Institute of Computer Science & Digital Innovation, UCSI University

Research Report
Volume 01

Editor

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Published in 2021 by **UCSI Press**

UCSI Heights, 1, Jalan Puncak Menara Gading,
Taman Connaught, 56000 Cheras,
Wilayah Persekutuan Kuala Lumpur

ISBN 0-0000000-0-0

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Preface

The final year students in ICSDI have to do a project that related to Information and Communication Technology (ICT). One part of the project is a research element. The research element requires students to do literature review in order to formulate their research problem and compare the current solutions of their chosen topics. Then students have to conduct a survey or interview to gather user requirements. Based on the requirements a system will be developed and tested. Lastly students have to write a report and a research paper. This report is a compilation of the selected research project for the year 2021.

Editors
Abdul Samad Bin Shibghatullah

31st December 2021

Developing a prototype e-wallet system - UCSI Pay

Aravein, Raenu Kolandaisamy, Shayla Islam

Introduction

In today's world internet has become one of the basic needs for everyone. Internet has transformed people's life in a positive way. As a positive impact due to the expansion of fintech products such as e-wallet, consumers are shifting from cash-based to cashless. Without a doubt electronic wallet (e-wallet), a fundamental to electronic paying system, is one of the best inventions in 21st century. E-wallet is a form of digital wallet which enables a person to link their bank cards to the e-wallet digitally in order to transaction. Smart phones are also being used for making payments where it slowly replaces the old traditional way of making payment using money. E-wallets in Malaysia have been booming lately thanks to the new platforms emerging quite frequently. This upward trend doesn't look like it's not going to lose pace anytime soon, particularly when significant growth of e-wallets in the country is in line with the central bank's aim to transform Malaysia into a cashless society. Payments can be made to the seller by scanning the QR code generated from e-wallet app.

Objectives

To study the current e-wallet systems

To design a mobile e-wallet system for UCSI students

To develop a prototype mobile e-wallet system for UCSI students

To enable peer-to-peer e-money using the e-wallet mobile app

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. The questionnaire was chosen because it allows faster collection of data from larger data sets. Hence, this can be used to help developers study user needs and wants. The survey questionnaire form will be sent to UCSI students randomly from various background in order to collect objective data for application development. Charts will be used to assess quantitative data.

Results

E-wallet is becoming increasingly popular among young people, especially university students, due to its ease. Fast transfers with minimal fees were deemed to be the most beneficial characteristic of e-wallets by the vast majority of participants, according to this survey. E-wallets, according to the majority of participants, make it easier for them to load their funds. Because of this, using a digital wallet to transfer money took less time than using cash. As an example, transferring cash may take two days, but transferring payments with an e-wallet took just 10 minutes. Security is another benefit of utilizing an e-wallet that encourages students to use digital payment. In order to attract clients, many businesses are giving coupons, gifts, significant discounts and other special incentives to consumers who use E-wallet to purchase products.

Conclusion

Finally, it can be said that the system has been carried throughout the project's many stages of development, resulting in its effective establishment and achievement of the project's primary objectives. The main objective was to study current e-wallet systems in Malaysia and then to develop a mobile e-wallet system for the usage of UCSI University students. The system was developed after getting to know the students need through survey questionnaire. The studying of existing systems and literatures is a small step towards filling a discovered gap when it comes to developing a e-wallet system for university students. The prototype e-wallet system was successful built runs perfectly fine on mobile device. As a result, a more complete literature analysis would better represent the current state of affairs on social media platforms when it comes to e-wallet systems, and would provide a better knowledge of what is needed, as well as the areas that need additional study. In addition, a more comprehensive study of the criteria would result in a superior end product. Knowing e-wallet system user’s needs might change time-to-time, guarantee that the system being developed can meet the demands of students at UCSI University.

