# Designing and Implementing Final Year Project
## - *with Success*

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# Foreword by
# DIRECTOR

## Associate Professor Dr Keoy Kay Hooi (Alan)
**Director**
**Institute of Computer Science and Digital Innovation (ICSDI)**

Welcome to the Institute of Computer Science and Digital Innovation (ICSDI), UCSI University.

The Final Year Project (FYP) is compulsory for the diploma and undergraduate programmes at ICSDI. This Final Year Project Handbook is designed to provide students with a comprehensive guide for planning, implementing, and documenting project work in accordance with the requirements of the relevant academic programme accreditation bodies.

The goal of FYP is to provide students with the opportunity and exposure to apply and integrate the theoretical knowledge and principles taught in the programme, as well as to solve problems creatively in their final year project.

To maintain the high quality of education at UCSI, we have continuously provided our students with advanced skills, cutting-edge software systems, and industry-relevant teachings by ICT professionals. FYP allows students to demonstrate independence and originality while also planning and organising a project over a set period of time.

I wish to congratulate Assistant Professor Ts. Dr. Kasthuri Subaramaniam, FYP coordinator, and all ICSDI supervisors for their effort, dedication, and hard work in supervising the students and producing high quality projects. I hope that this FYP handbook will be set as an example and standard for many more FYP handbooks to be produced and will contribute towards producing quality research work by the students and excellent supervisory skills by the academic staff of the Institute.

# Developing a Face Recognition Attendance System for Education Institution

*Lye Kai Lun, Abdul Samad Bin Shibghatullah, Javid Iqbal Thirupattur*

## Introduction

Attendance taking is a very common action that a lot of occasions required. For example, attendance for working environment and taking students' attendance. Sometimes, there may be too many employees or students that will take a lot of time to take attendance, which is why automated attendance system is mostly preferred by most organizations. Especially for education institution, attendance taking is a crucial part to ensure academic integrity. Since attendance is directly related to students' academic performance, attendance can link to how education institution offers scholarship to potential students. Due to Covid-19 pandemic, most education institution has converted to online learning which does not require students to be in physical classroom which is why we will focus on online attendance taking in this project. Face recognition will be used in this system instead of other biometric identification technologies.

**Objectives**

1. To maintain integrity of attendance record

2. To make attendance taking efficient

3. To provide management tool for attendance

**Methods**

To collect data for analysis and understand the fields related to this project, articles and online work will be studied. Mostly focusing on studying the background of relevant topics such as face recognition, open cv, and LBPH algorithm. Other similar systems can be studied, and similar functionalities can be taken from them as to ensure that the proposed system can work to fulfil users' requirement. Questionnaire will be distributed to collect comments from mostly university students. University students are expected to be quite familiar with online classes, so they will be able to give proper opinion on attendance system used during online classes.

**Results**

It works as a tool for students to manage their database profile in this system and allowing them to generate the dataset by opening webcam, train the classifier using the dataset generated and taking attendance by scanning faces. For employee, who is the lecturers, they will be able to add new students into the system, view student list, edit existing students and manage attendance. Attendance will be retrieved from database that will be entered using the attendance taking function for students. Employee will be able to download those attendance record as Excel file (.csv). The system will be able to detect face correctly and display related information. The system is capable to detect multiple faces in the same window, being able to deny attendance taking using pictures from handphone. As the haar cascade used in this proposed system is for frontal face, faces not in frontal position won't be detected as the classifier is not trained to do so.

**Conclusion**

The system cannot detect faces when they are wearing masks. Meaning students will be forced to take off their mask when taking attendance. In this system, if employee or students forgot their password, there is no mean for them to recover their password. The only way to retrieve his/her password is to access directly to

the database. Also, login details of students cannot be created by lecturers, meaning the only way to add students into the login database is to access the database directly. It is possible to scan two faces in one same device, meaning a device can possibly scan two faces at the same time, the other student would not need to open their computer to do the attendance taking, which might harm the intention of helping students to focus on their studies. Besides of mask, environment's lightning will affect the performance as well. Phone application will be recommended in the future for development, but it might disturb the intention of helping students in focusing their studies as well. Full attendance system will be recommended as well, which includes class schedules, time window for students to take attendance, class reminder for students.

