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INDUSTRIAL VISIT REPORT

ON MaGICX

Presented by :

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Submitted to :

Dr. Sarina Binti Sulaiman

College : Universiti Teknologi Malaysia (UTM)

Faculty : Engineering

School : Computing

Subject : Technology & Information System

Subject code : SECP1513 - 07

Event :-

Name : MaGICX

Date : 6 / 10 /2019

Place : T03, University Industry Research Laboratory (UIRL)

UTM, Johor Bahru

INTRODUCTION

Media and Game Innovation Centre of Excellence (MaGICX) established in 2013. This industry is a strategic cooperation between University Teknologi Malaysia (UTM) and Iskandar Regional Development Authority (IRDA) to support and promote the development and ecosystem of creative industry that focuses on gamification and enrichment of digital content.

VISION

- To be as a part of the anchor for games and gamification industry and the nucleus for Iskandar Malaysia Innovation Valley.

MISSION

- To give support and technical expertise in research, publishing, business development, marketing and training for industry allies to develop the product and service to be more viable and productive.
- To create specific environment where can make everyone want to be the good one of the best.
- To nurture good relationship between researchers, investors, businesses, student, experts, and consumers continually.
- To be a part of forefront of technological, social and business development that give big impact to games and gamification industry.
- To give effort in the development of human capital.
- To create and improve a portfolio of the product to enhance our brand name in the games and gamification industry.

- To be a start that can promote our capabilities in research, design and development.

MaGICX team :

- Assoc.Prof. Dr. Mohd Yazir Idris
- Prof. Dr. Mohd Shahrizal Sunar
- Prof. Dr. Ali Selamat
- Prof. Dr. Mohd. Shafry bin Mohd Rahim
- Assoc. Prof. Dr. Shukor Abd Rzak
- Dr. Farhan Mohamed
- Azizul Azman
- Dr. Kamarulafizam Ismail

- And supported by many researchers

MaGICX partner & clients :-

MaGICX incubators :-

MaGICX Services

MaGICXcel Incubator Centre

- Offer work office and facilities, professional mentor and sustainable to new worker.

Augmented Reality

- Create a new and innovate way to make a real world mix with other unreal 3D objects in gadget to built new and exciting experience to the user.

Kinect Enchancements

- Use the benefit of capabilities of the Microsoft Kinect to develop the customer information center.

Game & Gamification

- Developing applications by using the concept of game mechanics and game design techniques as the main source to motivate people include ourselves to achieve their goals.

Mobile & Web App Development

- Develop functional and pleasurable mobile & web applications and find the best solution for your business need.

Training & Learning Programme

- Provide many training courses that focuses on develop games, mobile & web and Augmented Reality which can promote from junior to professional level.

Virtual Reality

- Create around us full with 3D by using the computer generated environment which creates helpful experience for users.

MaGICXplore R&D Network

- Connect into our academia network headed by our research arm UTM-IRDA Digital Media Center, we can advance our technical capabilities based on main topic of the research and make sharing sessions about knowledge to the public.

EVENT SCHEDULE

Date : 6 / 10 / 2019

[redacted]	[redacted]
2.30 p.m. - 3.00 p.m.	Introduction of MaGICX
3.00 p.m. - 4.30 p.m.	Divide group and move to stations - Kinect Interactive Wall - Virtual Reality (VR) - 3D Printer - Car Stimulation - Augmented Reality (AR)
4.30 p.m.	End

