



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

Report on Design Thinking Project

Subject : Technology and Information Systems (SECP 1513)

Section : 01

Name of Lecturer : DR. AZURAH BTE A SAMAH

Date : 30/11/2023

Title of Design Thinking Product : ELECTRIC STOVE CONTROLLER APP

Video Link (youtube) : <https://youtu.be/yQn6zsTrZWQ?si=RyGaagK2ZFIHA6g6>

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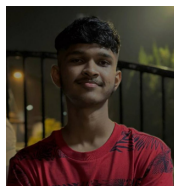
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Comments by Grader:

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1.0 INTRODUCTION

When talking about kitchen appliances, the stove is often the first few items that pop up in our minds. I believe most of our households have electric stoves. One of the problems that is possible to happen is people tend to forget that they are cooking using the stove and leave the house unattended without being aware of it. Unwanted events might happen due to the carelessness of humans.

To prevent this kind of disaster from happening, our group suggests that we create a user-friendly application that allows users to control their electrical stove using their mobile phones with ease. Other than the main function, which is to turn on or turn off the stove, this application also consists of different functions that might be useful to the users too. For example, timer and temperature control which can be a great help for the users while they are cooking.

2.0 DESIGN THINKING PHASE

<p>2.1</p> <p>EMPATHIZE</p>	<div> </div> <p>DIAGRAM 1 : Interview session with our interviewee, a housewife(left), a teacher(right)</p> <p>We conducted interviews and kept a journal to understand user needs. We asked about cooking habits, stove safety concerns, and control interface preferences. Our target user is someone with specific emotional and practical needs related to stove usage such as housewife and student.</p>
<p>2.2</p> <p>DEFINE</p>	<div> </div> <p>DIAGRAM 2 : Having discussion at N28 Student Lounge</p> <p>After having the interviews, we are able to analyze the needs of our targeted groups through the information and data provided by them. This step is important in order to create a solution that can solve the problems faced by them.</p>
<p>2.3</p> <p>IDEATE</p>	<div> </div> <p>DIAGRAM 3 : Mind map (Defining Problem)</p> <p>We also have brainstorming sessions that generate a multitude of ideas to address the defined problem. Our team utilizes various ideation techniques, such as mind mapping and brainstorming workshops, to explore creative solutions and ensure a diverse range of perspectives.</p>

2.4 PROTOTYPE

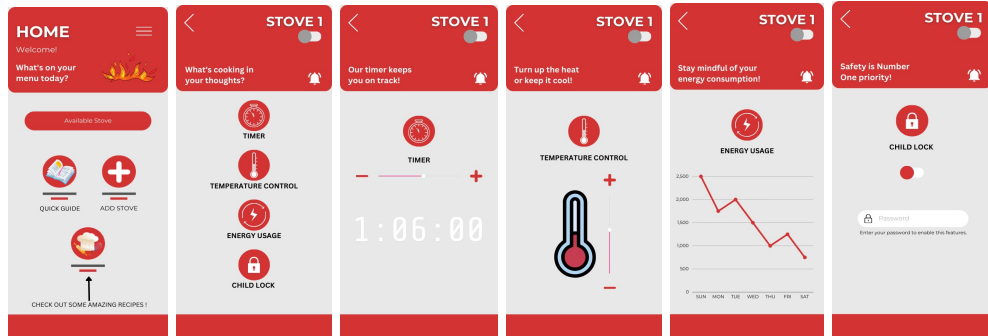


DIAGRAM 4 : Our prototype model

After collecting the data and suggestions from our interviewees, we created a prototype using CANVA. In this prototype, it also includes the functions as a timer, temperature controller, energy usage and lastly child lock. Besides, we also add another feature which is “ Recipes ” that provides different kinds of food recipes to the users.

2.5 TEST



DIAGRAM 5 : Testing Alert (Automatically switch off the stove after the timer finishes)

Lastly, we tested our prototype with a few users. Through this testing phase, we received a few comments and also feedback regarding our prototype which allows us to modify and improve our prototype.

3.0 DESCRIPTIONS

3.1 *PROBLEM*

Most people will forget to turn off their stoves before leaving the house. This action could lead to a disaster. For instance, a short circuit could happen if food overflows and spills onto the stove's electrical components. Besides, leaving the stove on for too long while it is unattended by people is also a waste of electrical energy and money.

3.2 *SOLUTION*

Create an application that connects both the stove and the mobile phone. People can control the stove easily with just a few taps. This application will contain main functions and sub-functions that can assist users in their daily lives. The main function of this application is to be able to turn on and off the electric stove remotely. As long as the WIFI connection is stable, the application will run smoothly.

