIGATION



CHECK IT OUT!
Scan the QR code for the project's full detail

Nur Hakeemah binti Julaihi



I am
Nur Hakeemah binti Julaihi,
known as Hakeemah




Lensar

My project is called 'LensAR'. LensAR is a marker-less Augmented Reality application that runs on mobile devices with an Android Operating System. This application's main features are to recognize the landmarks in the real environment and layer information to users of the application on their devices; LensAR offers real-time navigation to the best places to go using an Augmented Reality view which will help to enhance the tourists' experience.


As a person who loves to travel, it is important for me to know and to have information about the place that I'm visiting and how to navigate myself to the places of interests using the technology we have. With this in mind, I wanted to make the tourists' experience here in Brunei more meaningful, fun, exciting and informative. Another reason is that Brunei's tourism sector role in their contribution towards the nation's economy has increased over the last number of years. Brunei need to improve tourist experience and their retention time during the stay. Furthermore, information provided from websites or brochures are not useful for tourists as they are seldom updated and are oftentimes redundant and the existing public transport services in Brunei has been less than accommodating and tourists may need to have maps with them all the time.

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AUGMENTED REALITY IN EDUCATION INTERACTIVE LEARNING SCIENCE SYLLABUS - ANIMALS CLASSIFICATION

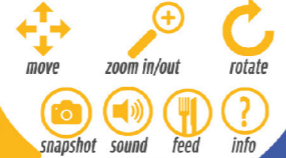


ABSTRACT

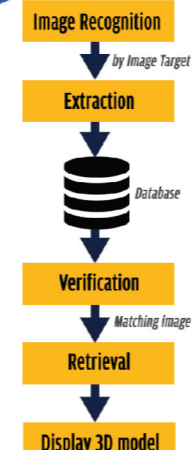
The intention of this study is to expose and increase awareness towards Augmented Reality (AR) technology to educational environment for the primary levels. An 'augmented book' is created and designed for this purpose, as well as AR application for Android smartphones is developed to let users immerse with the technology. The study is to investigate and compare on how the students adapt with new method of learning and impact of AR towards the young generations.

FEATURES


1. 3D Animals models
2. Interactive Touchscreen and Buttons for apps
3. AR Book



ARCHITECTURE

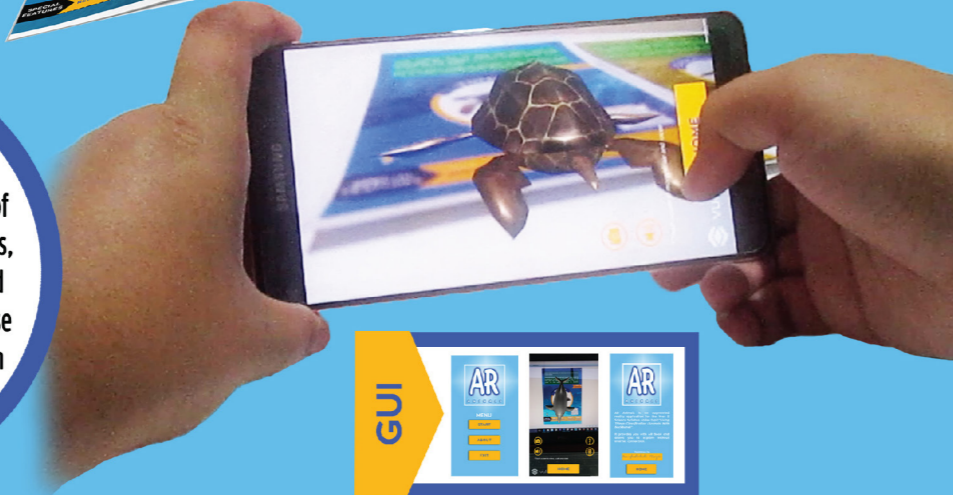


TOOLS



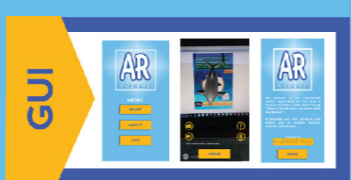
AIMS & OBJECTIVES

To enhance the engagement for the students to discover a new way of interesting learning environments, and boost up their creativity and imagination, as well as to increase the awareness of needs for AR in academic settings.



CONCLUSIONS

This project was managed to successfully exposed AR technology to the young generations. AR project brings joy to children to participate in the learning environment They are eager to explore and called the AR book has 'magic'. Hopefully in the future, Brunei can connect AR experiences to educational standard to helps students to discover a new way of learning environments and boost up their creativity imagination.



NURFADILAH BINTI FAUZI | BSCM/01/014/13 | BACHELOR OF SCIENCE (HONS) IN CREATIVE MULTIMEDIA

Interactive Education: Science Syllabus Animal Classification

My project is Augmented Reality in Education: Interactive Learning Science under Syllabus Animals Classification (year 5). I decided to do this because to exposed the AR technology to the primary education and applied AR to academic settings in Brunei to improve learning and students engagement in class.

My overall experience is I learned on how to build AR mobile apps using Unity and Vuforia. This project really test my software skills as we never learn this before during previous years. And I also agree that a good and proper time management is crucial in building the project.



Nurfadilah Binti Fauzi

“ My name is Nurfadilah binti Fauzi. I am a Creative Multimedia student. My colleagues called me Dila in short. ”

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DRIVING AND ROAD SAFETY VISUALIZATION FOR DRIVING SCHOOL

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BSc (HONS) IN CREATIVE MULTIMEDIA



INTRODUCTION

Augmented Reality (AR) is a form of technology that is now being used widely around the world but not really implemented that much here in Brunei as a form of education. Why not make an application that is also AR based but to educate Bruneians and in this case for driving school. Traditionally, students will only have to experience the driving themselves when it is time for them to start the driving lessons. Therefore, students are only exposed to some of the details of the lessons from the handbook or other people's experiences. For this project, a mobile app that uses AR technology will be developed and that app could help visualize the demonstrations based from the handbook given to the driving students when they decided to get their driving license. This visualization is in the form of a 3D animation that can be viewed using their handheld devices.

SOFTWARE USED



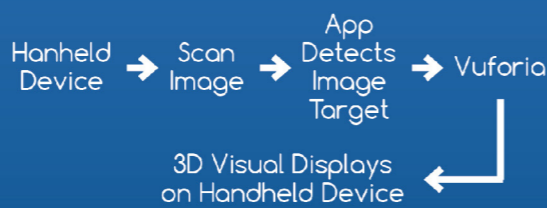
AIMS

- To help students visualize driving lessons, traffic and road safety.
- To make learning more interactive.

OBJECTIVES

- To create animations of the driving lessons, traffic and road safety.
- To view animations using the AR application.

HOW THE APP WORKS



CONCLUSION

Based on the survey conducted which was only from 21 respondents, 100% said that this application helped them visualize the static images, but there are still many future enhancements needed to make it even more usable for potential users.

