

**DESIGN THINKING**

Course/ Section : SCSP/ Section 08

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# Introduction

We are fully aware that we are living in an era where we need to constantly create and upgrade devices and facilities to increase mankind’s comfort. In order to do good in such field, design thinking is crucial so that we can gain better outcome. What is design thinking? It is a method to come up with solutions for human’s need. It is very helpful in tackling undefined problems, recreating ideas or brainstorming session and also do a prototype and testing. There are five stages in design thinking, empathize, define, ideate, prototype and testing.

Design Thinking

|  |  |
| --- | --- |
| Emphatize | In the first stage, we have to gain understanding about the problems we faced. Then, identify what we want, needs and objectives. We can find out more in this area through observing, interviewing, engaging and also immersing ourselves in the same situation. |
| Define | In define stage, we gather the information from previous stage to define what is the main problem that faced by others. From here, we can define the problem as a problem statement. This helps our team to establish the solutions, features that can solve the problem easier. |
| Ideate | In this stage, we can try to view the problems from different way. Ideation technique such as brainstorming can be use so as to think outside the box and figure out a solution for the problem statement. |
| Prototype | In prototype stage, the team members can start to do a small prototype to do a test. This is an experimental step to find out whether the solution is suitable or improvement needed for this prototype. |
| Test | In the last stage, the prototype is given to others for a test. We will tell them the usage and their idea, comments and opinions is gather and record. Modification can be done with the comments and opinions given by the users. |

Table :Design Thinking

Details

On September 23, 2019 we were given a group assignment regarding Network & Communication. In this assignment, we are ought to apply design thinking method throughout the completion of this assignment. After doing some research and discussion, all of us agreed to focus in elders’ need. We do realize that most of the elders rarely use communication device especially those who live in the inland. Some of them use digital type of device whilst youngsters use analog type. Besides that, most of the elders live on their own as their children have built their own family or studying far from hometown. Instead of hearing only their voices, they must be longing to see their children and grandchildren faces. This makes them difficult to communicate since the smartphones are hard to use. They need to find certain apps for video call, texting or calling. Therefore, we come out with a very simplified device called “CALL JERR” where it is only require call and video call. They can just directly contact their family members or even friends without worrying about complicated things.

In order to get an outstanding result, all four of us are fully committed in applying methods in design thinking and able to come out with such idea. When there are disagreement between us, we sit back to calm down and discuss properly because communication is always the key to everything. Besides design thinking, having a very good teamwork is also crucial because if there is sleeping partner in our group, we will not be able to do work wholeheartedly as we feel anger with our own member. We gather at Kolej Tun Dr Ismail (KTDI) thrice a week and do all the work together. For the report, we divided into few parts so that it will be more efficient and fair. Thus, we made a very good progress and able to finish this before the due date.

**Empathize**

In this stage, empathize can be categorized into three steps.

* Observe

We noticed that most of our friends seldom contact with their grandparents.

Other than this, we find out that the only way they contact with elders through phone call and not using internet or the application nowadays.

Besides, we find that it is too difficult for the elders to reply a message on phone and this make them seldom use smartphone as they prefer using the mobile phone.

* Interview

We have carried out research by interviewing students who study in Universiti Teknologi Malaysia. We have asked them questions about:

* How they usually contact with their grandparents
* What is the problem they faced when contacting with them
* Is the current devices easy for the elders to use

We have gathered a lot of respond from the students. The respond is recorded for the next stage that is Define stage.

* Immerse

From here we can see the opinions and understand how they think. A problem statement is formed, we will brainstorm solutions from here. This is to overcome the problems faced by users.

## **Define**

From the responds gathered, we identify the problems faced by the users.

Problems:

* Current communication devices are too complicated for elders
* The screen is too small for elders
* Texting is too difficult for elders

We can see that the main problem is the current communication device is not suitable for the elders to use due to small screen, small keyboard in smartphone for texting and program which is too complicated for the elders to use.

## **Ideate**

In this stage, we search through internet and start brainstorming solutions based on the problem listed. Each of us gave our opinion based on the problem. We list down the ideas based on these criteria:

* The size of screen
* Simple program
* Simple communication device

We will use these information on the next stage for doing out the prototype which can solve the problem faced by the users.

## **Prototype**

We decided to choose tablet as our gadget so it can be carry anywhere by the user. We use cardboard to create a tablet case and A4 as the app interfaces.