# Peer Buddy learning Mobile Application

*Ng Kee Tat, Thong Chee Ling, Shayla Islam*

## Introduction

Peer learning is a strategy that promotes "meaningful learning," in which students collaborate to teach and learn from each other. Peer learning is the process through which students gain information and skills while actively assisting and supporting friends or companions who have a similar status to themselves. The development of critical thinking abilities, active student participation in the learning process, an improvement in classroom performance and the development of students' problem-solving skills are considered academic benefits. Students should be encouraged to interact with one another and work in groups or within a team. Peer tutoring is defined by the unique roles that tutors and tutees adopt. The goal of this study is to establish peer-to-peer learning using an Android application.

## Objectives

1. To study the existing online peer buddy learning mobile apps

2. To identify the strengths and weaknesses of the current mobile peer buddy learning apps features.

3. To evaluate the performance of swipe cards, feature inside the peer learning application

4. To design an online peer learning mobile app

5. To develop a clear and easy use online peer learning mobile apps.

## Methods

The major research problem that developers aim to solve by collecting data from users is to identify potential users who are more likely to use which features in the system to turn on, and to seek comments and suggestions, which can be crucial for the system. Hence, this can be used to help developers study user needs and wants.

## Results

Based on the user acceptance test form the participants, it shows that most of the participants do have a positive experience on using the mobile application. For conclude, the peer learning buddy application had successfully developed to meet and satisfy the user experiences and it has been approved by the majority of UCSI

students, and it is expected that it will help students and inspire and motivate them.

**Conclusion**

The development of modern technology is really changing rapidly with each passing day, the mobile phone only invented for more than ten years. Nowadays mobile phones are no longer restricted as making calls and sending messages. In the 5G information transparency era, smart phones have been integrated into everyone's life, no matter adults, children or even the elderly. Smart phones have brought a lot of convenience to our life. It allows us to communicate more easily, it allows us to chat online, video chat, post pictures, and sending Gifs. Smartphones no longer allow us to just hear each other's voice, but we can video call each other, so that we can clearly see the smile on each other's cheeks. It is believed that online learning will be a future trend for every country around the whole world. By using NKTFYP online peer learning application, users are able to communicate and find a peer learning buddy who share the same course and subject easily.

# Web Application Ticketing System - EEapp

*Kelvin Ma Chee Yong, Thong Chee Ling, Javid Iqbal Thirupattur*

## Introduction

The idea of this web application is inspired by Japan, because Japan's government heavily encourage their citizens to have a cheap and accessible transport to every continent. The name of my application is EEapp, where EE stands for "Everyone, Everywhere". This project will first be initiated and based in Malaysia. It's a web ticketing application that caters for public transport such as, trains, bus, MRT, LRT and etc. It will be available all type of main browsers that people use such as Google Chrome, Firefox, Opera, which is accessible in any type of mobile or computers devices. Responses from more than 20 people were collected via an online questionnaire for the requirements gathering of the system. The website was written in HTML, CSS and Javascript to ensure it could run smoothly in any desktops or laptop, and mobile phone. For the database, Xampp was used to store the data. As this is only a prototype, the system can only be run offline and needs to be opened from a file. As for the location of the transportation ticketing, it will be based only in West Malaysia or Semenanjung, whereby East Malaysia such as Sarawak and Sabah are not covered yet.

**Objectives**

1. Organize a high request in a centralized system

2. Fast and easy to use unit interface

3. Users will be given a timeline information for their trips

4. Encourage more people to use public transport

5. Reduce traffic and road congestion

**Methods**

The research will be using quantitative analysis in the form of survey, specifically an online questionnaire since it has a low return rate and individual are more willing to respond to it as their identity remains anonymous. The types of questions that will be presented in the questionnaire are as follows single question and multiple answer questions. Multiple answer question is a survey question that employs the checkbox format of the circular button that represents the choices in the list to allow respondents to select only one answer from a list of options.