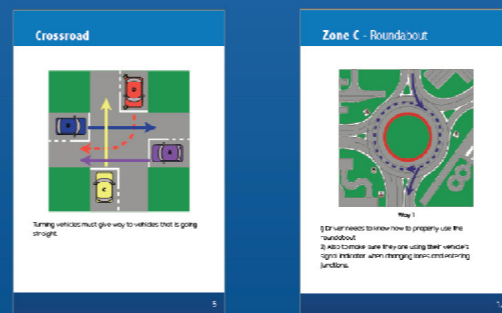
FUTURE ENHANCEMENTS

- ADDING MORE SECTIONS
Quizzes
More Information
- ADDING BUTTONS
- IMPROVING THE ANIMATIONS
Fixing the Animations and the Model
Adding Extra Indications
Adding Sound Effects and Car Lights

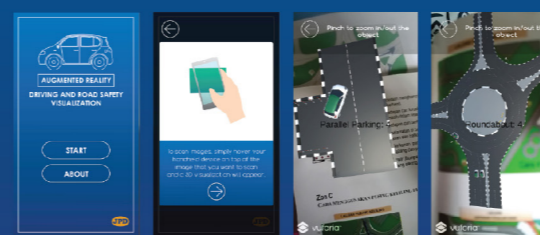
FEATURES

- 3D Animations
3D animations will be shown, showing actions and demonstrations based on the handbook.
- Short Texts
Once the 3D animation can be seen, simple and short texts will show up on screen to indicate users about the current demonstration.
- Zoom In/Zoom Out
This enables users to zoom in or zoom out the 3D animation by using their fingers on screen.

AR HANDBOOK



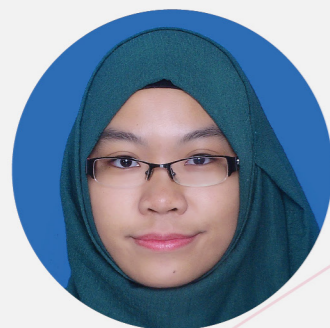
APPLICATION SCREENSHOTS



Driving & Road Safety Visualization For Driving School

When thinking of a problem in Brunei or what Brunei is lacking of, is most likely the exposure of these types of technology so that is why Augmented Reality was chosen for this project and also driving schools have not really been using any of these technologies hence I wanted to try and implement it.

It was very challenging due to very little knowledge of how to make an mobile application, let alone an Augmented Reality app. There were stressful times when trying to fix some bugs that were in the app. It was also a lot of pressure since I personally had a hard time trying to figure out how to design the app so that it looks as aesthetical as possible since we are Creative Multimedia student.



Dk. Amal Nazirah binti Pg. Said



Dk. Amal Nazirah binti Pg. Said
And known as Amal Said



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AUGMENTED REALITY GAMES ON THE WALL

ABDULLAH BIN MAIDIN
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INTRODUCTION

obesity is a chronic disease that we must avoid. It have the negative effect through your body. The only way of reducing this problem is by adapting healthy life style. Doing physical exercise at least 30 minutes a day can reduce obesity.
With AR Games On The Wall application, the user can do their physical exercise at home or maybe in the office. This app is a game mobile-base application that use augmented reality system.

OBJECTIVE

- To create a game application that can be use to do physical exercise.
- The game needed to fun to play.
- Can make the user sweat by doing the physical exercise while playing the game.

WORK FLOW

DESIGN → DEVELOP → PUBLISH



SYSTEM ARCHITECTURE OVERVIEW



NAVIGATION FLOW

MAIN MENU



TECHNOLOGIES OVERVIEW



BENEFITS

- Dodge Exercise
It can increases agility and balance. It also can improves your flexibility and develops fast reflexes.
- Run in Place Exercise
It burns serious calories and increases muscle tone and definition. It is also a cardio workout and beneficial for your heart.
- Aim Exercise
It can train your focus and Coordination.

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Abdullah Bin Maidin



Hello world, my name is
Abdullah bin Maidin
or you can call me Adhoul.



Augmented Reality Games On The Wall

I decided to this project because I want to show my capability on developing an AR game application and at the same time promote the healthy life style by doing a simple exercise. My project is an AR game application that make the user do a simple exercise such as dodge, run in place and aiming.

The overall experience doing this project is good and it teach me that you must have a good time management and reliable resources to do this project.

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A STORY-DRIVEN BUSINESS-THEMED

ABSTRACT

HexGig, a story-driven Business-themed board game that composed of the combination of comprehensive research on the emotional aspect of storytelling about business, board game level design and available content-creation applications

AIM

Create awareness about the daily troubles of working life while instilling the sense of teamwork and strategic decision making to solve problems

OBJECTIVES

- To spread awareness on business issues such as effective marketing, retention of employees, focus in the workplace, integrity for teamwork and reputation through the game play.
- To encourage the application of the learned morals and skills to its full potential in real life business situation of the players.
- To provide a compelling storytelling in the business theme environment board game that is relatable to real life situation.

CHARACTERS

Manager


Accountant


Sales


Developer


Designer


Copywriter






AUGMENTED REALITY BOARD GAME

by Muhammad Haziq Bin Omar (BSCM/01/005/13)

GAME PLAY

The board game flow will be broken down into 5 phases per player's turn which are:

- 1) Marking Phase**
Each players draw one Client Card and give it to Sales. The Sales will pick three Client Cards.
- 2) Meeting Phase**
Team will discuss and choose one of the three Client Card. Each players draw one Luck Card. The more success than failure, the Client Cards will be given to the Creative Member's Project Slot.
- 3) Workflow Phase**
Creative Member will put focus to the Client Card. Accountant will put Production Cost to the Client Cards. Sales shuffle the Client Card deck. Manager will draw Chance Card.
- 4) Deadline Phase**
Any Client card that falls on Day 0, each players will draw Luck Cards to determine whether the project is successful or not. If successful, team collect rewards.
- 5) End Phase**
Calculate the total Reputation Points. If negative, game will end. Otherwise, the business continues.

GAME DESIGN

- Contains day boards as physical platform
- Luck Cards to determine the fate of the players
- Client Cards for them to choose
- Chance Cards that carry advantages or disadvantages for players
- Token money to keep track of financial
- 3D printed characters to represent each roles

DEVELOPMENT TOOLS







A Story Driven Business Themed AR Board Game

I wanted to do something that I am happy to do and not something I had to do or force onto me. I am glad to go out with my friends playing board games at a cafe and that triggered and motivated me to come up with a board game of my own and put my own ideas and elements into it while at the same time researching on what issues I would like to tackle for the basis of the board game. I have decided to create a business-themed board game that tackles the issues faced by businesses.

Overall, it wasn't easy as I always constantly reminding myself on the requirement to pass the project. There are certain things that I wanted to do but always cut short due to the limitation of my skills and knowledge to get the task done. I am glad for number of individuals who help and guide me with my project on what are the things that I need to do or to improve on. It was an ongoing experience for me and I am happy for those who have volunteered to try out my board game and enjoy it. It was the most glorious moment for me.



Muhammad Haziq Bin Omar

“ I am commonly known as Haziq. I am taking Bachelor In Science Degree in Creative Multimedia ”

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TRANSMEDIA STORYTELLING GAME: DETECTIVE

INTRODUCTION

Detective is a transmedia storytelling game of crime thriller genre that uses augmented reality technology. The audience will be dependent on a smartphone to interact with the character in the movie. With Detective android application installed, the audience will have the chance to experience the real-life movie at the actual crime scene. The audience will assume the role of the detective in the movie. To arrest the real murderer, audience must navigate their way around the crime scene to find all evidence. Depending on the audience decision throughout the game the audience might be the best detective or might wrongly convicted the innocent.

OBJECTIVES

- To explore multi-platform media
- To change the convention way of storytelling by introducing transmedia
- To make the audiences engaged and immersed into the story

TARGET AUDIENCE

- Young adult
- According to pre-production survey most respondent aged between 18 to 25 years.
- Most of the respondent would like to experience Thriller/Crime genre.