KINECT INTERACTIVE WALL

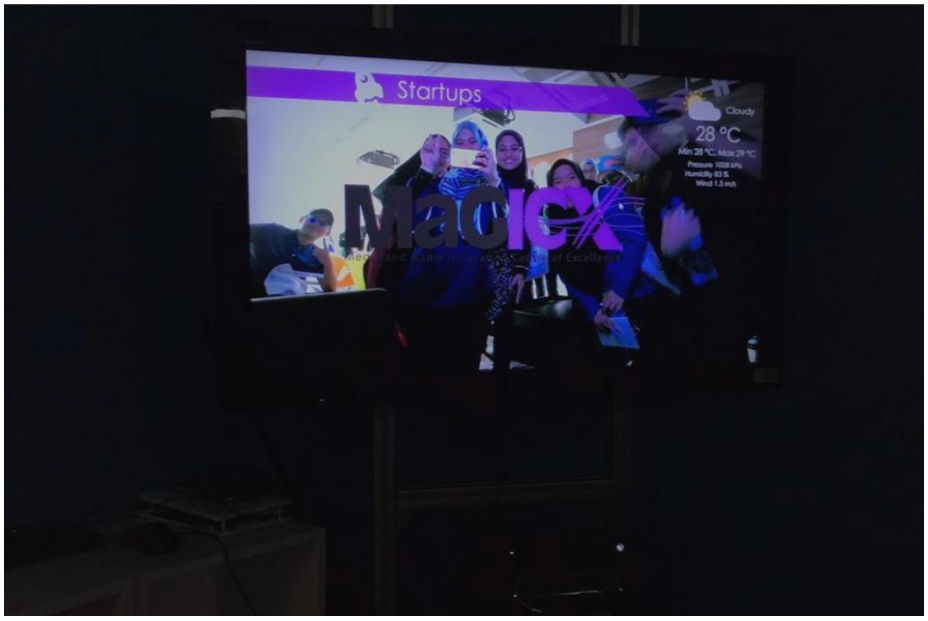
Interactive wall is a very large, high resolution display which can be touch-sensitive. The content displayed on these interactive screens is generally the same that could be found on a desktop computer but magnified onto a larger area.

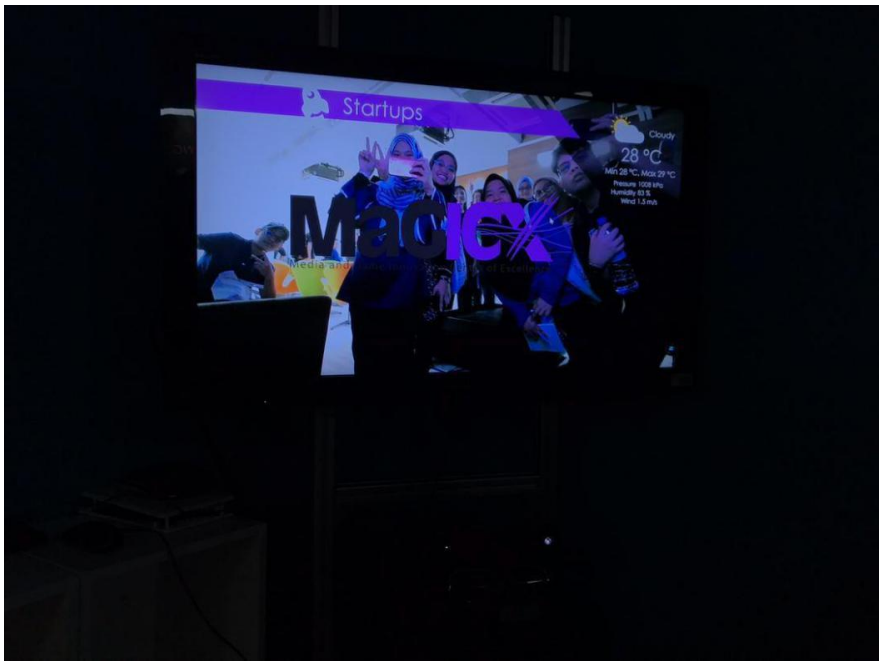
This interactive wall is made exclusively by Media and Game Innovation Centre of Excellence (MaGICX) for Ministry of Science, Technology and Innovation (MOSTI) Malaysia. Users will getting the latest information, news, information on funds and grants and many more by using a dynamic actions technology. This will make Malaysian are more exposed to newest technology. Kinect interactive wall also make Malaysia as a step forward from other countries as it is one of new technology that will be used by the public.