**Results**

Results shown that most of the respondent are familiar with Malaysia's transportation system as well as the ticketing system. At the same time, majority of the respondents suggest that there are still room for improvement especially the services, system smoothness and the ease of use of the system. Therefore, results also shown that using trains as mode of transportation are the least popularity among the respondents. Regarding the reason why transportation is better, most of the respondents responded the reason conveniency is the main reason why they think public transport is better.

**Conclusion**

EEapp is the key to this beneficials situation and we believe that there are a lot of opportunities are yet to be discovered. Sooner or later, public transport could be a necessity to everyone. Also, we believe that this project have the potential to be globalized and EEapp could be acknowledged by the world where we envisioned it to be a globalized web ticketing application. As for future plans, we will work on improving the features more by keeping a record of mistakes and errors and therefore, find a solution for it. The objective was to study on the perception of Malaysians on public transportation and ticketing system. This objective was achieved via Google Forms questionnaire from Chapter 3. The

questionnaire had 20 respondents from all different walk of lives. Based on the analysis done on the data collected from the questionnaire it was found that respondents agree that Malaysia public transport can still be further improved as well as the ticketing system. Last but not least, we want to spark a conscious that using a public transport is cheaper than using their own vehicle. We want people to understand how expensive it can be to acquire and maintain a vehicle. Damage to the environment can also be minimised concurrently. The poisonous gas and smoke emissions that were created by the vehicles may be decreased if there were fewer vehicles on the road. As a result, air pollution can be decreased and the environment's harm from air pollution can gradually be repaired.

# UCSI Wallet – E-Wallet for UCSI University Students

*Ngoo Kuan Hong, Javid Iqbal Thirupattur, Thong Chee Ling*

## Introduction

A digital wallet, often known as an "E-wallet" or mobile wallet, is analogous to a physical wallet. For online payment transactions, all e-wallets require a password and are connected to a person's bank account. It functions as a handy wallet that can be carried around and used to make online payments for retail, food, and entertainment, among other things. The information and software in an e-wallet are two separate components. User details found inside the database comprise of the former. The latter saves personal information and ensures data encryption and safety.

## Objectives

1. To develop an e-wallet application that creates a more convenient environment for UCSI University students.
2. To identify the strengths and weaknesses of current e-wallet applications.

3. To design the e-wallet application to be easy to navigate and use for the users.

4. To make sure the e-wallet application has consistent performance and not encounter any security issues.

**Methods**

A User Acceptance Test (UAT) is carried out for testing of the e-wallet application. It aids the developer in understanding what users think of the application. The UAT is consisted of 15 users. After a period of using the application, the users will have to fill an UAT form that consists of questions regarding the application. The questions are regarding the performance, convenience, design, recommendations, and comments about the application.

**Results**

According to the results of the UAT form, most of the respondents gave a high rating regarding the convenience, performance and also the design of the user interface of the application. 11 out of 15 respondents would recommend the application to their friends and family. They also gave some comments on the application that the developer will use to improve the application. Overall, the

feedback has been positive, and it is a big help in the works to further improve the application.

**Conclusion**

In conclusion, the objectives of this project are stated clearly which are to develop an e-wallet application that creates a more convenient environment for UCSI University students. The aim of this project is to develop an e-wallet application for students in UCSI University for a more convenient and streamlined experience. The UCSI Wallet application is designed to solve the current problems of e-wallet users as well as UCSI University students. The application is developed using Android Studio with Java programming language. So, the application can be used with Android mobile devices. There is room for improvement in the application, but it has met all the objectives set out for it. Most of the feedback from the participants in the user acceptance test has been positive. Comments given from the respondents has been taken into consideration by the developer and the application will be further improved in the future.