3.3 *TEAM WORKING*

Our group consists of 5 members and each member is assigned to different tasks that need to be done. We had our discussions both physically, which were at n28 and online through WhatsApp and Google Meet. Each member will discuss the problems they encounter while doing the tasks and other members will help solve them by giving suggestions.

4.0 DESIGN THINKING ASSESSMENT POINTS

4.1 During the end of the project demonstration

Our aim is to conduct a comprehensive evaluation of the Electric Stove Controller App at the end of the project to ensure that it aligns with the initial goals and objectives.

We have specific assessment criteria in place to ensure the application functions as intended. This includes testing the functionality, assessing user experience and interface design, evaluating the reliability and usefulness of the reminder feature, and verifying the effectiveness of safety features, including the child lock and password access.

Lastly, we also gather feedback from end-users to incorporate their experiences, suggestions, and any identified issues into iterative improvements.

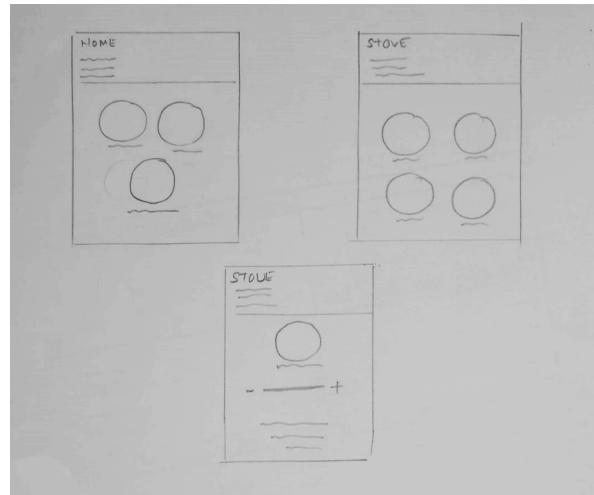
4.2 During the transition between design thinking phases

The goal during transitions between design thinking phases for the Electric Stove Controller App is to evaluate project progress and evolution.

This includes assessing interdisciplinary collaboration, effective communication and synergy among team members. We also track the evolution of features to meet user needs, integrate user feedback from earlier phases to subsequent design iterations, and adapt to changing requirements and user insights. It is important to maintain alignment with initial goals and objectives at each transition point.

Encouraging team members to provide feedback on collaborative processes and identifying challenges or successes is crucial. Emphasizing the importance of continuous learning and improvement fosters adaptability and responsiveness to ensure the project remains dynamic and aligned with user-centric goals throughout its design thinking journey.

5.0 DESIGN THINKING EVIDENCE



Sample Work by Students Working to Solve The Design Challenge

5.1 EMPATHIZE	<p>Before we developed our application, we needed to interview some people about their perspective or experience on the electric stove usage. To do that, we had prepared some possible questions for users and their answers were noted by us. For every interviewee, we asked them about their background, problems faced when using an electric stove and suggestions on the upcoming electric stove.</p> <p>For the first interviewee, she is 43 years old and she is a full housewife. Then the problem she faced was that she always forgot to turn off the heat while doing something else such as picking up emergency calls or when she needed to go to the toilet. She also said that she was afraid her kids could touch the buttons while they were playing around. Next, she hopes in the future there will be an app that can help to turn on and off the electric stove through the smartphone.</p> <p>For the second interviewee, she is 25 years old and she is a teacher. She said that the problem she faced is that she is always distracted with the mobile phone while cooking. Hence she suggests that the future electric stove has a reminder through the mobile phone. She also wishes for a child lock safety feature because she said that when her siblings and their family come to her house, she always has to be careful because smart appliances amaze the kids and they always get attracted to the electric stove.</p>
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<p>5.2</p> <p>DEFINE</p>	<p>From the interview that we had, we gathered some information. The main problem faced by users when they are using the electric stove is that they are always distracted by the mobile phone. This situation could lead to food burning or even more dangerous situations.</p> <p>Other than that, we found out most of the users have kids around them. So they have to keep an eye on them when they are playing around because they can accidentally touch any button on the stove.</p>
<p>5.3</p> <p>IDEATE</p>	<p>Regarding the problems faced by users, we have concluded some solutions. First, we will apply a remote controller in the phone which can be used to turn on and off the stove from afar. Second, we will add a timer and a reminder through the phone so the users will be aware that they are using the stove. Next, we will add a child lock safety feature which the function is to lock the physical button on the stove so when the kids touch the button, nothing will happen.</p>
<p>5.4</p> <p>PROTOTYPE</p>	<p>For our solutions, we decided to put all of it together and make it as an app in the mobile phone. Hence for the prototype, we used Canva to create the user interface which simulates the functionality of the app. For the first page of the app, the users need to key in their information to login. Second page will show a start button which will attract the users. The third page will prompt the user to select any available stove or add another stove. Fourth page will show the users to select any function that it has which is timer, temperature control, energy usage and child lock. Lastly, the screen popup will show the function following the option made by users.</p>
<p>5.5</p> <p>TEST</p>	<p>After we had finished the prototype, it was tested by the users. Most of the users feedback is they think this app is user friendly and easy to use because the interface is simple and minimalist.</p>

