SCHOOL OF COMPUTING
Faculty of Engineering

SECP1513-TECHNOLOGY AND INFORMATION SYSTEM

SEMESTER 1 2019/2020

GROUP 2-DESIGN THINKING REPORT
SYSTEM UNIT

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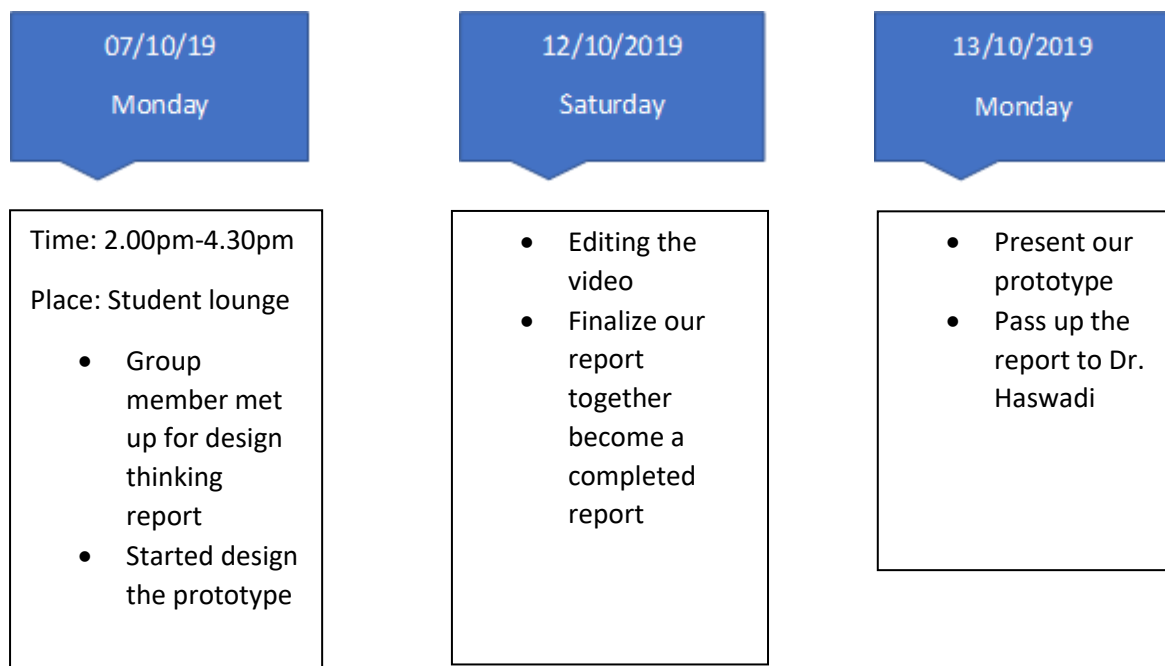LECTURER'S NAME: Dr.Haswadi bin Hasan

SUBMISSION DATE: 13rd October 2019

1.0 Introduction

This age is the age of science because of so many inventions that making the world smaller day by day. Nowadays, every each of us tends to finish certain task in a simple way like as just rely on the materials that has been provided through internet but this is not going to help us in the long run. For this reason, we have to develop our creativity level which is really very important for the new generation. There are many ways to learn how to be creative but among all of this we have one strong approach which is design thinking. Design thinking is that kind of process which helps us to understand better while solving problems. By the help of design thinking method, students can easily do many tasks within different dimension and increase the level of their thinking skills. Design thinking produces comprehensive visualizations of future alternatives allowing from interaction and feedback. Furthermore, this can help us by producing the clear vision out of so many problems and it also helps us to learn organizing everything. In addition, it gives us the opportunity to show our knowledge in front of the world by creating the prototype. Prototype is not an easy thing which can show up everywhere. So, we have to boost up our own idea because it is the integral part of our process.