PROJECT REQUIREMENTS:

GAME REQUIREMENTS:

- 1) Audience assume the role of fictional character
- 2) Introduce transmedia to storytelling
- 3) Audience participation
- 4) Interactivity in storytelling

USER HARDWARE REQUIREMENTS:



SOFTWARE REQUIREMENTS:



BACKGROUND STUDY

SIMILAR PRODUCT:

The witness is an augmented reality movie experience created by 13TH Street Universal. The witness, aim to get the audience to engaged in thriller and crime movie like the audience never have experience before. Audience must first register at 13th Street Universal website to experience the movie. Selected audience will then be call to experience the movie. The audience will be dependent on their smartphone to interact with the character in the movie. With GPS and special software developed for iOS user, the audience will have the chance to experience the real-life movie at the actual crime scene. The witness uses Augmented Reality technology to show the real-life movie to the audience. The audience have to take action to save the character in the movie. To save the character the audience must navigate their way around Berlin to get to the assigned location. Throughout the movie, the audience must make crucial decision. Depending on the audience decision throughout the movie, they can become the hero or the next victim in the movie.

SYNOPSIS

One day at 9.30pm, in a lecture room at a Brunei university, a 19 years old female student was found dead. She was a Multimedia student here called Jane. When her body was found, she was lying on the ground with head injuries. The estimated time of her death is between 8.30pm to 9.30pm. Jane body was discovered by her friend, Mia.

There were 4 people still at school at the time, Jimmy, Wayne, Mia and Bella. They are all the victim's classmates.

Who could have killed Jane?

APPLICATION FEATURE

- Android OS
- Augmented Reality technology
- Transmedia (Social Media)

FUTURE ENHANCEMENTS

- 1) Use various media
- 2) Better storyline and actors
- 3) Better user interface
- 4) Adding necessary game to certain scene
- 5) Markerless AR
- 6) Location-based
- 7) iOS application

GAME SUMMARY

The participant will assume the character, Detective in the game. The audience will be dependent on smartphone with android application to play the game and unfold the story within the game. The participant will have to go around the crime scene to look for clues to find who is the real murderer in the game story. There are 5 sections; case briefing, aibi, site inspection, interrogation and final verdict, in the game. Each section will uncover new evidence to the audience.

GAME FLOW

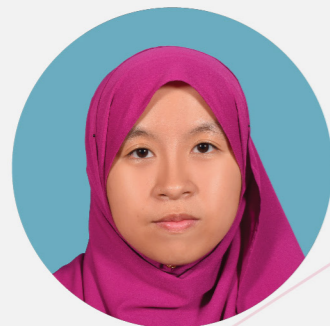


BSc (HONS) IN CREATIVE MULTIMEDIA

Transmedia Storytelling Game: The Detective

During period on deciding our project title each lecturer was given chance to give ideas on what project can be done by the student. One of my lecturer, Deenina Salleh suggested on a project that focuses on Transmedia Storytelling and she also showed a video 'The witness' to me. 'The witness' is an example of transmedia storytelling that requires audience to take part in the movie so audience become immersed and engaged into the story. I was inspired by the video shown by my lecturer so I did my research and finally decided to do my project on Transmedia Storytelling. Then I did an initial survey on what genre most audience would like to experience in my Transmedia Storytelling and most said that they would like to experience Crime/thriller genre. Through these responses I decided to do my project on 'Transmedia Storytelling game: The Detective'.

Although initially I have difficulty in doing my project as I have no experience and knowledge on Augmented Reality (AR) but I'm glad that I am able to overcome my limitation and able to learn new knowledge while doing the project. I am able to improve my video production skills to produce the footages for my movie. Also, able to create AR application which I have never done before. I am also able to improve my communication skills when presenting my project during final presentation and exhibition. I am glad that during the exhibition I have received good feedback from the visitors. Overall the project have really improved my skills as a multimedia student also able to learn new knowledge and experiences especially in Transmedia Storytelling game.



Nurul Safuraa Nasibah binti Mohd Zali



Nurul Safuraa Nasibah binti Mohd Zali
Known as Safuraa.



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Pervasive Game: Breakout!

At first, I was clueless on what to do for my final year project. I decided to meet Ms. Deenina and asked her for an explanation on one of the topics she suggested. As she showed me a Transmedia storytelling video, the Witness, I became interested and made the video as an inspiration to do my project.

To find the content for my project was another challenge that I faced. I did my research to find anything that is interesting and trending enough for me to use and try to innovate out of it. I suddenly remembered the instant phenomenon game that was trending in 2016 which is Pokémon Go! and I began to analyse on the technologies used for the game and I have concluded to use AR technology. Just like an apple without a pie, milk without a shake, and me without you, my project will not be perfect without a theme. I forced myself to think of all the previous games I played and Escape Room caught my attention. That is how I end up with my final year project, Pervasive Game: Breakout!

PERVASIVE GAME: BREAKOUT!

introduction

Breakout! is an adventure game genre available for Android users. With the theme of bomb defuse, the player played the role of an agent who is the main character in this game. The agent worked for a secret organization called The Agency and received a task from Chief Agent D to defuse the three bombs that are planted in Universiti Teknologi Brunei. While trying to find the bombs within 1 hour and 15 minutes, agent is required to find evidence of the bomber, solves the puzzles and catches the culprit. The success of the game depends on the agent's thinking and time management so are you ready for the challenge?

objectives

1. To let the user experience real and virtual world and at the same time, it is interactive in real time by using Augmented Reality (AR).
2. To encourage user to go outdoors and use this app as part of their healthy lifestyle and have fun.
3. To support the great use of interactive media in Brunei, to solve obesity issue within Bruneians.

game design

Game Challenge:
There are four puzzles and two riddles in the game that user needs to solve to complete the game. Riddle need to be solved to obtain clue by scanning the AR marker or the word or number on the object.
For puzzle, user need to key in code or directional code to deactivate the bomb.

primary technology

AR Camera is the main technology used for this game. AR technology is created in Unity by using Vuforia. The camera scanned on an image target that was created in a database in Vuforia.
The database then needed to be import to Unity and link the license key to activate the database and hence enabling the AR function.

background study

Similar product:
Pokemon Go is an excellent example of a game that became an instant sensation and proves the immense power of Transmedia storytelling.
Pokemon Go uses Augmented Reality (AR) technology, and due to the uncomplicatedness for a user to use and play the game, it managed to win excitements from people. Even though Pokemon Go is not promoted as a health app, it managed to make people walk and increased their physical activity. (McCartney,2016)

benefits

1. Cheap to create. This game does not require renting a place or shop to set up. The cost for props is only at a low rate such as for printing markers. Therefore this reduces the production and running cost.
2. Easy to use. The game is straight forward with easy navigation for people to understand.
3. Reduce data usage. Internet network is not required for the game since all the assets needed such as videos are ready built-in the apps.
4. Increase in exercise activity. User need to walk around approximately 1.5Km within 1 hour to finish the game.
5. Availability of Transmedia. Users are required to check another source of media to find clues to deactivate the puzzle. This causes the user to be exposed to Transmedia.

challenges face

1. Time constraint. Due to conflicting schedule, I have limited time to do my work and unable to do Alpha and Beta testing for the user.
2. Little programming skill. This limits me from creating some features that I desire.

limitation

1. The game is only available for Android user.
2. Player need to be at the venue to play the game.

future work

1. New themes to be added monthly. A push notification to inform the user when there is new theme released through subscription.
2. Using a marker less tracker. Increase in level difficulties for the user who is thrill to try a hard level game as they have no clue from markers.
3. Creating an iOS Version. iOS is the second most used operating system for mobile phone.