6.0 REFLECTIONS (*INDIVIDUAL*)

- a) What is your goal/dream with regard to your course/program?
- b) How does this design thinking impact on your goal/dream with regard to your program?
- c) What is the action/improvement/plan necessary for you to improve your potential in the industry?

Adriana Munirah binti Adiekhasmadmajar

My goal according to my course is to have a thorough understanding of innovative approaches and technology. Also improve and develop more skills needed in the computer science field especially security and networking. I hope I can apply the knowledge that I get through this course to creative projects that tackle pressing issues in the actual world. The design thinking project helped me develop my problem solving skills since it requires us as a team to find the solution to any problem that we face in our daily lives. This project really helps me to think more on how to face the problem during the making of the improvisation of the product. To enhance my potential in the industry, I should know the importance of staying updated with the latest technologies and trends, so I won't be left out. I also recognize the importance of honing my soft skills, including communication, teamwork, and problem-solving since we must interact and work with people too, not just machines and computers. By implementing these actions and improvements, I am confident that I will not only enhance my potential but also make meaningful contributions to the industry.

Bharath Raj A/L Manivannan

Becoming a skilled cybersecurity specialist is my aim in this network and computer security course. Effective security measures that are also easy to use are ensured by design thinking, which strongly emphasizes the user experience. Maintaining current knowledge of emerging dangers, obtaining certifications to further my skills, and participating in real-world experiences are all essential to maximizing my industry potential. A thorough approach to success in the fast-paced world of cybersecurity includes networking with industry professionals, participating in cooperative projects, and being aware of evolving technologies with a proactive mindset.

Leo Min Xue

My dream regarding my course is that I hope I have the opportunity to further study into the field of network and computer security in the future. This design thinking helps me to learn more about how to solve a problem step by step and it also teaches me to be more creative and innovative. Besides, through this project, I realized that teamwork and cooperation are very important elements in solving problems. For me, one of the actions that is necessary to improve my potential is to study and learn as long as I have the ability to do so, so that I can always keep up with the latest technology although I'm not in university anymore. Learning can help me explore more about things that are new or unfamiliar to me.

Muhammad Khairul Hakimi bin Mohd Khalid

My goal is to become a skilled professional in the field of network and cybersecurity. I dream to contribute to the development of the nation's secure system and protect digital assets. Engaging in this design thinking project, my problem-solving skills were enhanced. It teaches me how to overcome issues creatively and understand user needs. I also find out that teamwork is important when doing a project as a group. To improve my potential in the industry, I think the best action is to develop my soft skills. In the job field nowadays, people work as a group so teamwork is important and it comes from effective communication between the members. It will also help me to tolerate others when doing the work.

Nik Balqis binti Nik Jefry

My goal in taking this course is to gain a deep understanding of concepts in the network and security field and develop practical skills to contribute meaningfully to the industry. Design thinking is essential for achieving this goal as it provides a structured approach to problem-solving, encouraging creativity and user-centric solutions. It equips me with a mindset that values iteration, collaboration, and continuous improvement enhancing my problem-solving abilities and innovation. To further improve my potential, I plan to engage in real-world projects, collaborate with diverse teams, and seek feedback consistently. I also aim to stay informed about industry trends, technologies, and best practices to remain agile and well-prepared for the challenges and opportunities in the field of study.

7.0 TASK FOR EACH MEMBER

Division of tasks:	
Introduction & Detail Description	Leo Min Xue
Design Thinking Phase	Adriana Munirah & Bharath Raj
Design Thinking Assessments Point	Nik Balqis
Design Thinking Evidence	Muhammad Khairul Hakimi
Reflection	Individual