# Developing Mobile Blood Bank Application – BLOOD

*Law Yenchin, Chit Su Mon, Keoy Kay Hooi*

## Introduction

Nowadays, blood donation is quite popular and important as it can help to save others life. Although now is 21st century, but there is still a lot of blood bank and hospital are using manual system which is paper-based to collect the data of the donors, and provide the red blood donation card to the donors that recorded blood donor own simple information. From here, the project team wish to developed a Mobile Blood Bank Application as also can be called as BLOOD. This application is a way communication between the blood banks, hospitals, and blood donors. The main function in this application which are the blood donors can make appointment for blood donation from the blood banks; the hospitals can request the blood from the blood bank if there is demand of blood; the blood banks can also request the blood from the blood donors when there is demand of blood also. Those requests are only allowed to request via email. In this project, there are using Android Studio to develop it, and using the Firebase as the database that store the data of this application.

**Objectives**

1. To study the existing Blood Bank Application

2. To analyse the strength and limitation of existing Blood Bank Application

3. To design a Blood Bank Application using Android Studio

4. To develop a Blood Bank Application using Android Studio

5. To evaluate the Blood Bank Application

**Methods**

The methodology that will be used in this project will be Rational Unified Process (RUP) that include four life cycle phases which are Inception, Elaboration, Construction, and Transition. The main reason that choosing RUP is that it allows adaptive capabilities to handle changing requirements throughout the development life cycle. Besides that, there are a set of questionnaires by using Google Form will be set to determine the requirements and the need of the users when they want to use a Mobile Blood Bank Application. From here, there are around 115 respondents have responded the questionnaires that total of 15 questions.

**Results**

Public got the idea about blood donation, but not the information. From the survey of the public expectation of Mobile Blood Bank Application – BLOOD, the project team can see that not everyone knows the basic information about blood donation, such as above how many years old can have blood donation, or how long the blood donor can donate blood again after blood donation etc. Besides that, public also wish to have the function such as can make an online appointment before blood donation, and knowing the nearest blood banks or hospitals in their area that provide blood donation service etc. Therefore, this project really will bring a good contribution in blood donation area which it is a communication way between the blood donors, hospitals, and blood banks.

**Conclusion**

In conclusion, this Mobile Blood Bank Application also named as BLOOD have almost covered all the objectives of this project which are to study and analyse the strength and limitation of existing Blood Bank Application, and to design and develop a Blood Bank Application by using Android Studio. However, the big goal of the project team is let the apps can sued between the blood banks, hospitals, and the blood donors in whole Malaysia, but now only available on Klang Valley. Through this app, the hospital can request the blood from the blood

bank, and blood banks can also request the blood from the blood donors by sending the email when there is demand of the bloods. Lastly, this application that developed by the project team have also done the testing phase which is let around 31 users to become tester to evaluate it. By gather the feedback of the tester, the project team will always try their best to make this app become more functionality, and more user-friendly for the public in the future.

# Development of a Condominium Management System for Mobile Environment with Web Based Management Dashboard

*Leow Yan Wu, Shayla Islam, Kasthuri Subaramaniam*

## Introduction

Internet is increasingly becoming an essential part of human life, as the most effective and convenient communication way is which not bounded by time and place. Under the context of the mobile internet , artificial intelligence, big data, mobile cloud computing, and other rapid development of science and technology, these information technologies lead to re-examine our market, the user of products, the enterprise value chains, and the whole business ecosystem. For example, with respect to the education and management, the mobile could network has formed a unique and systematic mode, in order to improve the learning efficiency. Managing condominium and gate communities is not an easy job. The traditional method are lack of efficiency to lots of issues. So, people need to make good use of information and communication technology to make their work easily. In this project, the proposed system will improve user satisfaction and also improve the efficiency of service quality. This is a Mobile application with web based management dashboard. The purpose of developing

this system is to help the residents and management office in condominium to reduce their workload and also increase the users satisfaction.

**Objectives**

1. To study the existing similar system to identify strength and weakness of existing systems.

2. To design and develop a condominium management system for mobile environment with web based management dashboard.

3. To evaluate the performance of the developed condominium management system by conducting survey on the user experiences after it is completed and compare it with the existing way.