general game flow

```

graph TD
    User((User)) --> R1[Receive mission  
e.g. Find CCTV]
    R1 --> R2[Capture marker  
e.g. Target Image]
    R2 --> R3[Receive clue  
e.g. Check message]
    R3 --> R4[Solve riddle]
    R4 --> R5[Visit chosen location  
e.g. Staircase]
    R5 --> R6[Solve puzzle  
e.g. Direction code from Place A to B]
    R6 --> R7[Bomb deactivated]
    R7 --> R8[Game end  
All bombs deactivated]
    R8 --> User
    
```

video demo

<https://youtu.be/UNeINW0mH9g>



Faralisa Zulfikri

“ I am a lively, open-minded and outgoing person who likes to explore and go for an adventure. ”

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● T R A N S M E D I A ●
 S T O R Y T E L L I N G :
 ● T H E S U R V I V O R ●

/IN-TRO-DUCTION/

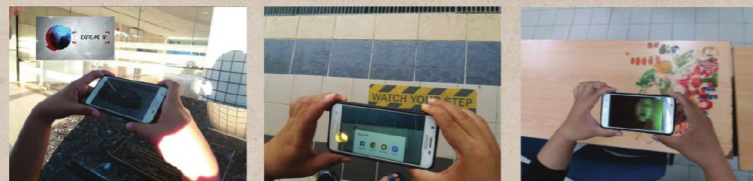
“Transmedia Storytelling” is storytelling in conveying story into by using multilevel media platform which invite player into story itself. This mobile base application use augmented reality and social media which gives player immersive experience mixing with game play in real life. Player need to find possible marker located around UTB and scan, and media or social media pop out on display and player can continue journey of finding continuation of the story.

/CUR-RENT SYS-TEM/

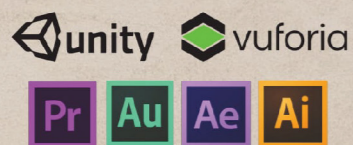
Similar example such as Pokemon Go! and The Witness. Both represent closely to Transmedia Storytelling : The Survivor. In the game, player needs to go one location to another to gather or collect item. In this transmedia, player need to decide themselves on how should they proceed to next story. Not all the story ends with happy ending.

/SYN-OP-SIS/

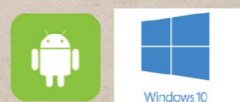
The Survivor is an adaptation of mobile based interactive real life game 'The Witness' created by 13th Street Universal in 2011. The mixture of film, technology and games that gives participant to experience it in real life of post zombie apocalypse. The story started when Doctor Zhendaya posted a video broadcast where she mention about antidote she kept somewhere in University Teknologi Brunei facility. Participant will be assigned as Doctor Xi, one of Co researcher of Doctor Zhen. The story path depends on participant's decision on how it will fall through. This decision will decide if participant will survive in the adventure.



/SOFT-WARE/

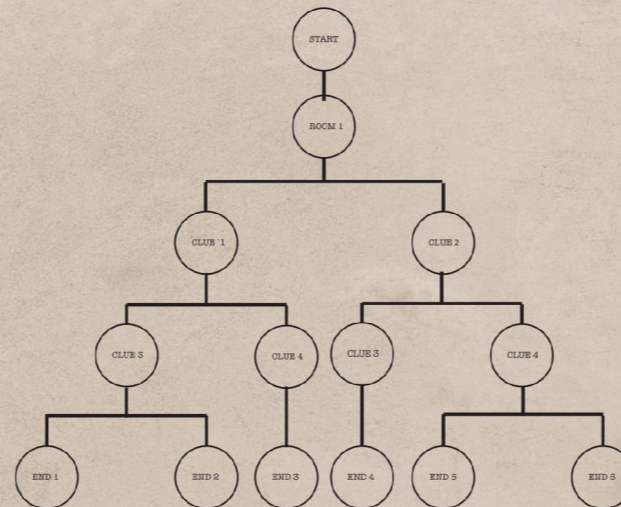


/HARD-WARE/



//GA-ME FL-O-W//

The player needs to find a marker that possibility are limitless. It may form in anyway such as signage, door, poster or even mural painting on table. The Survivor apps associates with Vuforia that allows marker detection, hence, once player scanned over object or signage an image, video or social media icon will appear that will show clues that may or may not help the player. A room may contain one or more clues, depending on player capability in locating possible marker. Player will be lead by CCTV that act as marker, then eventually show where next clue located. After first clue located, it gives option to player and it is up to player to follow which clue which then gives different ending to player.



/CON-CLU-SION/

Augmented reality offer whole other experience use strategically. It can be said the objective of this project achieved.

Hence, this project has provide multiple set up to tell story, and social media that played crucial roles these day help in diversify approach in storytelling. By mixing filming and game into real life experience as shown in demo, it allow people to explore different technology at the same time as we moving toward modern world with technology.

/VI-DEO TRA-I-LER/



Scan QR code
 QR code contains Video Trailer link.

Transmedia Storytelling: The Survivor

The title of the Project is Transmedia Storytelling: The Survivor. Transmedia Storytelling is a new media that uses multiple platforms in form of any media available such as QR code, markerless marker, images and others. The idea comes from 13th Street production that produces the first Outhernet movie 'The Witness' - a movie that needs audience seek continuation of the story from one location to another until the movie ends. It provides an alternate story which may lead to the alternate ending. This project I have decided to implement thriller genre, to give diversity in developing a story as well as making it more interesting. Using current technology, a smartphone it brought it closer to the audience to design their own path.

This bittersweet project reflects on what I had encountered during development of this project. We were given 10 months to complete this project from head to toe. With minimal knowledge, we study and learn the process for this project. Google and Youtube are the best tutors. Last 4 months had been crucial for us. The trial and error, forgot-to-save-work-done moment and the success story had given us an opportunity to get to know our own capabilities, to face certain problems and how to handle it. It was the break it or make it moment for me. Rollercoaster ride, one would say.

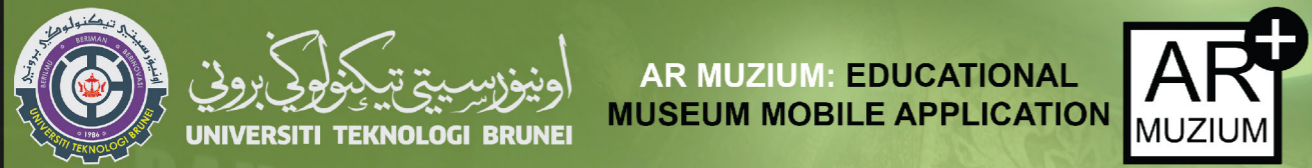


Mas Amalina Nadirah Haji Mumin

“Dont's Be Satisfied With Stories,
 How Things May Gone With
 Others. Unfold Your Own Myth
 - Rumi”

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UNIVERSITI TEKNOLOGI BRUNEI
AR MUZIUM: EDUCATIONAL MUSEUM MOBILE APPLICATION

INTRODUCTION

Officially opened by His Majesty KDYMM Paduka Seri Sultan on the 29th February, 1988, Malay Technology Museum, which is also known locally as "Muzium Teknologi Melayu", is a museum that exhibits historical items that were being used in Brunei Darussalam in the past. These items include those such as boat crafting, fishing equipment, gold, silver and brass smith, and also houses own during the past. "Muzium Teknologi Melayu" was sponsored by the Royal Dutch/Shell Group Company in conjunction with Brunei Darussalam independency in 1984. The historical items displayed in the museum are exhibited by mean of words being described on posters and label boards as well as pictures alongside them.

