



UTM
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SCHOOL OF COMPUTING
Faculty of Engineering

SECP1513 - TECHNOLOGY AND INFORMATION SYSTEM

Industrial Visit 1 (Group):

Media and Game Innovation Centre of Excellence (MaGICX) UTM

SECTION : 09 – 1SECR

COURSE NAME: BACHELOR OF COMPUTER SCIENCE – COMPUTER NETWORK & SECURITY

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Introduction

The faculty of computing organised an industrial visit to the Media and Game Innovation Centre of Excellence (MaGICX), UTM on 6 October 2019. This visit assembled students from our course which is networking and security course and also other courses under our faculty which were more than 30 students and one lecturer, Dr. Adila Firdaus Binti Arbain. The aim of this visit is to give exposure to the students about the system and the application they developed and how it works.

Introduction about the organization

Media and Game Innovation Centre of Excellence (MaGICX) was established in 2013. MaGICX is a foundation of a cooperation between University Technology Malaysia (UTM) and Iskandar Regional Development Authority (IRDA). Their main motive is to support and promote the development and ecosystem of creative industry that focuses on gamification and enrichment of digital content. Moreover, MaGICX conjointly aspires to make associate setting that contributes toward talent development, business promotion, knowledge-sharing, and international collaboration, it's credits embody comes associated with increased reality, mixed and virtual environment, image processing, computer vision, multimedia software engineering, medical computing, computer interaction, human interface, usability, animation and technology, speech and signal processing, visualization, multimedia and software innovation, and emerging technology.

The vision of the company is to be the anchor for Games and Gamification industry & the nucleus for Iskandar Malaysia Innovation Valley and their mission is to provide necessary support and technical expertise in research, business development, publishing, marketing and training for industry players to develop commercially viable products and services.

VIRTUAL REALITY (VR)

VIRTUAL REALITY (VR)

Aims

- To let user experience and interact with Computer-generated simulation of 3D image or environment.

How it is Design

- MaGICX has integrating with the Powerful Oculus Virtual Reality device to brings a wonderful and impressive experience to the user. The Oculus Virtual Reality come along with the hand-controller and high-end index Headset.
- MaGICX design the Virtual Reality games and application with the help of Unity, Unity is a cross-platform game engine for developing 2D,3D games and application.

Features

- Qualcomm Snapdragon 835 processor (fast and stable)
- Wireless device
- User-friendly controller
- Powerful graphics chip by providing HD image
- Light weight
- Anti-Sweat design



REFLECTION

VR combines virtual world with real life. Augmented reality is divided into three aspects, namely, combining virtual objects with reality, real-time interaction, and three-dimensional. VR hardware devices are divided into hand-control devices and head-mounted displays.

When I wore the VR device, I was impressed with the VR device, the “world” that I saw was so realistic. The Headset is overlaying the real world and the virtual object perfectly to the user's vision. I strongly believe that VR device has a great potential market value in the future.

Recently years, VR has achieved great achievements, and with more and more VR applications is developed. For my opinion When designing a VR experience, the most important thing is still to study the user's needs as well problems that user facing. So when develop a VR application it should be user-friendly. Moreover, we should keep Improving the quality display with design a high-resolution and higher refresh rate display.

Addition, I believe convenience is the importance keys to the user's experience. VR device must be designed in a lighter weight eventually suggested integrating with sensor to replace the hand-controlled to give users have a hand-free experience and brings Virtual Reality to the next level. Overall I was very satisfied and mind-blowing with such invention and I believe it will be getting more and more better in the future.

3D PRINTER

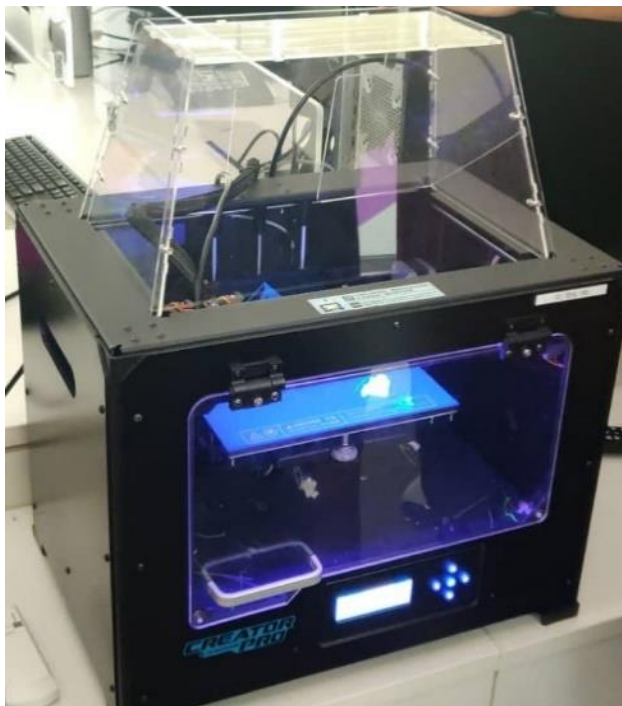
3D PRINTER

Aim

- To use minimal material to create items or product.
- Allow people to create new ideas, construct low cost prototypes and find replacement parts at a low cost.