**Methods**

The model of the System Development Life Cycle chosen for this project would be Rapid Application Development (RAD) after comparing with few types of methodologies. This model was chosen for this project as it is based on prototyping and iterative development with minimal planning involved and because it allows the project to be completed in a short period of time. RAD also

allows the reuse of templates, tools and codes. This allows flexibility in the project to meet the changes to suit the clients' requirements. There are 52 participants who take part in this survey, include Malaysian and Non-Malaysian that currently stay in Kuala Lumpur, Malaysia. Overall, the age group is between 15 to 40 and above.

**Results**

By gathering the requirement of users that in this survey, we know that most of the users are still using traditional way of managing condominium such as posting information on the information corner, booking facilities only in management office and so on. This project will help users to improved the efficiency for the service quality.

**Conclusion**

In this project, there are two frameworks adopted. one of them is WordPress and the other one is ionic version 3. WordPress is used to developed the web system and it is written using PHP as a programming language. On the other hand, ionic 3 was used to develop the mobile application. The system can help the condo

management staff maintain the condo and connect with the residents in a more convenient way. Residents can also do some activity such as booking, make payment, invite visitors, download forms and so on. All these activities can be on by using mobile application.

# "JustQueue" Mobile App Queueing System – Towards a Smart Campus in UCSI

*May Linn Lei, Ghassan Saleh Hussein Al-Dharhani, Abdul Samad Bin Shibghatullah*

## Introduction

Technology is being used in every aspect of life, whether be it entertainment, education, healthcare, or communication. It is because technology makes any system much more effective, efficient, and faster. As for some institute, that still use a paper-ticket or traditional approach for queue up, it can consider to be out of date and ineffective. This study has introduced the implementation of mobile queuing system to overcome the physical requirement of queuing which makes the system much more convenient and timesaving, allowing customers to queue from anywhere they want to. There is inefficiency in current traditional queue method, which prompt the the implementation of the proposed study. The study has used mixed mode which are surveys and interview questions for data collection. The results from surveys show that respondents are very much in favor of the mobile queue system. The report also contained implementation techniques and data set tested for testing purposes.

**Objectives**

1. To study the current queuing systems and identify its strength and weaknesses

2. To survey students from UCSI University and other students regarding the current queuing system

3. To gather and evaluate the findings/results obtained from the survey

4. To design a mobile queuing system in the form of mobile application

5. To develop a prototype of mobile app queuing system

**Methods**

The methodology chosen for this project is System Development Life-cycle based on the Iterative (or Modified) Waterfall Model. Instead of Classic water fall methodology, iterative waterfall model has been chosen because the classic model contain major drawback which is the that during the system life cycle once we complete one phase and move to the next phase, we cannot return back or jump to the previous phase, and also there high risk of uncertainty all in all there is no turn back in classic waterfall model, hence we wouldn't be using it in order to avoid any issues further on should there be any changes required in any stages of development or even testing. The survey questionnaire form will be sent to UCSI students and students from other universities randomly from various

background in order to collect objective data for application development. Charts will be used to assess quantitative data.

**Results**

According to the survey question that have been distributed to random student in UCSI University and other universities, we can conclude that most of the respondents are willing to use time mobile queuing system. According to the responses, 60% believe that traditional way of queue up such as as paper ticketing system is time consuming and not efficient. Overall, the responses were in favour toward implementing the system, many has stated it be effective, more convenient, smarter way to reduce infection spreading rate, time saving, cut out paper waste and to better environment.

**Conclusion**

In conclusion, the methodological approach used to carry out the entire process of resolving the concerns detected in the present application clearly outlines the objectives of the study project. The second objective to survey students from UCSI University and other students regarding the current queuing system has been completed. The third objective is to to gather and evaluate the results

obtained  from the survey. The fourth objective is fulfilled by designing a mobile queuing system in the form of mobile application. The last objective is to develop a prototype of mobile app queuing system which also has been fulfilled. The goal of this project is to create a user-friendly, simple, and efficient mobile queue app to aid university students in efficiently queuing.