ABSTRACT

After personally visiting the local museum, specifically the Muzium Teknologi Melayu, it is found that the museum lacks the implementation of modern technology as a mean to give information to the museum visitors. Only means of gathering information are by reading description that are provided beside the replicas of each item being displayed, as well as pictures of the represented items on posters. Aside from taking pictures as well as recording videos, personally handling the replicas being presented in the museum are strictly prohibited. A simple application is created as to start creating new ways of gathering information in the Muzium Teknologi Melayu. The application will initially contain simple functions such as containing 3D model representation of the exhibited items, with information of the item alongside it. The application will also explore the possibility of taking advantage of the Augmented Reality Technology as a mean to gather information.

Keyword: Mobile Application, Education, Muzium Teknologi Melayu

AIMS

The aim of this project is to create a fun educational application which is easy to be handled by kids, especially primary school students, and to expose the possibilites of using modern mobile technologies in an environment such as the museum.

OBJECTIVES

- Gathering information at the Muzium Teknologi Melayu on how the current method of delivering information is being used.
- Initiating on learning how to work with Unity Game Engine and scripting C# Programming Language.
- Researching previous similar technologies and take note of their features and benefits.
- Creating an interactive mobile application that is easy to be used by school students.
- Implementing Augmented Reality Technology feature onto the mobile application.

RESULTS & CONCLUSION

In conclusion, the finalized mobile application has met the objectives needed to achieve the aim intended. The application has achieved around 70% of its objectives to reach the aim that have been set initially. As the application developed are far from having "stickability" when using it, due to the features being presented quite simple and more into informatics rather than interactive game format.

FUTURE WORKS

Much further features can be implemented into the application, but due to restricted time schedule, as well as an unexpected change of location of museum being referenced, these are decided to be included in the list for future work instead.

1. Creating an interactive quiz game inside the application.
2. Enabling the user to rotate the three-dimensional models by swiping or dragging the screen using their fingers.
3. Including more content related with Muzium Teknologi Melayu into the application.
4. Providing audio-based information that reads the detail for each item.
5. Enabling the user to access information about each item directly by clicking onto the three-dimensional augmented model in the provided device.

SAMPLE SCREENSHOTS



Muhammad Ahmad Syafri bin Sufray



“ Hi all. I am Muhammad Ahmad Syafri bin Sufray. I am known as Syafri by my friends. ”

AR Muzium: Educational Museum mobile app

I have created this project to create a new experience in gathering information at the local museum.

The overall experience in building this project is quite challenging. A lot of good, as well as tough experience were faced, but overall, keeps on improving myself

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Virtual Cycling Using Arduino

Dk Nurul Saadah Pg Serjuddin BSDM/01/005/13,
Supervisors: Pg Hj Azhan bin Pg Hj Ahmad & Deenina binti Salleh



Introduction

Brunei was recently the highest ranked to have obesity and diabetes in adults. One of the reasons is lack of exercising because people's idea of getting fit especially in the gym is not fun and painful.

According to Ministry of Health in Borneo Bulletin article, appropriate intake of nutrition combining with active physical activity can improve this problem (Borneobulletincambn, 2016).

Recently, Exergame have been widely developed to encourage people to do physical activity. It is a digital gaming system that requires people to perform physical activity to play the game.

Objective

- + To understand how development of a virtual reality
- + By incorporating with Exergames, a combination of technologies such as Arduino, sensors, virtual headset, and smartphone.
- + It allows the user to cycle using an ordinary bicycle in an immersive virtual environment.

Background Study

Exergames

Combination of gamification and various technologies such sensor for exercise have been developed extensively in the past few decades, this is commonly known as exergames. A test was conducted on a low income African American aged in between 10 to 19 years old to play exergame application named Nintendo Wii tennis for 25 minutes either alone or against a peer and the result was he able to expend more energy than the sedentary control group (Stalano & Calvert, 2011).

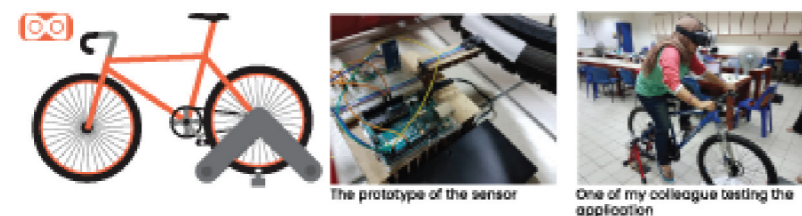
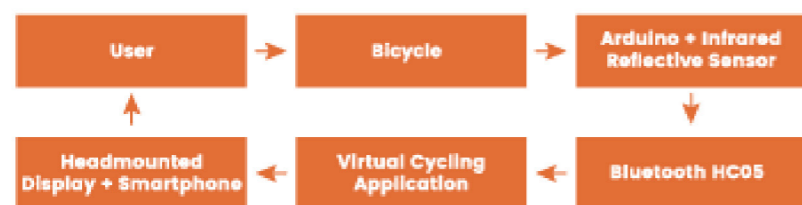
Virtual reality and cycling

People are experiencing virtual environment without distinguishing between real and virtual world. This experience is called immersion. To enhance this immersive environment, interaction mechanism is required to make the user feel like traveling in a virtual vehicle around the virtual world while in reality, she/he remains in the same area. This is called locomotion (M lavallo, 2015, 2016). Mestre, Maiano, Dagonneau, and Mercier (2011) has conducted a study on stationary bike apparatus incorporating with Virtual Reality that could enhance the exercise performance, enjoyment, and dissociation. In their article stated that according to Dishman, in 1993, user's involvement and devotion towards fitness can be boosted up using virtual reality equipment (Mestre et al, 2011).

Background of the problem

According to global Nutrition report in 2016, Brunei has been the highest ranked country among ASEAN countries to have obesity and diabetes. Ministry of Health has stated in Borneo Bulletin article that about 61 percent of Brunei adults are suffering from overweight and obesity and 12 percent are diabetes (Borneobulletincambn, 2016). Furthermore, Brunei is estimated to have 82 percent of Mortality due to Non-communicable diseases (NCDs) such as cardiovascular diseases, Cancers, Diabetes, Chronic Respiratory Diseases and Obesity (Commonwealthhealthorg, 2016).

Virtual Cycling System



- + A mountain bike is stored on a trainer.
- + The Arduino microcontroller with an infrared reflective sensor is placed near the back of the wheel.
- + Small strip of white papers is taped onto the tire.
- + The sensor will detect the reflection of this strip. Each time the paper passed by the sensor, it will create a complete rotation and measures rotation per minute (RPM) and the speed (MPH).
- + The detected information are then send by Arduino to the Bluetooth HC 05 via wirelessly.
- + Input information such as rotation of each pedaling and speed are send through Bluetooth HC 05 to the Application in the Android Smartphones.
- + The information is then processed in real time and output to the virtual world using Head Mounted Display (HMD) that is strap onto the user's face.
- + The characters in the virtual world will move forward whenever a complete rotation has made in the real world.

Features

- + A real- time movement, when the user cycle, the avatar move forward.
- + A hit interval gameplay where user is told to sprint for 30 minutes in every interval until it reached the end of road.
- + Increment in score as rewards.

Results

- + Inaccuracy reading of sensor in measuring the RPM.
- + Motion Sickness.