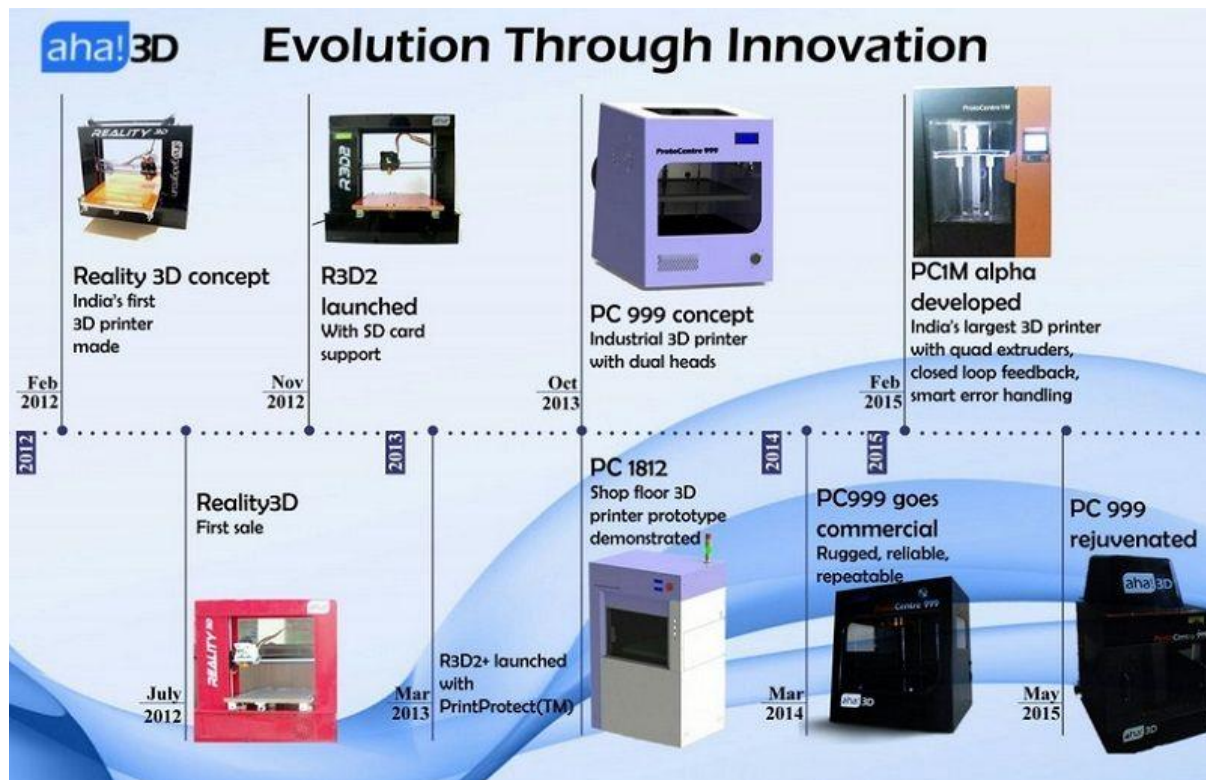
Process of 3D Printing

1. Pre-Processing
 - A digital model of the object needs to be created using computer aided-design software. The file is fed to the 3D printer in an stl format.
2. Production
 - In this process, the printing process takes place. The correct material is added to the printer and the printer deposits layers of these materials to create the final product. After the printing process, it is removed from the printer and taken to the next process which is post-production process.
3. Post-Production
 - In this final stage, the additional material deposits on the objects are cleared. Thus, the final 3D printed object is created.



