



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

Project Proposal

SECJ3553 ARTIFICIAL INTELLIGENCE

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Theme: Face Recognition for Recording Attendance

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1.0 Introduction

In recent years, Every individual and organization is adapting their lifestyle to virtual meetings due to the Covid-19 outbreak. However, After a country has achieved global immunity by taking vaccination, the Government is slowly opening up all sectors including Universities. With the return of physical class, this AI is designed to help students take their attendance by face recognition with a camera at each of the classes. This way, students do not have to keep bothering the lecturer to show the attendance QR code and the lecturer is able to focus on his class.

Problem Statement:

- Student that late come to class missed the QR code that lecturer showed earlier
- Student might take advantage of the QR code screenshot and skip the class
- E-Learning crash and lecturer are unable to show QR code to the student
- Lecturers need to open the QR code website until all the students have done scanning the QR code which will waste the time of class.

2.0 AI Solution

- A camera that stored the database of students will be placed at each of the classes. Students go into the class and show their faces in front of the camera and the camera will be based on the face database and record the attendance of the students.

3.0 The Goal of AI Solution

- To minimize the time taken for the lecturer to show the QR code and focus more on the teaching.
- Able to prevent students from scanning QR code from other places and skip the class.
- E-Learning crash won't affect face recognition AI.

4.0 Process of Empathize in Design Thinking

During the empathize phase, we need to spend our time to know our user and their need, target and the goal. Without empathizing in our project, it will cause the design thinking to lack that all-important user-centricity which often marks the distinction between product success and failure. Therefore, it is important to understand how users feel when interacting with our product. Hence, several empathy questions are answered as shown below in order to create a positive experience for our users.

WHO are we empathizing with?

Our target users of this product are the lecturer and the students. Many UTM students have experienced that they are late in class due to some urgent matters. Hence, they will miss the QR code that the lecturer showed earlier.

What do they need to DO?

The students need to scan the QR code to prove that they have attended the lecture. However, the current method to record the student's attendance is not efficient. For example, the crashing of E-Learning will cause lecturers unable to show QR code to the student. It will also consume a lot of time when the lecturer opens the QR code until all students complete their scanning.

What do they SEE?

The lecturers see the problem of recording attendance. When the lecturers start their lecture class, they will share a screen of the lecture note. Hence the students only can see the lecture notes if they come to class late. If students want to see the QR code attendance, only need to wait for the lecturer to switch the screen to QR code attendance. Only students can let students view and scan the QR code.

What do they SAY?

The students say that they cannot scan QR code attendance when class starts already. The lecturers say that it is troublesome to switch the screen among lecture notes and QR code attendance. The students say that if the joined class late, they will not be able to scan the attendance QR code, QR code only can be scanned when lecturers show the screen of it.

What do they DO?

The students' responsibility is to make sure that their attendance status meets the 80% of overall attendance so that they can attend the final examination. The lecturer's job is to track the students' attendance status and confirm their attendance status is more than 80% before sitting the final examination. If the students' attendance status does not meet the 80% of overall attendance for that subject, they will be barred from the system and cannot sit the final examination.

What do they HEAR?

The lecturer usually hears the students complain that their attendance was not recorded in the system. The lecturers are unable to identify and track the students' attendance status. If students' attendance status does not meet the 80% of overall attendance, they will be banned from the system which causes them cannot attend the final examination of that subject.

What do they THINK and FEEL?

Pains

The students are suffered from issues such as being unable to scan QR codes when they were a bit late attending the class and the lecturer has to reopen the QRcode page which is an annoying process.

The lecturer feels insecure when the problem comes in tracking the students' attendance because some students might use tricks such as scanning the QR code from others' snap to escape the class.

Gains

The students do not need to worry about late scanning QR codes due to some emergency reasons as long as they could attend the class in a reasonable time.

The lecturers are able to track the students' attendance in an efficient manner and have full control over the student's attendance.

5.0 Process of Define in Design Thinking

Based on the empathizing process, we can defined the user needs and requirements as follows:

- 1) Easier method for the students and lecturers to record the attendance.
- 2) The process of recording attendance would be more efficient and fast.
- 3) The time taken to record the whole class attendance would be shortened.
- 4) To make sure of the integrity of the attendance process because the person must be there to record his attendance.