Future Enhancement

- + Changing the sensors to reed switch.
- + Reducing motion sickness.
- + Implementing spinning movement using gyroscope + accelerometer.
- + Gameplay: Setting up own avatar look eg skin, etc.
- + Gameplay: Unlocking new bike, new shirt, new wheel as they ride more.
- + Gameplay: Achievement jersey from sprinting.

Reference

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Dk Nurul Saadah Pg Seruddin



I love graphic, visuals, eat, movies, frisbee and fitness



Virtual Cycling Through Arduino

Since I'm very passionate about healthy lifestyle, I want to motivate people to do exercise comfortably in their home through cycling with the addition of gamification in order to make it more fun and make people forget about the pain of exercising.

It was a challenge for me because I push myself beyond my comfort zone by going through all the difficulties and by learning new experience in building the virtual reality cycling and it was worth it.

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LEARNING BAHASA BRUNEI WITH VR
by Jackelyn Soo Ai Ling (BSDM/01/007/13)

Visually shown 3D modelled objects
A Review list of words together with Standard Malay

OVERVIEW
Bahasa Brunei VR is a Virtual Reality application that is a simple game that matches everyday objects to Bahasa Brunei words shown. It helps users know of Bahasa Brunei in our daily life and surrounding.

AIMS
To further distinguish the difference in Bahasa Brunei and Standard Malay and to expose Virtual Reality technology for learning in Brunei.

OBJECTIVES
* To learn visually of Bahasa Brunei
* To have fun while searching and matching objects found in the room

TARGET AUDIENCE
* Ages 18 - 35 years old
* Anyone who is interested in learning the language

GAME FLOW

```

    graph LR
      USER((USER)) --> LOOK[LOOK FOR OBJECT]
      LOOK -- YES --> FOUND{OBJECT FOUND?}
      FOUND -- NO --> LOOK
      FOUND --> REVIEW[REVIEW LIST]
      REVIEW --> END[GAME END]
  
```

USER REQUIREMENTS
VR Headset, Smartphone

TOOLS USED
Unity, Oculus Rift, SteamVR, Blender

Jackelyn Soo Ai Ling



I'm Jackelyn Soo Ai Ling
or in short, Jacky.
I'm a student in Digital Media.




Learning Bahasa Brunei With VR

The reason why I did this project was that I felt that there is no much awareness put into Bahasa Brunei and I wanted to know more of the various unique words in comparison to Bahasa Melayu standard.

In the process of building this application, I felt a lot of things that could improve it and gathering the information was a difficult thing as the resources available regarding Bahasa Brunei isn't readily available as much. Despite that, using the current edition of the Bahasa Brunei dictionary helped in simple words. Overall the experience was amazing and more things could be improved for a better application and experience.


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VIRTUAL REALITY

SIMULATION OF LIFE CYCLE OF A PANGOLIN



DESCRIPTION

Pangolin is an endangered animal that has been hunted or poached internationally and locally. A virtual reality project allows viewers to experience the day-night cycle of a Pangolin.

OBJECTIVES

- To raise awareness among Bruneians on Brunei Wildlife
- To protect our nature and endangered animals
- To know and find out more mammal species in Brunei
- To expose to the kids and young adults on wild animals

BRUNEI WILDLIFE ISSUES

Illegal wildlife trade is developed because of high profit margins. People sell unique and rare species for a very high price. Reasons why some animals are getting extinct and decreasing are because the nature cannot restore or replenish their stocks to keep up with human consumption's rate. Pangolins are usually killed, skinned, and frozen before being traded on the black market. They were being sold at prices as high as \$1000 for entire pangolin. They are considered to be a delicacy in Asia and its scales used for various medicinal purposes.

DEVELOPMENT

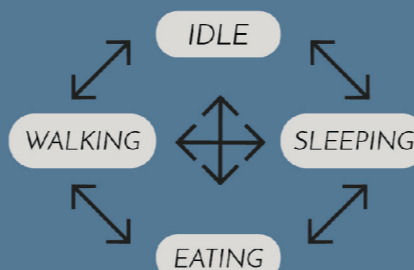
This app is developed by using Unity 5.6 and google cardboard. Use Unity to build the app, deploy them across mobile and VR as well as program AI algorithms.

VR ON ANIMAL CONSERVATION


VR technology can be used in animal conservation by helping researchers to assess the conditions of distant species and environments as if they were on location. Aiming for a representation of VR world while preserving the real world environment and allow audiences to encounter an immersive virtual reality experience that are inaccessible in the real world. VR technology also can be used as a tool to showcase natural places to people. From survey responses collected, about 72% of the respondents are aware that Brunei has endangered species. People think that the current wildlife protection act is not sufficient to control the illegal hunt or trade locally and internationally. It's important for people to have knowledge about the animals' precious wildlife and their risks of extinction.


SYSTEM

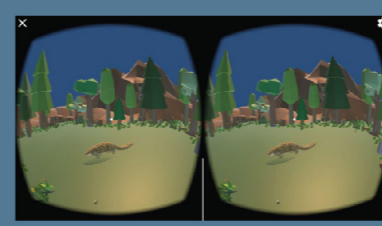
User will experience an immersive environment showcasing a pangolin's habitat and behaviours. A virtual pangolin will exhibit its daily life cycle through the use of AI algorithms. The algorithms will give the virtual pangolin movement behaviours roaming around the habitat, scavenging for food, and sleeping according to the time of the day.


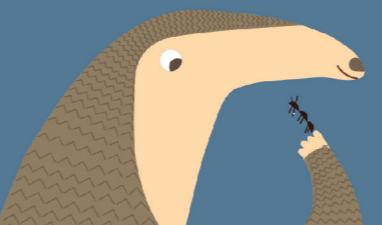


APK







Virtual Reality Simulation of Life Cycle of a Pangolin

My project is Virtual Reality: Simulation of a life cycle of a Pangolin. This simulation shows a virtual reality of a day-night life cycle of a pangolin. This project is to let people know that Pangolin is now listed as an endangered animal that has been hunted and poached internationally and locally. We want to focus more on teaching people about wild animals that are found in Brunei. This project also are to raise awareness among Bruneians about different kind of animals that can be found in Brunei and share knowledge among Bruneians.

During this project, I've developed new skills like programming for virtual reality application. I've learnt and gain more knowledge about Pangolin where before I didn't know nothing in details about Pangolin, except their existence. It was a very good experience for me during the development of this project and I have the chance to share the knowledge of Pangolin with people through the use of technology like Virtual Reality. I am grateful and thankful for my supervisor, Haji Azhan to guide me along the way of this VR Pangolin project as well the founder of 1StopBorneo Wildlife, Mr. Shavez for sharing the information and support.



Hajah Nooranisah binti Haji Idris



I'm Hajah Nooranisah binti Hj Idris from Bachelor of Science in Digital Media



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INTERACTIVE DRIVING LESSONS USING VIRTUAL REALITY

ABSTRACT

Virtual Reality can be defined as “a computer-generated simulation of the real or imagined environment or world.”

In this project, an interactive driving simulators using Virtual Reality to instill safe driving etiquettes is developed.

STAKEHOLDERS

- Land Transport Department
- Driving schools

HARDWARE AND SOFTWARE REQUIREMENTS

- Laptop
- Smartphone
- Unity
- Google VR
- VR Headset
- Bluetooth controller
- Autodesk Maya
- Adobe Photoshop
- Adobe Illustrator



PROBLEM STATEMENT

The number of accidents in Brunei has been increasing over the past years. Driver behaviour is the major cause of road accidents.

OBJECTIVES

- With the advancement of technologies, this project aims to develop and identify a suitable mechanism for a low-cost Virtual Reality driving simulator.