2.0 Detail steps and description, evidence for each phase

29/09/2019 Sunday	04/10/2019 Friday	06/10/2019 Sunday
Time: 2.00pm-4.00pm	Time: 1.00pm-1.30pm	Time: 3.00pm-4.30pm
Place: Student lounge	Place: N28	Place: Foyer N28
• First time meeting to discuss about topic • Watch videos given by Dr.Haswadi	• Interviewing the students who face the problem • Record the interview • Prepare the report	• Brainstorm about invention of prototype • Draw the design of the prototype and prepare the materials • Separate the task to each member

07/10/19 Monday	12/10/2019 Saturday	13/10/2019 Monday
Time: 2.00pm-4.30pm Place: Student lounge • Group member met up for design thinking report • Started design the prototype	• Editing the video • Finalize our report together become a completed report	• Present our prototype • Pass up the report to Dr. Haswadi

3.0 Detail description include problem, solution and team working

Problem

In this modern era, everyone is using laptop regularly for so many purposes such as education, business etc. The laptop is built in a sense that we can carry it easily everywhere. But many frequent laptop users find one common problem which is the charging issue. For example, sometimes they went outside with their laptop to work for a long time and then suddenly the battery goes down. After that, they have to find a power supply to connect the charger as soon as possible. Though we use laptops more than desktops because the laptop is more convenient but when the charging part comes it becomes the worst thing ever because sometimes there is no electric supply for laptops in public places when needed the most. Although, we are using laptops for the easy carrying part which is really user friendly and it doesn't need a huge space like a desktop. One of the big problem is, when we are in outside we cannot take the whole power supply. On the other hand, there are many laptops which are very light in weight so that we can carry but the charger is always so heavy. Among the entire interviews majority people thinks that there should be a secondary charging issue for laptops.

Solution

For the charging issue we come up with a secondary charging idea by taking the help from design thinking method. Our solution is, there should be a wireless charging system by using wireless connection which is Wi-Fi. We planned to put our device (LASEC) inside the motherboard of the laptop and also inside the router. The router will work as sender and the device which will attach with the motherboard will work as a receiver so that the battery can be charged without wire. The user can use this secondary charging device anytime, especially when the battery is running low and there is no power supply, then they can just charge the battery by connecting with Wi-Fi. In this way, any user don't have to think about carrying the charger everywhere and no need to afraid of low battery issue. In addition, this secondary charging method is very efficient because its user friendly. On the other hand, the truth is, user will buy that kind of product which can provide more features.

Team working

For this part, we think that design thinking is the best way to learn something new. In every sphere of life, team work is the most needed thing but without any knowledge about how to cooperate within the team it will be hard for anyone to go ahead. So, design thinking method helps us to learn about team work properly. In our team, we always worked as a group and we enjoyed a lot. Our team is very alive because of different cultures and different ways of thinking. While making our whole project, we had lot of meetings and we faced many things like as supporting each other, kidding with each other etc. Though we have some ups and downs but we can say that we are one team at the end of the day.

4.0 ASSESMENT POINT

In the process of design thinking, assessment point of the project is a vital piece because we have to evaluate our project whether the system solve the problem or not. The assessment point usually happen during the end of the demonstration and during the transition between design thinking phases. Details of assessment during transition between design thinking is shown in Figure 1.

Empathy

- In order to identify the problem about the system unit,we decided to interview some students.Throughout the interview sessions,they gave us a lot of information and they shared their problems which they faced in daily life.

Define

- During this stage,we discussed the problems which are the opinions from our responders.Each of our members raised their comments to define the main problem that we need to solve.

IDEATE

- After the define stage,we continued to the next stage of design thinking.In ideate stage,a lot of opinions about how we could solve the issues identified were suggested by each of the group members.We applied our critical thinking and communcation siklls to find out the best solution.Throughout the brainstorming sessions,we compared the suggestions that proposed among us and finally we choose the most suitable idea to solve the issue.