This interactive wall are made with an high resolution for a better present to the users. Interactive wall also different from mobile phone and desktop because it was presented in a large size. Interactive wall will not used any button, keyboard or devices to controlled it. Interactive wall will recognized users faces and user can controlled it by dynamic actions. In this case, user can use their hands to controlled interactive wall.

Its more convenient for users since its not using any kind of tools to control it other than dynamic actions. Users will find it is more easier to control it than using tools. Users save their expenses because it do not requires more expenses in tools. Interactive wall are generate in large size as users can see the information clearly. Large size wall helps the public to see it in a better view with more people can see the information compared to desktop. Interactive wall is a high resolution, any complex information, diagram, video or map will be presented nicely and helps users figure out the information instantly.

KINECT INTERACTIVE WALL





VR: VIRTUAL REALITY

Virtual reality is an artificial surroundings that is created with software. Virtual reality will be presented to the user in such a way that the user suspends belief and accepts it as a real surroundings. Its different from using computer because computer only present a two dimensional graphics (2D) while virtual reality is a three dimensional graphics (3D).

Virtual reality are provided with headset and controller. Users can touch or move object using controller and they are function like real things. Virtual reality also invented with games on it, users aren't supposed to just sit in computer chair instead they can move around or even walking with it because it is wireless devices. This are more convenient compared to PS4 since it is wireless games. Virtual reality games are really recommend to use headphones. The headphones would make this experience immersive in a new way, cutting out external sounds and distractions.

Nowadays there many kind of games that are invented. Virtual reality are one of the newest invention in technology for gaming or education. Virtual reality helps students in their studies especially in medical line. They get see an 3D model of a plant or human's anatomy. This will improve their understanding in studies. For MaGICX invention in virtual reality, they are focusing in education and games. Virtual reality also will develop students creativity as they can see the subject like a real things.

Virtual reality also helps in burning calories because you can move around during play the games. It is also make you some new experience with a dynamic games and no more to just staring at the screen. Virtual reality gaming has revolutionized the whole gaming experience of the contemporary games. Thrilling VR games are highly in boosting adrenaline. Rapid advancement in virtual reality technology has induced great progress in the world of gaming.

VR: VIRTUAL REALITY

Driving Car Simulator

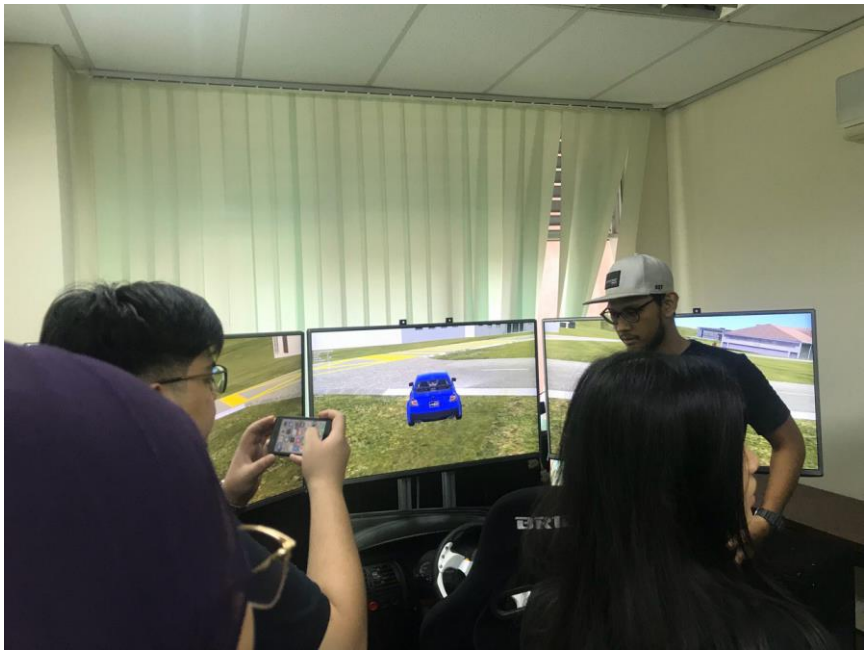
A driving car simulator is a virtual reality device that allows users to feel a life-like experience of driving an actual vehicle. This driving car simulators are frequently used for vehicle system development, human factor study and vehicle safety research by enabling the reproduction of the actual driving environments in a safe and tightly controlled environment.