- Learning driving in a real road with a real car may be dangerous to the driver. This driving simulator is intended to provide a safe platform for the user to learn how to control and maneuver vehicles under certain conditions when driving on the road.

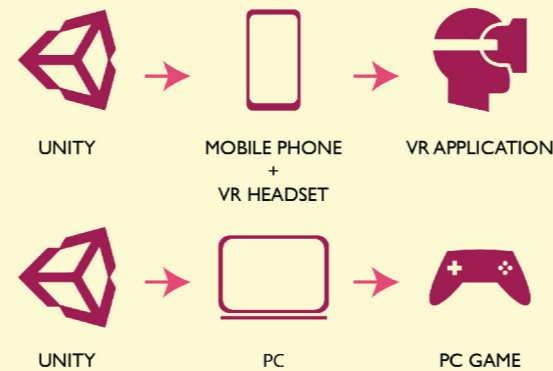
- Nowadays, proper road etiquettes are sometimes neglected and ignored. This project has the objective to instill safe driving skills and behaviours among young novice drivers.

SYSTEM FEATURES

Users will play games in a virtual environment in a mobile phone and will steer the car using Bluetooth controller. There are instructions to tell what they should do. Warning alarm will be activated if they do not obey the rules. Scores will be rewarded if they obey the traffic rules. However, the scores will be deducted if they commit the traffic offences.

The games that are included in the simulator are Speed Limit, Tailgating, Overtaking and Traffic Light.

SYSTEM ARCHITECTURE



Since the development of the driving simulator is made in Unity, it has two possible outcomes. The simulator has the possibility to be published as a Virtual Reality application and also, a normal game without the VR view.

FINDINGS AND CONCLUSION

Based from findings in this project, the low-cost Virtual Reality driving simulator is possible for practicing safe driver behaviour. Even though one of the games in the simulator has problems, the other games are working well and received a good response from users.

In the future work, the graphics should be improved and the use of steering should be taken into consideration in controlling the cars.

MUHAMMAD NAZRI BIN OSMAN
BSCM/01/019/13
BSc. (HONS) IN CREATIVE MULTIMEDIA

Interactive Driving Lessons Using Virtual Reality

The motivation to do this project is because of the growing number of accidents in Brunei. So the driving simulator is developed to instill a safe driving behaviour on the road.

In building the project, I find it quite challenging as programming skills such as C# and Javascript are required. Even though there are challenges, I managed to overcome the difficulties and finished the project in time.



Muhammad Nazri Bin Osman



My name is
Muhammad Nazri bin Osman
and also known as Nazri.



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INTERACTIVE SOLAT 3D SIMULATION: MOBILE APPLICATION FOR MUSLIMS IN BRUNEI DARUSSALAM

NAME: MOHAMMAD AZRI BIN MOHAMMAD NOAH
ROLL NO: BSCM/01/018/13
BSC (HONS) IN CREATIVE MULTIMEDIA

Interactive Solat 3D Simulation: Mobile App for Muslims in Brunei

I decided to do this project by taking advantage of the current technologies (ICT) to implement innovation towards Islamic teachings and matters. In this case, I have created a Solat 3D Simulation Mobile Application on Android platform for muslims in Brunei Darussalam. It acts as a reference for any individual to view the correct movement and postures in prayer through their personal mobile phone.

It is quite challenging as I have no experience on developing a mobile application before and the contents must be valid. It requires scripts in order for the interaction to happen such as moving any objects or pressing buttons on the screen. Also, the application of motion capture (Mocap) is being used for some of the poses in the prayer to limit the tedious work and the workload of key-framing the animation manually to add motion to the character. Overall, this project helps me to gain more knowledge and experience for future endeavor.

INTRODUCTION

The Brunei Times published an article, dated on July 16, 2012 regarding the ICT. His Majesty emphasized on the importance of the right use on ICT; "Take steps to benefit from ICT in the right way. This responsibility is the responsibility of all," Also, the monarch said, "We must practice noble values and preserve our identity, in accordance with MIB (Malay Islamic Monarchy)." Therefore, using the current technology which is the mobile application to develop an Islamic application to spread awareness and easy access for people to seek information of the correct body posture when praying. 'Solat' is a ritual prayer and it is a mandatory for all Muslims to perform prayer 5 times a day. The 5 daily prayers is one of the five pillars in Islam and it is an important aspect in daily life of Muslims and highly supervised in Brunei Darussalam in order to keep the faith in Islam strong and sustainable. Some people have different body postures in prayer due to following different Sect (Mazhab) which leads to confusion among others and they become doubtful.

FEATURES OF SOLAT 3D APPLICATION

- (1) Information and instructions of the body posture according to Mazhab Syafi'i (Sect Syafi'i).
- (2) Able to view the 3D character in 360°
- (3) Availability of text of the recitation in Jawi and its meaning on the screen.
- (4) The visualization of 3D simulation of the body posture.
- (5) Interactive buttons and labeling so users can get every information fast and efficiently.

MOTION CAPTURE

Motion Capture Software: Kinect Mocap Animator (Plugin in Unity).
Hardware: Kinect Xbox One Sensor + Kinect adapter for windows

OBJECTIVES

- To create a "Solat 3D Simulation" mobile application and to enhance learning by showing the right posture in prayer for Muslims in Brunei Darussalam.
- An effort to share Islamic knowledge and matters by taking the opportunity to use ICT and latest technology to make Islamic application.
- To use a low-budget markerless motion capture technology to animate a 3D humanoid character.

PRODUCTION PIPELINE

RESULTS

Result: 4 out of 11 postures in prayer are able to be successfully captured using Kinect Mocap Animator and retargeted the animation to the 3D Human Character. The 7 remaining postures cannot be captured due to occlusion and no detection, thus pose-to-pose animation technique is being used.

Posture(s)	Motion Capture	Pose to Pose Animation
Standing Still	✓	
Takbiratul Ithram	✓	
Reciting Surah Al-Fatihah	✓	
Rukuk		✓
Iktidal		✓
Doa Qunut	✓	
Sujud (Prostration)		✓
Sittings between 2 sujud		✓
The first Tahiyat		✓
The final Tahiyat		✓
The Ending Salam		✓

SCREENSHOTS OF SOLAT 3D APPLICATION

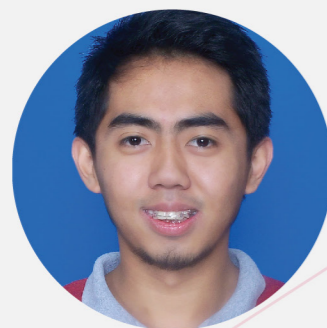
CONCLUSIONS & FUTURE WORK

In conclusion, the learning experience can be improved by using M-Learning and 3D visualization of animated character (based on a small scale survey). The implementation of the markerless-motion capture technology makes the movement of the 3D character to be life-like motion and to reduce the tedious process of the using computer animation to animate a humanoid character. Kinect Mocap Animator is chosen because it is cost-effective and efficient. In addition, the Solat 3D Simulation Mobile Application marks an effort to use the latest technology (ICT) to spread and share Islamic knowledge to others to make sure Islam is sustainable within the country.

Future work:
(1) The sound of recitation (2) Female character (3) Using 2 or more kinect sensors (mocap)
(4) "Test your Solat Knowledge" quiz (5) Steps on the etiquette before and after praying

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Mohammad Azri bin Mohammad Noah

Hi. My name is Mohammad Azri bin Mohammad Noah. I am known as Azri by everyone.