Bitcoin Awareness Among Young Stage generation in Equatorial Guinea

Heliodora Agustina Okenve Nchama, Raenu Kolandaisamy, Kamal Ali Ahmed Alezabi

Introduction

As humanity advances, things change and the world becomes more modernized because that is life, in life, everything happens for a reason, and as technology exists, technology makes things easier, although sometimes that ease can bring short- or long-term problems. Many are currently wondering in countries with low resources, what is bitcoin and how does it work? That question has an answer, but you decide what to do yourself after finding out with your resources. Bitcoin is a digital currency that is currently being integrated among businesses [1], as many of us know that can be used to buy goods, to trade, or to invest. The way of exchanging money between people has evolved, because previously people exchanged money for things of value and that was called barter, it was rather than if one had a goat, he exchanged the goat for a sack of rice or a bag of bread because it was what he needed at that time, then over time that form of exchange was changed and that is when gold appeared that to this day is still powerful due to its great value In today's world, people can exchange anything just to have valuable gold in their hands, and years later paper money like the dollar, the ringgit, the peso, the franc appeared.

Objectives

RO1: To analyze the characteristics of cryptocurrencies.

RO2: To design a framework for cryptocurrency awareness in Equatorial Guinea.

RO3: To evaluate the framework using an application base system and benchmark the proposed framework based on the existing model.

Methods

The methodology that is going to be implemented in this paper will be the qualitative and quantitative data collection (Mixed-mode), the qualitative data collection which is going to be the interviews, and the quantitative data collection

which is going to be the survey, this methodology will be conducted among people from Republic of Equatorial Guinea, those in the country and those who are oversea, this is important to qualify and determine which areas are going to be important to achieve a good result, people will be answering and those answers will be useful to accomplish and to fulfill people's expectations. The tool to collect the data will be google forms.

Results

Out of all the questions made in the interview part, it is very important to know the user perceptive on the implementation of a cryptocurrency application and how they think this might help the citizens of Equatorial Guinea, one response was repetitive which is "to prevent scam", perhaps the system might help in that aspect because by providing a system were users can have instant messages with the chatbot included in the application which current cryptocurrencies applications don't provide is a great improvement to answer users inquiries. Users are willing to download the application to see how it works because they can get something new from that and they can learn how the Market Capitalization of cryptocurrencies works.

Conclusion

Overall, this project is a good way to start nourishing the youngest generation in Equatorial Guinea, besides gaining knowledge about the things learned during the entire course, it is helpful and convenient to avoid bad decision making and to help the youth generation to be aware of the pros and cons that cryptocurrencies can have. This application is going to be easy to access and is going to be as well a way of starting a new useful application for the whole population of Equatorial Guinea. The implementation part was quite challenging in some aspects but the aims and objectives were somehow fulfilled even though they could've been much better. This study carried out a lot of important factors and it makes it a big tough because some API is not free which makes it even harder. Overall, this guarantees the accomplishment of the second objective of this study which is to develop a cryptocurrency prototype for Equatorial Guinea.

Implementation of mobile application in dealing with the shortage of blood supply–BloodConnection

Chew Lay Huey, Raenu Kolandaisamy

Introduction

Technological innovation provides greater opportunities and improving the quality of life drastically. Society can work remotely by adopting networking technologies nowadays. The entrepreneur can grow business into new territories easily for the virtue of the development of technologies. The adoption of technologies is no longer an option but an integral component in every aspect. The adoption of mobile technologies and exploration of mobile application brings great impact to society. In the modern digitalised era, the consumer's core behaviour expects to gather every possible information at their fingertips and convenience. According to research, mobile technologies' implication significantly improves economic status for the poor. Besides than economic growth, the implication of mobile technologies and network technologies improved the education aspect. The education sectors are adopting mobile technologies to improve quality deliverables. According to The United Nations Scientific and Cultural Organization (UNESCO), 163 countries have closed, and it is 1.5 billion of learners due to the pandemic COV-19. Each educational sector is shifting into remote learning during the pandemic period. Several applications are introduced to support remote learning such as Zoom, Microsoft Team, Bloom, EdTech, Google Meet, and more.

Objectives

RO1: To analyze the Blood Bank

RO2: To design a framework for Blood Bank

RO3: To evaluate the framework using existing blood bank application and benchmark the proposed framework based on the existing model.

Methods

Quantitative and qualitative research is carried out among 92 users. The survey was designed in Google Form and distributed through mail and WhatsApp. The

survey included participants aged 18 to 54 to determine their perspective towards blood donation and how likely they agree on the blood donation application to solve the shortage blood supply issue. 8 Android participants joined the interviewed and beta version tester. The beta tester provided valuable feedback and advice to improve BloodConnection development.