# Development of a Web-based Localized Food Delivery System

*An Lixin, Shayla Islam, Javid Iqbal Thirupattur*

## Introduction

Under the Covid-19 environment, many industries have been hit hard, and the food industry is no exception. The food delivery industry has also emerged from this. With the support of technology companies in Malaysia, the food delivery industry has begun to develop, helping the owners of food stores to survive. Through difficult times, and the delivery service has also provided job opportunities for many unemployed people, this is also the struggle of mankind against Covid-19. In this way, the unemployed have found ways to increase their income, implemented contactless the delivery method also ensures the safety of consumers. Customers can freely choose their favorite food online, choose the delivery time, and enjoy delicious food at home.

**Objectives**

1. To study the existing food delivery system so that can identify the strengths and weakness of the current systems.

2. To design and develop a web-based localized food Delivery System

3. To improve and control food quality in the Malaysian takeaway online market.

4. To increase the function of viewing the food production process and the detection of restaurant reviews.

5. To evaluate the performance of the developed a web-based localized food Delivery System by conducting survey on the user experiences after it is completed and compare it with the existing application.

**Methods**

In terms of data collection in this study, due to the low response efficiency of traditional questionnaires, the survey was conducted in the form of a Google online questionnaire. The questionnaire question type is a single-choice answer question. The answer to the single-choice question can be selected by simply clicking the circular radio button in front of the answer, and the respondent can only choose one answer from the answers.

**Results**

Based on the results of this study, we found that most respondents are not very satisfied with the online food delivery service they currently use, which is an important indication that this study is feasible and has a lot of room for improvement, and this study is Conducted during the outbreak, the outbreak did not dissipate after the study was completed. The online food delivery service industry is still an important way for the catering industry to develop. After all, eating at home is more convenient and safer than going to a restaurant. Moreover, it can be seen from the data that almost no one has used online food delivery services. It can be said that nowadays people are basically inseparable from online food delivery services, which brings great convenience. Therefore, it is very important to improve the user's ordering and dining experience. As can be seen from the data, the majority of respondents believe that there is still room for improvement in the online food delivery services they use, and they know that restaurant reviews play a key role in the user's food selection process, so constraints on restaurant reviews still big. For food production, most respondents expressed that they want to see the process of producing food themselves, so they can add the function of adding videos when adding food. Restaurant owners can upload videos of the food-making process themselves, which has a great impact. Yes, because users want to watch this video, users will feel more at ease when choosing and eating food.

## Conclusion

In today's society, smart phones are an important tool that modern people can't live without. People rely on smart phones to communicate, work, play, and live. Smart phones are closely related to human life. Moreover, in the future development, online services will become the future development trend of the world, because human beings will always prefer a more convenient and fast way to enjoy life. To order food through this program, users can easily get the food they want, and the restaurant owner can check the order details at any time and handle the restaurant's food delivery process.

# UCSI Online Food Cafeteria (OFC) Mobile Application

*Muhammad Rafi Diandra, Chit Su Mon, Thong Chee Ling*

**Introduction**

Time has change since the start of the pandemic, two years of social distancing, wearing masks, following safety protocols and lots of other things that have change since then. We are no longer living in the normal life and now we are switching towards the new normal where we must be concerned all the time about the situation between us and have to be cautious every time. E-canteen that is developed by a program so it can be very close towards the students and staff in this new digital era. This program will provide a more effective and easy way that will gain a lot of positive comments from the students and the staffs. E-canteen system can help the sellers because it will be all generated automatically by the system. There are so many useful things that can happen from implementing this system and one of them is to get the students to learn more on how technology could help us in daily life. That's why in this new era, it might be a great solution to mix technology into our campus life. Students and staff don't have to go anywhere and just have to wait for their lunch to be delivered to their position. They can order the food and drinks before their lunchbreak even start and they don't have to waste time on walking towards the restaurant, queue,

order food and eat after all of that process. This will be the solution that everyone needed since everywhere around the world, people are starting to think about implementing this idea. E-canteen is one of the most recommended facilities that have been mentioned in the last few years. OFC could be the system that everybody needs in our campus.