PROTOTYPE

- In this stage,we we were able to actualize our idea into a real solution.After some discussion and brainstorming sessions,we created a method that can let people charge their laptop wirelessly to fix the problem.When we were developing the prototype,the economical and technical aspect also considered by us.We wanted the method that we suggested is user-friendly and easy to use.
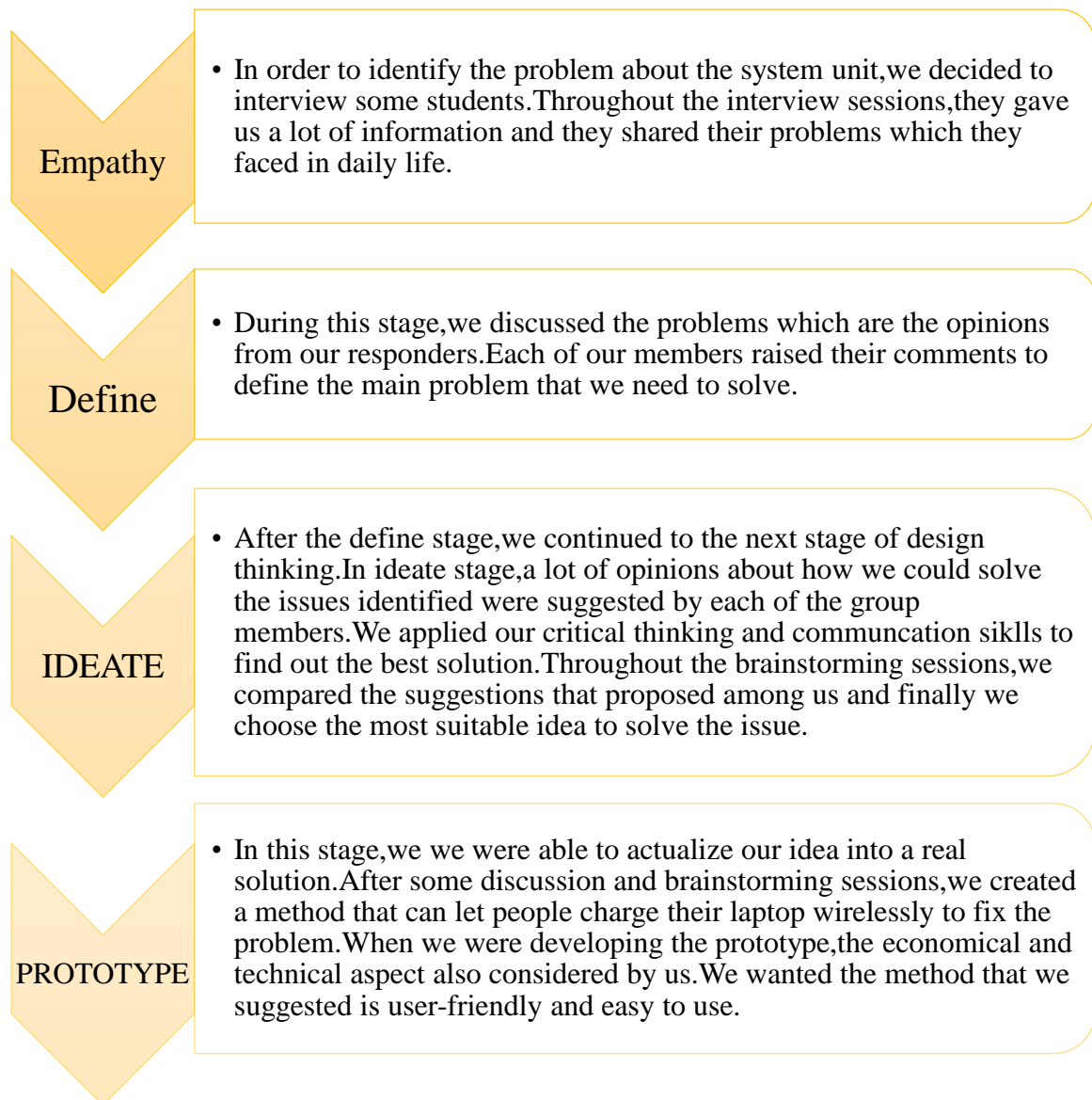
FIGURE 1

Throughout the stages of design thinking, we would assess our progress before we forward to the next stage. This is because we have to ensure that we still stay on the track towards to solve our problem. The last assessment point was done during the end of the project demonstration which we need to obtain some feedbacks from our clients so that we can do some improvement to our prototype. After we showed our prototype to our clients, we received some suggestions which they hope that the connection between the Wi-Fi and laptop can be more stable when they are charging the laptop. Hence, the assessment point helps us to have a well communication between our group and our clients to make sure that we achieve the requirements.

5.0 DESIGN THINKING EVIDENCE

For the evidence, we include some Questions and Answers section and pictures to boost.

Stage 1: Empathy

We held interviews with several people, who are students in Universiti Teknologi Malaysia (UTM) and also familiar with devices and technology to hear their opinions regarding the problem.

Both diagram 1.1 and 1.2 shown Abir (person in blue shirt) was interviewing two persons, Shamema Afruza Jouty from Bachelor of Computer Science (left) and Low Wei Chieh from Bachelor of Computer Science (right).

Here are the list of conversations from the interviews:

Q: What are the problems you usually face toward the device and system nowadays?