Results

According to the survey, 59% of the respondents know the blood supply at risk depleting. 41% of the respondents do not become aware of the issues. 41% of the respondents just figured out the issues by attending the survey. Approximately 4 out of 10 people do not become aware of the issues due to the limited information. 73% of the respondents would like to donate blood in future. The statistic showed the great amount of potential donor in future. Blood donation can save alive but also reduce the risk of obesity and hemochromatosis. Figure 4 showed that 79% of the respondents would like to make an appointment in advance through blood donation application. The result showed 6% of increment in potential blood donor if the appointment feature allowed.

Conclusion

Mobile application development plays important roles nowadays. It provides greater flexibility and connectivity to the user. The growth of social media emerging phenomenon in marketing. Social media marketing is powerful tools to promote and engage user's loyalty. Thus, BloodConnection is expected to grow awareness and concern of society. Instead of email verification, BloodConnection should deploy phone OTP verification to validate. Firebase provides user first 10,000 text message for free. BloodConnection should build a web-based portal for admin and medical industry. Bootstrap could be an ideal and powerful framework in developing a responsive web-based application.

Time tracking tool for smart learning in tertiary education during post pandemic

Wong Wai Quan, Thong Chee Ling and Raveendran A/L Paramesran

Introduction

The level of academic performance is likely to drop due to the reduce of contact hour for student and lack of physical consultation with teachers when facing difficulties in learning. Student assessments are carried online with a lot of trial and error, uncertainty and confusion among teachers and students. Although COVID-19 has created large disruption in tertiary education system, it also provides us with an opportunity to pave the way for introducing digital learning. Hence, digital learning has played an important role during the pandemic, it helps tertiary education to facilitate student learning during the closure of campus. Therefore, information technologies and digital learning system are seen as an essential factor to conduct activities in tertiary education in post pandemic.

Objectives

The objectives are of this study are as follows:

1. To identify the problem faced by students during online classes in terms of learning.
2. To study the importance of having Time Tracking System for students
3. To develop a Time Tracking system for students which allow them to monitor the duration of browsing each websites.
4. To analyse the similar existing system and identify their strengths and limitations.
5. To evaluate the usefulness of the system by students

Methods

The methodology will be used to develop the system is Agile Development Methodology. The reason of choosing this method because of its flexibility compare to the traditional waterfalls method. Because of flexibility, fast, and responsive of the method, it can help achieving a high-quality software quickly. There is total 16 survey contain in 2 section being asked to random student in UCSI University and total 80 responses were achieved successfully.

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 time tracking system. According to the responses, most of the respondents have experiencing the issues of not having self-regulated behavior on their online study. This project will bring a great help to the student as 90% of the respondents are willing to use time tracking system to help focus on study by monitoring their web activity.

Conclusion

It concluded the objective stated has been fulfilled by identifying the problem faced by student during online classes in terms of learning. The second objective is to fulfil by knowing the importance of having time tracking system, for students. The third objective is to develop a time tracking system for student which allow them to monitor the duration of browsing each website. The fourth objective is fulfilled by analyze and observe existing system in the market and their strength and limitations. The last objective is to evaluate the usefulness of the system that tested by students. The contribution of the system allow user to track their web browsing time and see how much time they spend on each website. Thus, they can see the total visit of a certain websites each day. So, user can track their web browsing time without having to download any third-party application. With the recorded time spent on each website, user can have a better time management behavior on the usages of time.

Web-Application Best Tuition: Online Tuition Management System

Gene Wong Yun Han, Thong Chee Ling, Kurunathan A/L Ratnavelu

Introduction

Online learning has become the new form of learning for all learners ranging from elementary to secondary schools to higher institutions particularly in the COVID-19 post-pandemic era. As a result of COVID-19, the method of education has been transformed from face-to-face to e-learning. Research reveals that online learning has taken essential stage in the pandemic era as more and more institution has adopted technology in the educational process The most beneficial aspect of online learning is its flexibility in terms of time and place that ensures learners remain safe and able to achieve the learning outcomes of the courses. The finding from this study revealed that the situation brought by the pandemic created a conducive environment for the adoption of an online classroom which which replace the face-to-face classroom. Students have to continue with the learning process even though they were outside the school premise. Most learners were satisfied with the online classrooms with only a few challenges which can be solved being realized. Online education is no longer a choice, it is a mandatory.