Benefits of 3D Printing

- Faster Production
- Cost-Effectiveness
- Creative Designs
- Customization Freedom
- Better Quality
- Single step manufacture
- Ease of access
- Sustainability



REFLECTION

3D printing is a process of making 3 dimensional solid objects from a digital file with the help of a 3D printer. When I saw the process of 3D printing in face to face during the visit, I was actually amazed with the device and the product created which was so realistic. Even though the process of printing the product takes certain time according to the object which we are molding. For example, if we are printing a small key chains it will take about 10-20 minutes and if an object is the maximum size of the printing bed, it will take 5 or more hours to complete.

Recently years, 3D printers have helped people in a several ways. For example, we can print prosthetic leg or hands for those who needs them. In my opinion, the processing time of 3D printer should be reduced, so that more products can be produced in a short time in a healthy environmental way. Overall, I was very satisfied and amazed with such invention and I believe that it will get more improved in the future. I hope people will know the importance of 3D printer and use them wisely in their daily life someday.

DRIVING CAR SIMULATOR

DRIVING CAR SIMULATOR

Aims

- To let *people*, experience real-world driving and to study driver *behaviour* during their driving.

How it is Design

- Driving car simulation UTM is design by the MaGICX (*Media and Game Innovation Centre of Excellence*), the setup of Driving car simulation UTM is Come along with the driving seat, accelerate& breaking pedal, steering wheel, 3 monitors set up with curve shape and also dual speaker beside the Driver. The Driving car simulation UTM is stimulating the UTM environment that let user experience driving car in the UTM.
- The software Driving car simulation UTM is user-friendly that there is one-button control for the stimulator to restart the session and the hand-brake Is used to pause the simulator. The interesting of this Driving car simulation UTM is user-interactive which comes along with the checkpoint, the user could get to know well UTM environment by driving the car whenever passing each pre-set checkpoint.

Features

- Has real dashboard assembly with control such as steering wheel etc.
- It offers a realistic operating environment and ergonomics.
- Record/playback facility can be used to errors of each trainee
- Software is quite user-friendly, and it is easy to use.
- Dual Speaker provides a more realistic experience.

Link for Showcase the Driving car simulation UTM - <https://youtu.be/zNH76w47eJo>

REFLECTION

Driving car simulation UTM is an Awesome idea, that it makes everyone experience driving in the real-world, although it is a video-game it is set up with dual-speaker provide realistic sounds and three high-resolution monitor with curve shape that offer a wide field of view for the driver so that user can have more realistic experiences. Although It looks simple by seating there and drive the design architecture is complex that I had made research on this Driving car simulation UTM there is an article talking about the pattern of Driving car simulation UTM ([Article Driving car simulation UTM](#)). But in my opinion, there is still some improvement can be made to the Driving car simulation UTM, which is it can integrate with Virtual Reality (VR) technology, the driver could wear VR headset during they were driving with the Driving car simulation UTM. The user could experience 3D realistic image during their driving. This is a Potential design for the future, it can be implemented in the driving school, and student could take their training with the Driving car simulator, this is useful because there is always have some case of serious accidents during student training with driving the car on the road. In the simulator, whenever students make some mistake that could lead to a serious accident, we could just restart the training session and mark the student driving attribute. Overall this innovation was one of the best among others that I have seen in the MaGICX industry visit.

AUGMENTED REALITY

(AR)

Augmented Reality(AR)

Aims

- To Let user experience a real-world environment where the object in the "real-world" is computed by the computer.

How it is Design

- MaGICX has integrated with the tablets device to brings a wonderful and impressive experience to the user. The Oculus Virtual Reality comes along with the hand-controller and high-end index Headset.
- MaGICX has design wARna application combines colouring activity with augmented reality technology designed to give you a magical experience while learning to colour. You just need to colour the page in the special colouring book and after scanning with the wARna application, a 3D model will appear on-screen on your device to that corresponds to the exact colour provided by you.

Features

- User-friendly App
- App available on android and iOS user
- 3D moving object display on the tablet
- Realistic sound for enhancing the user experience