## **Test**

We show how the gadget work by arranging the interfaces (A4) into the tablet (cardboard). As the proof, we made a short video clip on the whole step of design thinking (YouTube link : <https://youtu.be/n13yrPWyOz4>). Most of the footage was recorded by Ng Pei Wen, Ameenuddin and Azizah in charge of progress planning, while Jack Lee in charge of video editing.

# Design Thinking Assessment Point

Design thinking is not about sequential steps to follow as it depends on the individuality and how we adapt with it. If one is unfamiliar with the process, it can be messy and disorienting especially when we are working in group where teamwork and understanding are very important. We need to come out with a solution that is parallel with our problem statement. Each phases must do an assessment to gain better outcome. If there is no assessment, we may end up with a poor result. Thus, assessment in each phases is important for an accurate result.

|  |  |
| --- | --- |
| Empathize | Since our target of audience is the elders, we decided to do interviews among youngsters whom frequently contact their grandparents. After reviewing it, we realized that interviewing youngsters only are not sufficient to enlighten people about this issue. Therefore, we asked few of the elders regarding their compatibility using smartphone. |
| Define | At first, we defined our problem as “How to improve elders in using smartphone”. After doing some interview, we realized that most elders did not know how to use smartphone because it is complicated and hard to configure. They could not contact their family members unless they were contacted. From this, we were able to gain clearer better statement. We changed the problem statement to “How to develop a device to ease the elders.” |
| 2Ideate | As for this stage, we did a brainstorming session and filtered out the ideas. At first, we wanted to create an apps specifically for call and video call only. But then, it is similar to most of the apps that has been developed nowadays so we came up with a device named “CALL JERR” where its function is only for call and video call. It is the most simplified device to help elders in strengthening their bonds with family members, friends or even strangers. |
| Prototype | After that we started creating the prototype. It is a tablet size device where it is a touch screen device and can only be used for call and video call. It took a while to completely finished our prototype. |
| Test | Lastly, we tested the device on our own first before presenting it to others. When our device was assessed by users, we figured that there are few improvements we can do in our devices. Firstly, we need to add on emergency button. Most of the elders live on their own and far from their family members. This button can help them when they are in need. By pressing the button, it will directly connect to the ambulance or police station. Besides that, we can also add on voice control so that they do not have to search the contact on their own. They can just directly contact that person. |

Table :Design Thinking Assessment Point

# Reflection

1. **What is your goal/dream with regard to your course/program?**

Our main goal with regard to our course which is Network and Security is become a successful network security engineer. We hope that in the future, we will become an engineer that possess the necessaries values such as having excellent enterprise firewall experience to configuring and managing firewall. Besides, we hope that we can hone our knowledge about application of firewalls, Secure Information and Event Management (SIEM) and Intrusion Detection System (IDS)/ Intrusion Prevention System (IPS). We are looking forward to work in team to provide a platform for creating innovative solutions to prevent the intrusion of computer networks. Lastly, improvement of Malaysia’s network technologies is one of our main goal in studying this course.

1. **How does this design thinking impact on your goal/dream with regard to your program?**

After we finishing this design thinking assignment, our aim in regard to network and security course become more resolute. It is not a doubt that the usage of online and networking technologies expands rapidly as the online services keep growing everyday. The problems arise definitely cannot be prevent so we, as the future network engineers must come up with a way to face it. After experience the effectiveness of design thinking, we know that this is the most suitable way to solve the incoming problems in our future proficient. Design thinking that encompass 5 steps which is empathy, define, ideate, prototype and test will make our work flow smoothly because each process follow the organize step. By having deeper understanding in each of this steps, we really hope we can use our skill fully to help society by using the networking services without getting worry their data might be stolen.

1. **What is the action/improvement/plan necessary for you to improve your potential in the industry?**

We should upgrade our skill in various aspects especially in dealing with problems. Also, we must have the mind-set that always hunger of knowledge and not tired to keep learning. We also must improve the qualities that what it takes to be a great engineer such as communication skill and the ability to work in team. The most important thing is never give up in achieve our goal. We trust that if we keep improving our skills, we are able to know more hidden potential in the industry.

# Reference

1. <https://www.interaction-design.org/literature/article/stage-5-in-the-design-thinking-process-test>
2. <https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process>