The driving simulator for this research is developed using PC-based workstations that are capable of producing high fidelity graphics at reasonable cost. The VR-based simulator gives a driver on board the impression that he drives an actual vehicle by predicting vehicle motion caused by driver input and feeding back the corresponding visual, audio and proprioceptive cues to the driver. This research project provides the initial groundwork for future research development of driving simulator in Malaysia.

The long-term objective of this research is to provide a test bed for simulating driving related task and for virtual environment technology research in the country. This paper describes a first research attempt to develop a static base driving simulator based on virtual environment technology to create an immersive driving environment for the simulator user. The knowledge gained from this project will be further used to develop a full-scale driving simulator for automotive and transport safety research in Malaysia.

This driving car simulation are furnished with large computer monitors, a steering wheel, gas and brake pedals and car seats. This driving car simulation is moving around the University of Technology Malaysia area. According to the research done, this driving car simulation still needs improvement in terms of system settings as it is still cannot fully controlled by the user for example, the steering wheel.

Car Stimulation



3D Printing

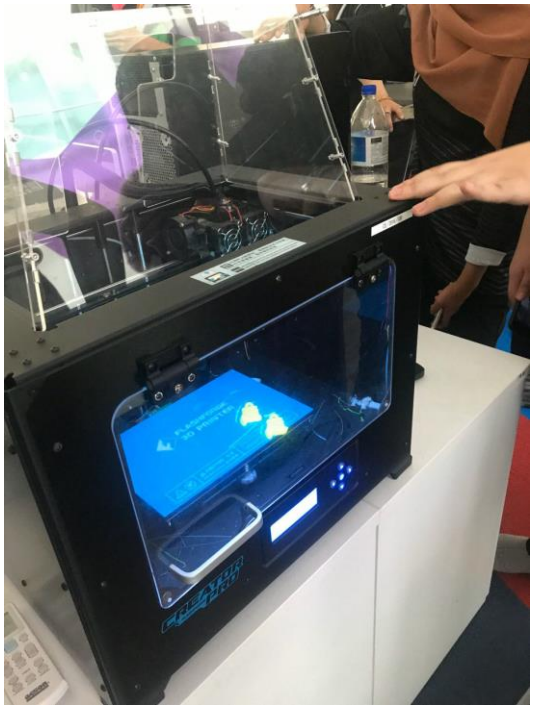
A typical 3D printer is very much like an inkjet printer operated from a computer. It builds up a three-dimensional model one layer at a time, from the bottom upward, by repeatedly printing over the same area in a method known as fused depositional modeling (FDM). Working entirely automatically, the printer creates a model over a period of hours by turning a 3D computer-aided design(CAD) drawing into lots of two-dimensional, cross-sectional layers effectively separate 2D prints that sit one on top of another, but without the paper in between. Instead of using ink, which would never build up to much volume, the printer deposits layers of molten plastic and fuses them together to the existing structure with adhesive or ultraviolet light. The time taken to print an objects is mostly takes five hours and above based on the size of an object.