A: The most common and crucial one I am facing is when my laptop is out of battery and I wanted to recharge it, but I realized that the charger is at home. My assignments that I am working on is a total waste because the laptop shut down and let the assignment I wrote unsaved.

Q: What kind of problems you face regarding the laptop charging issue?

A: As all us knows that, we are using laptops because it's user friendly in a sense that we can carry laptop easily, it doesn't need a huge space like a desktop. One of the bug problem is, when we are in outside we cannot take the whole power supply. On the other hand, there are many laptops which are very light in weight so that we can carry that easily but the

charger is always so heavy! So, I think there should be a secondary charging issue for laptops.

Stage 2: Define

In the second stage, we accumulate the information we collected from the user during the empathy stage in order for the problem to be identified. This process involved us to analyse our observations and define the core problem from synthesizing them. We spent time to hold several meeting to list down one main problem encountered by interviewed laptop users.

Diagram 2.1 shown the group discussion from one of the meeting session.
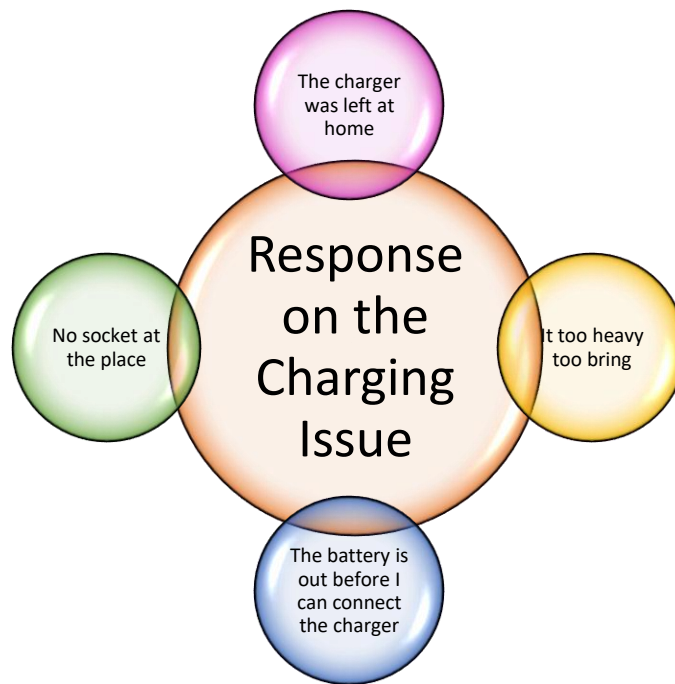
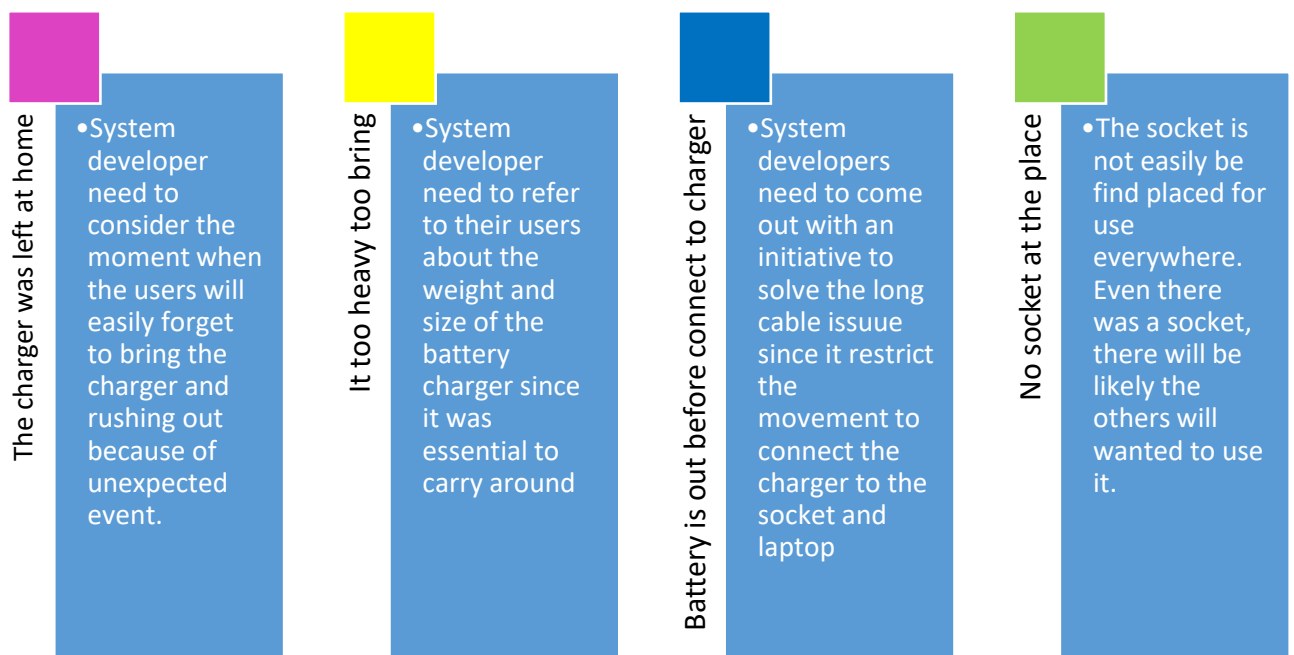Diagram 2.2 shown the mind map about the list of problems issued by the users.