**Objectives**

1. To investigate the problem that this pandemic gave with UCSI online cafeteria

2. To design and develop a food ordering application for UCSI students and staffs

3. To evaluate the possibilities of making this app the only way to buy food and beverages inside the campus

**Methods**

To identify potential users who are more likely to utilise which system features to turn on and to solicit feedback and ideas, which might be vital for the system, is the main research topic that developers want to tackle by gathering data from users. Because the questionnaire enables quicker data collection from bigger data

sets, it was chosen. Thus, this can be used to assist developers in researching user needs and preferences. To gather factual data for application development, the survey questionnaire (preliminary version) will be sent randomly to UCSI students and other students from outside the campus. Another usability survey follows, although this one is primarily focused on UCSI students because it was created for usage just on campus. We will evaluate quantitative data using charts.

**Results**

E-canteen or online food the delivery inside the campus could be the answer to the limitations that we are facing as of this pandemic era. According to the majority of the respondents that took part in the research stated that they wanted to try out the system in real time and it could be the solutions for their time efficiency and university life experiences. For an example, we could be facing long queue and physical contact with other people but with this system it's just a few clicks before making the order for the food that you want. Time efficient also another benefit of utilizing this system that can make other students attracted to try out the system. All of the results that are gained in the research will be able to be updated and upgraded into many new features since its still have a big room of potential.

## Conclusion

The goal of this project is clearly to make the system applicable for the users inside UCSI University and using it to the maximum potential. This application is made with an intention of a simple yet innovative system that is made with an advance technology that will benefit the users and solve some of the problems that we are currently facing right now. The application can be run with a smartphone since it's a mobile application and everyone is using smartphone nowadays. The system is still a prototype so it might still have a feature that is not fully functional yet, but we can see the positive response from the user that has been testing out the system that this application could be the solution one day.

# Development of QR Code Based Smart Attendance System

*Chan Mun Chun, Shayla Islam, Chit Su Mon*

## Introduction

In the revolution of technology, education is beneficial by the raise and advancement of technology. Enhancement of information technology had brought effective and efficient of technology to the university and education. Developing of mobile application that link to the university system will achieve a higher level of effectiveness toward attendance system. To analyse requirement of end users, study the current existing application, design of solutions, develop of system, test of function, and lastly maintain of system for implementation of application process.

## Objectives

1. To study the existing attendance system and identify the strengths and weakness of the current systems.

2. To design and develop a QR code-based attendance system in mobile environment to provide more convenient and fast work process for both lecture and student.

3. To evaluate the performance of the developed QR code-based attendance system in mobile environment by conducting survey on the user experiences.

4. To improve the system performance compared to current attendance system.

5. To provide better experience of use for student, at the same time which help student to understand their own attendance rate all the time and do not need to check their attendance rate via official school website or faculty general office.

**Methods**

The main research method is to solve problem by gathering data from users to identify potential users who are more likely to use system features. Collecting opinions and ideas is critical for creating the system. The questionnaire was selected because it enables for quicker data collecting from bigger data sets. As a result, this may be utilised to assist developers in studying consumer demands and desires. The survey questionnaire form will be sent at random to UCSI

students from various backgrounds to acquire objective data for application development. Charts will be used to evaluate quantitative data.

**Results**

Based on the survey question that have been distribute to random student in UCSI University. It can conclude that most of the respondents are willing to use QR Code Based Smart Attendance System. Based on the survey research had showed that several function that is necessary and important to overcome the problem that mention by the users. The expected outcome in this application will plan to develop QR code method to retrieve student information, email fast authorization sign-in and registration and lastly report generate for view of attendance record.

**Conclusion**

It concluded the objective stated has been fulfilled by study the existing attendance system and identify the strengths and weakness of the current systems. The second objective is to fulfil by design and develop a QR code-based attendance system in mobile environment to provide more convenient and fast work process for both lecture and student. The third objective is to provide better experience of use for student, at the same time which help student to understand

their own attendance rate all the time and do not need to check their attendance rate via official school website or faculty general office. The contribution of online attendance application included drastically reduced wait times for students, increased flexibility of student schedules and the opportunity for students to interact with their professor.

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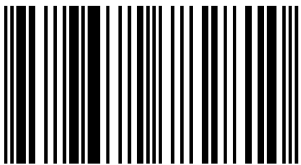
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