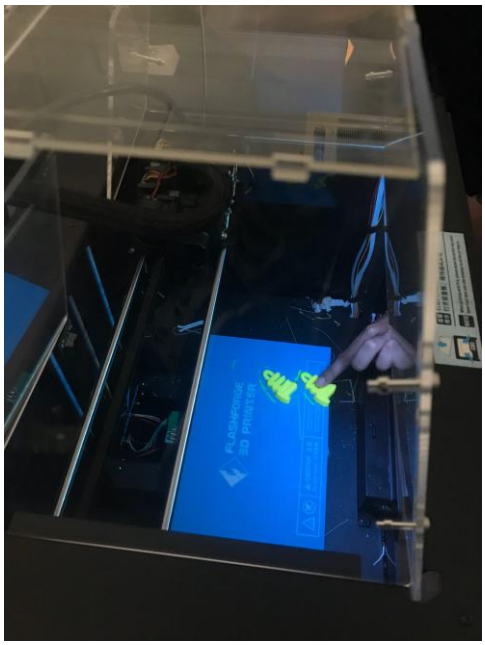
There is some procedure that users need to follow in order to use the 3D printing. Firstly, users need to always start with 3D CAD model. The users need to find three-dimensional model that wanted to print. From there users need to export that model to dot x3g (.x3g) file such as dot stl (.stl) file which is stereolithography file or dot obj (.obj). And then, from there users can import into a slicing software whereby to edit layer, tool path, temperature, color, and time taken to print the 3D model. Next the file is transfered to sd card then insert to the 3D printer. Finally, users need to click print and wait for the 3D print object out.

The printer used is Flashforge 3D Printer. The material use to print is by using Polylactic Acid(PLA) which is biodegradable material under the correct conditions thermoplastic derived from corn starch and the most cost effective material to print. The charecteristics of easy to use make it works for wide variety of 3D printing applications. PLA is not as sensitive to temperature changes. PLA have great surface quality. While PLA has very high tensile strength. Its low elongation and can deform

at 120oF, make it a very brittle material at ploughing field. It has small shrinkage rate, making it perfect for large parts molds and prototypes.

3D Printer





Augmented Reality (AR)

Augmented Reality is the technology that superimposed the computer-generated images from your apps to the view of physical real world in our life through the camera. AR does not replace the whole visual of real world with virtual one but it just adding the elements of graphic, sound and video in the physical real world. AR will let people feel like the virtual graphic from the apps appear in the real world in condition of looking on your phone through the camera. Augmented Reality creates a new and innovative way to integrate technology into the real world to build new and exciting interactive experiences.

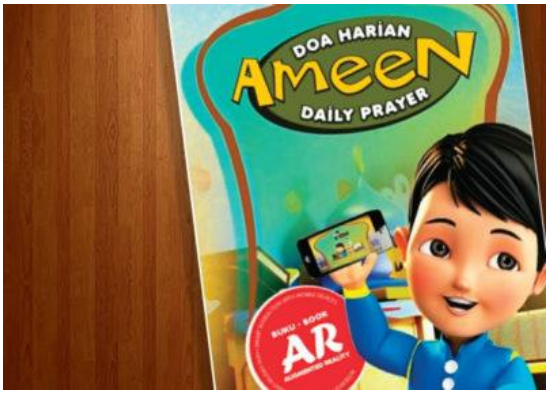
There are some variety of technology which formed the Augmented Reality such as Marker Based AR, Markerless AR, Projection Based AR and Superimposition Based AR. A variety of elements such as images, animations, videos, 3D models will be used and people will see the result in both natural and synthetic light. AR can be displayed on various devices which are screens, glasses, hand held devices, mobile phones and so on. AR can be applied in our daily life but the most popular application of AR is gaming such as Pokemon Go.

There are some apps about Augmented Reality section covered in MaGICX which is Ameen Daily Prayer and wARna. Ammen Daily Prayer can let users learn the daily prayer in a more interactive way. This application using Augmented Reality (AR) technology to give a new kinds of learning ways. This will attract users to learn through play. By using this application, the users will be able to learn and memorize the prayers easier because learning through AR technology is more interesting. Moreover, Ameen Daily Prayer AR application requires users to scan specific marker using the camera function in smart phone to present Ameen in 3D condition.