The charger was left at home

- System developer need to consider the moment when the users will easily forget to bring the charger and rushing out because of unexpected event.

It too heavy too bring

- System developer need to refer to their users about the weight and size of the battery charger since it was essential to carry around

Battery is out before connect to charger

- System developers need to come out with an initiative to solve the long cable issuue since it restrict the movement to connect the charger to the socket and laptop

No socket at the place

- The socket is not easily be find placed for use everywhere. Even there was a socket, there will be likely the others will wanted to use it.

Diagram 2.3 shows the detail list of the issues

Stage 3: Ideate (Brainstorm Process)

To make this stage more efficient, we had been given more times to look for innovative solutions. In the next meeting, we presented our ideas which some of them were truly brilliant included with acceptable concept. We took consideration of the present process by hearing the ideas before we gave out our assumptions and arguments.

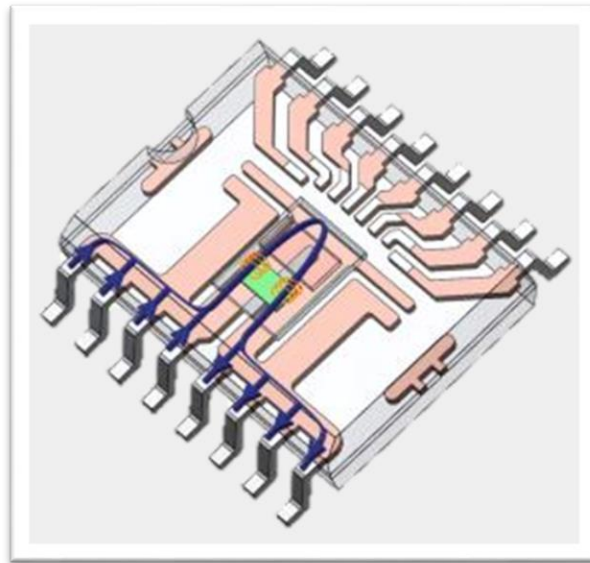The idea was presented by our group leader, Teng Jia Jing with the highest vote.

Diagram 3.1 shown the design

What is the name of the product? (Name): Laptop Secondary Charger (LASEC)

How does it work? (Function): The laptop will need to connect to Wi-Fi and it will captures Wi-Fi signal to convert into voltage.

Does the product resolve the problems? (Solution):

a) "Charger was left at home"
   The product is as tiny as a chip and can be installed onto motherboard. So, you do not have to any problems if you left your charger at home since there is a substitute.

b) "I too heavy to bring"
   LASEC is light and portable. It does not have size and weight like power bank since it was just a converter from Wi-Fi signal to current.

c) "The battery is out before I can connect to charger"
   LASEC is easy to operate since you just have to turn on to the Wi-Fi that have installed it.

d) "No socket at the place"

LASEC does not use socket but it still need current to flow through it. But it will not be a problem since Wi-Fi and laptop have current flows in them.

Stage 4: Prototype

After ideate stage, prototype is the experimental stage where we started to create the product. Here, the stage which we converted our idea to reality. We started by analysing fundamental steps and material needed before the making.