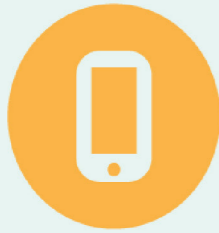
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LEUKO

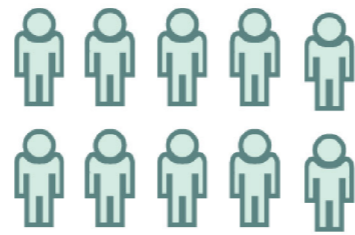
Overview



Leuko, derived from the scientific name 'Leukocytes' is a mobile app 2.5D game for Android platform. Players play as the main character, a white blood cell hero, to find and destroy several types of bacteria in a human body world.

Aims and Objectives

The purpose of this game is to educate and at the same time to bring entertainment to the mobile users especially the teenagers.



Features



The game has stages where the player has to go through and beat destroy the bacterias within a time limit. Bacteria encountered will be shown in the 'Bacteria' screen section.

Workflow

The workflow is as follows, using Autodesk Maya for 3D modeling and Unity Game Engine to create the game.



Leuko

Mobile App Game
Alvin Bin Harry
BSCM/01/001/13

Alvin bin Harry



Hello. I am Alvin. I love games and I am from Creative Multimedia.



Leuko

I am interested in becoming a game developer in 3D modeling section and decided to try to implement white blood cell topic into a mobile gaming subject for educational purpose.

I learnt a lot about white blood cells while researching and further gain experiences in developing a mobile application game. It is a very interesting subject to be used for gaming education side and has a lot of potentials to develop.

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UNIVERSITI TEKNOLOGI BRUNEI

MOTION SENSOR (MOCAP) In 3D HAND MODEL

Introduction

This project will be covering the motion capture or MoCAP for short of the human hand on to a robotic. Modelling, rigging and animating based on the data captured by the Arduino sensors. This project follows the normal convention of animating and rigging with the introduction of the flex sensors to know the movements.

Problem

Currently, testing has been done on actual robotic arm to achieve realistic movement which can damage it. This can be very expensive and time consuming. It is also not convenient as the robotic arm have to be brought anywhere to test on different location. This also led to missing parts of a robotic arm.

Objectives

- To capture realistic movement data. To animate the 3D robotic arm using real time movement.
- To improve robotic arm by providing data that can replicate any possible movement.

Reference

Sheikh, F. I. (2008, September 23). Real-Time Human Arm Motion Translation for the WorkPartner Robot. Retrieved January 24, 2017.

Muhamad Haslanulhakim Bin Matussin
BSDM/001/003/2013

Method

Mechanical sensor technique a combination of on/off mechanical switches and complex motion tracking systems is used. In addition, its design is based on a set of armatures that mainly attached all over the performer's body (Sheikh 2008).

The sensor will get data from human hand using hardware that currently develop as prototype

Arduino component combine with flex sensor are involve in developed this prototype








4 different position data value that involving the movement of the finger.




The sensor will only read the bend of flex sensor by moving the each of the finger

The data will then translate to 3D hand model where the same finger will move according to which flex sensor is bending

MOCAP in 3D Hand Model

I have interests in to do mechanical things with electronic and wires where it involve assembling and connecting parts. Additionally, it also involves motion capture to record or capture real time movement of human action and application of motion movements to 3D models and controlling the movements.

Overall experience in developing this project is fun and I am able to gain new skills during doing this project. The most difficult is programming part of the project.



Muhamad Haslanulhakim Matussin

Hi, I am Has. I'm from Digital Media. I have basic knowledge of designing, modelling 3D model and develop game. Known as Haslanul or Badul and Babul.

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3D FACIAL ANIMATION

Abstract

Creative industry in Brunei Darussalam needs to explore various ways and techniques that can make this industry to progress into the development 3D facial animation, graphic games and interactive multimedia. 3D Facial animation is one of the methods that can be explored as such realistic facial animation can be produced thus making it be more reliable and convenient way of producing a 3D based character in the process of animation. This research it will show that this project can be reusable from one model to another model that have different facial form. In this project, this project will use and explore techniques that can produce a realistic 3D facial animation with aid of a low-cost camera and develop through software that will integrate with the camera to produce a real-time 3D facial animation according to the user's facial expression. The camera will capture the facial expression and translate the data into 3D models.

Introduction

In animating a human expression, this traditional process is done manually by adjusting the expression frame-by-frame in reference to the actual facial expression. This method will be much complex, tedious and time-consuming to be done in 3D form. Therefore some animation artist will just produce a simple non-realistic facial animation.

In order to overcome this problem, the alternative solution will be to use performance driven data to animate the facial expression.

This methods can be done by using 2 different techniques;

1. Rig Bone Technique.
2. Blend Shape Technique

Process Flow Charts



Rig Bone Technique.

This will acquire performer's expression from the motion capture process, the performance data will be translated in computerized data. It will be integrated with a Rig Bone 3D Head Model. Once it's done, it will be animated based on the performance data from the performer.



Blend Shape Technique.

This process will require developer to create multiple of heads expressions that represent human expressions. The process of Blend Shape is just a direct integration of the 3D Blend Shape Head Model to Unity using Face Plus plugin. It will only use standard or laptop web camera for the process of animation.

Techniques

6 known universal emotion of human; happiness, surprise, sadness, anger, disgust and fear (Ekman, 1960) will be use as a reference for this research.

Rig Bone Technique

A bone-based rigging where the whole 3D Model facial structure was rigged using bone/ joints. This joints will act as points active areas that move the facial structure in accordance with the expressions from the performance data in motion capture process(MoCap).

Blend Shape Technique(Mixamo-FacePlus)

By using multiple facial structures of human faces as references and then combining it into one facial structure. This facial structure will be like a ready-made animation. However, the reference images must be plenty in order to produce a more better result. This technique will be executed by using a freeware software and plugin by Mixamo.(Unity Face Plus Plugin)

Output

Rig Bone Technique.



Angry Happy Surprise

These models were animated by using performer's data that was being implemented on every joint of the 3D Head Model. However this result can be improve by adding more points but it will consume time for faacial development process.

Blend Shape Technique(Mixamo-FacePlus)



Angry Happy Surprise

In compare to the Rig Bone Technique, Blend Shape Technique uses reference images to animate the 3D Head Model inside Unity. However, the animation is still not as accurate as to the human expression, this is mostly because the blend shape requires more reference images to produce realistic expressions.

Conclusion

In conclusion, although both techniques produce a realistic 3D Facial Animation. However, more research should be done in order to make the execution of this process to be smooth. In Rig Bone Technique, although it produce a better result than Blend Shape Technique by producing a realistic facial expression. However, in this research, Blend Shape Technique can integrate with a basic laptop Web Camera, thus making it to be an interesting method to be explore for future study of a Markerless facial animation. If it's possible, this Markerless technique can be us to animate the Rig Bone Technique.

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Muhammad Fadhil bin Hamdan



I am known as Adel or Dyl. I'm interested in multimedia, computer networking and other interesting matters involving the development computer technology.



3D Facial Animation

Basically, my motivation for developing this project is my interest in making a computer generated effect by using a 3D model that can mimic a human expression. My dream is to be able to create a special computer-generated character like in the movies Avatar, Avengers, Planet of The Apes and others. Those movies use a real human expression that integrated with the computer generated model.

Overall experience for this project is very satisfying. This is mostly due to the self-development and the knowledge that I've gained throughout this project. I hope one day I can produce the same effect as in the movies.

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