Other than that, wARna application also one of the AR apps that is very entertaining which provided in MaGICX. This app combines colouring activity with Augmented Reality technology designed to give you a magical experience while learning colouring. Users just need to colour the page in the specific colouring book

and scanning with the wARna application, a vividly 3D model will appear on screen on your devices to that corresponds to the exact colour which coloured by users. This 3D model will super-imposed with the view of physical real world so that users can see the 3D model created seem like appear in our world.

wARna



Ameen Daily Prayer

Reflections

The goal with regard to this course is can become a computer graphic and multimedia programmer in the future. This visit has greatly affected our view about to this course which is graphic and multimedia software. Before that, the view about the graphic and multimedia software is doing the game programmer and graphic developer which are creating the games and the designing of graphic. After this visit to Media and Games Innovation Centre of Excellence (MaGICX), we have learned a variety of interesting technology and new knowledge such as Virtual Reality, Augmented Reality, Driving Car Simulation, 3D printing and so on.

These new technology have impact us on the innovation of new product of games and the creative learning program of these technology for the kids nowadays. Besides, these innovations make us feel that the graphic and multimedia software is not only creating the games software to entertain people but will change our sight about these interactive technology. The product and project provided by the MaGICX have opened our eyes and we have realized that these product and services provided can help today's people in solving their problems in life, learning the new knowledge, gain various kinds of experience and improve their standard of living especially to the young people. These make us more determined to carry on to achieve the goal.

Since this visit has brought a lot of benefits and good experiences to us, we also need some plan to improve our potential in this industry. First, we will do more research about the innovation of games and new technology and learn as much as we can to get more information about these innovations. Next, we would like to take part in some seminar, talk, exhibitions and visit which can bring us more knowledge about this course like this industrial visit to MaGICX. Moreover, we will also increase the knowledge and widen our horizon by going to overseas exchange to learn more about the advanced technology of other advanced country so that we can improve my potential in our course. These plans can make us easier on innovation and programming of graphic and multimedia.

WORK PLAN

Name	Duty
Wan Ahmad Amirul Iman Bin Wan Ahmad Yusmi	Make front page, introduction, industry background work plan table and conclusion. Compiled all of the contents and edited the format of the report. Plan to meet up for discussion
Ayu Nazira Binti Azharudin	Make 3D Printer and Car Stimulation report. Take photo during making report as a prove our teamwork. Edited photo of the program in the report.
Nuriana Najwa Binti Mohd Rauzi	Give duty to the members. Make Kinect Interactive Wall and Virtual Reality (VR) report. Add photo of the program in report. Plan to meet up for
Chiam Wooi Chin	Make Augmented Reality (AR) report and some reflection about the industry activities. Give some support to other members on writing report.

CONCLUTION

MaGICX is one of the industry that develop future technology and system toward benefits to our country and world. Many people said that ideas can come from our dream. Our ancient people already dream that they can fly or can travel around world across sea. Now, all of the ancient people thinking are fully come real. In this time, it is our turn to dream like what our ancient people did and this time the dream come more complex, easy to use, light and other. For example like dream that we can get inside games and play without using mouse or keyboard, we can use hologram mode to communication to each other and others. So, MaGICX is the one of the center that can develop that kind of technology and system.

Firstly, the industry develop a program called Kinect Interactive Wall. This program use large screen and can detect users. The users can search information without touch the screen and can swipe one to another information by using movement from their hand and finger.

Next,they develop Virtual Reality program. The program can make the users feel they can move the character by their own movement. The users cam play sport like badminton and other in their house.

3D printer is one of the technology that nowadays want especially in business. MaGICX develop that technology too. This technology can print the plan into touchable object in 3D. The material of the print is rubber, polylactic acid(PLA), acrylonitrile butadiene styrene (ABS) and others.

They develop car stimulation too. This program kindly can help some trainee who want to take drive license to practise before the test from JPJ. The users can learn the function of the stuff in the car and practice driving but the users cannot put their hope

just to the car stimulation because it is not real. So, the users need to practice driving a car on the real road to experience it more well.

Other technology that MaGICX develop are Augmented Reality. Finally, those tech that they develop can bring future to our nation and world.

Hopefully that MaGICX can develop more technology and program that can give benefit to other people today and next generations.

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