Diagram 4.1	Diagram 4.1 shown Teng Jia Jing was instructing and showing us the coordinate of LASEC in motherboard and wifi system.
Diagram 4.2	Diagram 4.2 shown that everyone diligently working on prototype after heard the explanations from Teng Jia Jing.
Diagram 4.3	Diagram 4.3 displayed a system inside wifi router and the LASEC is placed after the prototype completed.

  Diagram 4.4	Diagram 4.4 displayed system unit in laptop and the extra slot for LASEC chips.
	To charge the laptop using LASEC method, users can select the LASEC options in the battery icon to connect the Wi-Fi.

6.0   Reflection

- ABIR BIN RAHMAN BHUIYAN

Many of us know about the "Security Princess", who is Parisa Tabriz, works for Google as a Director of Engineering. She is an Iranian computer security expert. She chose the title "Security Princess" due to her experience in hacking and internet security and a desire for a

less staid, more whimsical title on her business card. She is also known as Google's secret weapon. So, I motivated by her. My dream is to be the best ethical hacker in the world and I want to work in the famous companies in the world such as Google/ Facebook etc. I think my program (computer network & security) is completely related with my dream because only security experts know how to break and enter any coded language. They can go through everywhere. While moving forward to my goal, this course is also helping me to learn many things regarding to my goal because this course introduces design thinking which is really important for each of us. So, this design thinking can help me by developing my creativity level, how to work on a team, how to increase thinking skill and also guides me to learn about time management, team management etc. Though we already finished our whole project but I think I need to improve few things too, which is how to react with people in a group, how to do everything in a simple way so that everyone can understand and how to be more creative in a short time.

- ## EYU SI XIONG

My goal for this course is to make some contributions to Malaysia. Design thinking helps me to plan my works efficiently through 5 processes and make our assignment run smoothly. I also learn how to start my work by arranging the schedule and finish the project systematically in short time. Other than that, teamwork is also important to solve the problems by helping each other. Moreover, we have to learn how to communicate well with other members because this will help you in other group assignments, activities and program. These are the soft skills we have to learn in the whole life because we will team up with a lot of different people and they have their own characteristics so we need learn to be tolerate with them. I will try to improve myself to become a better person through this design thinking assignment.

- ## MUHAMMAD NAZREEN BIN MUBIN

My dream to improve the nation security system that it can maintain the record of crimes reduction from year to year. It allows us to have a peaceful lifestyle and also greatly influences the advancement of the future technology that had always had been regard as an imaginary. The knowledge gains from learning design thinking in this course is one tenth steps to realize my dreams.

My views on design thinking is it can be a fine way to organize in the whole semester projects. It had taught me to have better understand and teamwork skills make the better outcomes. Every usage of design thinking is a cultivation to have a highly level of thinking and communication skills.

To improve the worthiness and potential to the industries, I will involve myself in activities related to use of design thinking process. Thus, it helps for the potential of increasing my productivity.

- TENG JIA JING

From the course program, I hope that I can understand clearly the need of network security nowadays. I also wish that I can involve myself into a job that related to my course program so that I can put the knowledge which I learn from my course in the future.

Throughout this design thinking project, I learned that whenever we face problem, we have to apply critical thinking skills to figure out the best solution. As a leader, I also had to decide the task for every member fairly and clearly to ensure that the progress was running smooth and unhindered. Besides, I realized that communication is one of an important element in a group project because each of us would raise our opinions from different point of view. Other than that, this project also let me know the problem that people facing nowadays which need us to solve it. These experience that I learned from design thinking project really give me a great impact to achieve my goals. In order to make myself employable, I will equip myself will knowledge because the trend nowadays keep changing. I will also plan to improve my social skills because every job are not going to work alone, there must be communication between clients or colleagues.

7.0 TASK

ABIR BIN RAHMAN BHUIYAN	EYU SI XIONG	MUHAMMAD NAZREEN BIN MUBIN	TENG JIA JING
• Introduction • Detailed descriptions include problem, solution and team working. • Interviewer • Prototype	• Videographer • Editor • Prototype • Detail step and descriptions in design thinking and evidence for each phase	• Prototype • Conclusion • Design thinking evidence	• Prototype • Assessment point • Ideate • Leader

REFERENCE

https://www.interaction-design.org/literature/topics/design-thinking

https://www.google.com/url?sa=i&source=images&cd=&ved=2ahUKEwiC4tXUuZblAhUkg-YKHT40CXMQjRx6BAgBEAQ