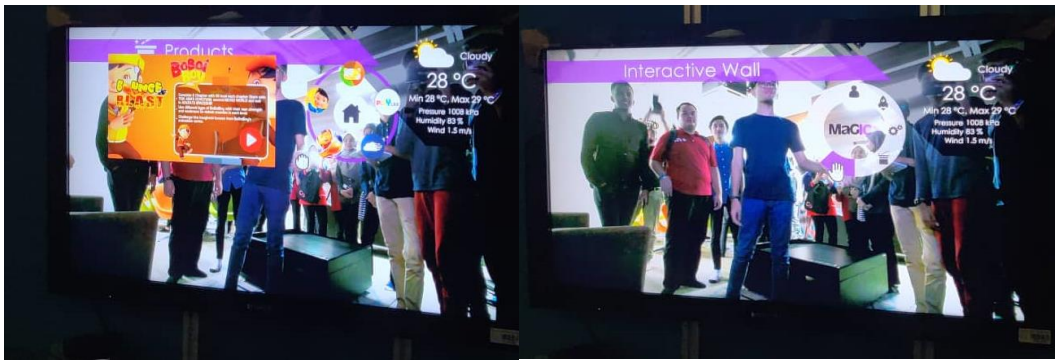
REFLECTION

I'm impressed with the Augmented Reality that invented by MaGICX. The main reason is after I scanned the object on the book by using their app, I can interact with the object in the form of 3D and with the sounds, and I can change my view with a different angle to have a clear look of the animal. I think this is useful in the future for the student to have a better understanding on somethings because of Augmented Reality make the object tangible for them. In my opinion, Recently AR is costly to manufacture so that's the reason for AR not so widely used in the educational field. Currently, real-time object recognition technology for AR is limited, so it is necessary to improve its recognition accuracy with the implement of sensor and Artificial intelligence technology.

Kinect Interactive Wall

Kinect Interactive Wall

Kinect interactive wall is a project that have been developed or maintained by MAGICX UTM. Mr.Syafiq explained to us about this project. This Kinect interactive wall is a project that can convey information of MAGICX and its organization to the users in an interactive way. This interactive wall consists of a LCD display, Xbox sensor which can detect the users face. This Kinect only can detect one person at a time even though it uses Xbox sensor because it programmed such a way. We can access the information and the application in the Kinect by waving our hand. We only can use one hand at a time. And if want to click we have to squeeze our hand. All the application in that full of high tech and high quality animations and it and sounds as well. So it helps us to get involve ourselves into them.



Advantages

- This project helps us to understand about MAGIX in an interactive way. We usually feel bored when we listen to the lecture and the talk, so it helps us to learn and go through their organization in a more interactive way.
- Kinect has the affordability to create enjoyable and interesting interactions types to boost student motivation. Students can utilize the information gathered by Kinect with software programs to create highly interactive multimedia works.
- This project helps the children to play games in a different way. This is because, parents nowadays yelling at their children that playing video games is so unhealthy to students because they do not use their physic to play and the scared that it will be major cause to them in the future. So by having this Kinect it will promote them to use their physic and their mind as well.

Reflection

Kinect interactive wall is a great idea that will be part of the future one day. This is because, there will be no more whiteboard, blackboard, chalk and marker in next generation of teaching. This kind of technologies will dominate the teaching and many other industries that's requires presentations and communications. Generally, as a computer science student this visit to MagicX especially this Kinect interactive wall gave me an impact on my goal which I have to contribute my knowledge and my skills in this kind of technologies which will promote the education system to the next level. So that our children and grandchildren will have a conducive and interactive education which will help the students to study and understand very well. On the other hand, one of my action to improve my potential in the industry is to get to know what are the technologies that exist now which will help the students and also others in order to gain knowledge. So that I can think of some prototype which can be modified and upgrade those projects like Kinect interactive wall more responsive and full of joy fullness in order to they can connect themselves into the system very well. Apart from that, this interactive wall will be useful for the people in the industries especially in a management sector and also to the students who going to do presentation. This is so because, this wall will make the presentation way more interesting and more fun to watch. So that spectators will understand the concept and the idea that the presenter conveys.

CONCLUSION

For this visit, I benefited a lot. I got to know that MaGICX provides many things such as professional certification, junior coding program, augmented and virtual reality solutions, and start-up incubator center. Then, people who are interested in making or developing games can come to MaGICX as it provides the training and learning programme that can help them from beginner to professional level because the demands in games are high nowadays as it not just exciting but it teaches something valuable to the players example likes Minecraft game.

THE TASK FOR EACH MEMBER

Name	KISHEN A/L PREKASH	HUANG XIAOSHAN	NARENDRAN A/L RAMMUDO	CHIN WEI XIANG
Tasks	INTRODUCTION	DEMONSTRATION ON AUGMENTED REALITY (AR)	LIST DOWN THE NOTES FROM THE EXHIBITOR	DRIVING CAR SIMULATION & REFLECTION
	TAKING PICTURE	DEMONSTRATION ON VIRTUAL REALITY (VR) OF OCULUS QUEST	KINECT INTERACTIVE WALL	EXHIBITION ON 3D PRINTER
	REFLECTIONS	REFLECTIONS	REFLECTIONS	REFLECTIONS
	MERGE ALL THE REPORT PART & REVIEW	-	-	-