Objectives

This project proposes an online tuition management system which enables tuition teachers to keep records of students and communicate with students. Hence learning via online platform is able to achieve the course learning outcomes planned by the tuition teachers. The proposed system enables the administrator of tuition center to register courses for students and communicate with tutors as well as their friends through the system.

Methods

Quantitative research was used in this study to conduct the investigation. Quantitative research is used to acquire data from current and potential consumers through the use of sampling methods and the distribution of online surveys, polls, questionnaires, and other kinds of data collecting with numerical findings (Nonato & Aupetit, 2019). The survey research methods used is online

surveys. In this study, the investigation was done through a Google Forms survey. A total of 20 people participated in the survey. The purpose of survey-based quantitative research is to learn and evaluate about a large population by surveying a sample of it. This participants are students from university and secondary school.

Results

Statistical results revealed that the Best Tuition management system is an online system that is designed to all users including admin/tutor/student/parent in a collaborative system. Based on the overall results, 80% of the respondents agree that the online tuition management system provides tutors and learners a chance to actively contribute during online tuition classes. This system is used to replace the manual tuition management method. The system is accessible anywhere as long as the user has access to the internet. The useful features found the respondents are user registration, attendance and schedule management. It is also found that the most important feature of the Best Tuition management system is the class forum. This class forum is specially designed for the tutors and students to communicate to make their lesson more interactive

Conclusion

The online management system is able to provide a comfortable management planform for students and parents. This project addresses the problems faced by students using the manual tuition management system. The success of the Best Tuition management system enlightens the administrators in tuition centre and increase work efficiency. Tutors and students can teach and learn more effectively through the system provided. All of the users are able to communicate with one another and exchange information using the system. The Best Tuition management system is expected to improve the quality of tuition centre management significantly.

NFC Smart Key for Hotel

Zainab Atallah, Joseph Ng P.S. and Thong Chee Ling

Introduction

Security remains a key issue in the hospitality industry based on theft and crimes related incidents reported earlier. This study aims in designing a system that enables the hotel guests to access the hotel room without using a physical card. To promote high-security attributes, NFC technology as the access system by implementing an application containing an emulated smart key for specific authentication access is used. The Host-Card Emulation enables cost-effectiveness profit and initiating a defence system in the pandemic era. The proposed system is evaluated by hotel staff and managers in two hotels located in Malaysia. The findings show the proposed system can eliminate physical cards, enhance security and promote a contactless environment. More test cases in different locations are required to further validate the proposed system. The proposed system can be implemented in other industries in future.

Objectives

This study proposes a connectionless smart door system that uses the NFC technology as an active card to support hotel management through ensuring a high-level authentication system to help users to have an innovative way of navigating in the location with secure authenticity. The significance and benefits of this study are to achieve an innovation level of practices in hotels with affordable cost and increase awareness of COVID-19 interaction in the hotel, due to the interaction-free technology of NFC which by default will strengthen trust within the user and application. NFC and the use of smartphones in developing an intelligent system based on a mobile application, which allows hotels to have a high-security level of access points.

Methods

The research applies the mixed-mode methodology study survey and interview. The interview is conducted to gather the opinions of the individuals. The participant was divided based on several aspects.

1. The age classification is an important element for an in-depth explanation, the age range will be divided into four groups essentially based on the expected guests to be in hotels.

2. Location specification: Two hotels located in Kuala Lumpur Malaysia are selected to participate in this study.

Results

The survey is conducted in two hotels i.e. Hotel A and Hotel B. There are 55% of the respondents from Hotel A and 45% of the respondents from Hotel B participated in the survey. The majority of them are under the 21-30 age group (33%). Most of the respondents (44%) are hotel guests and are also under the category of the high-income group (53%). An average of 95 % of the participants from both locations has agreed with the statement regarding the cost benefits. Furthermore, Hotel A has shown a higher acceptance rate of the strongly agrees category with almost 72% higher than the 42% of Hotel B. The prime feature of the NFC application is its effectiveness as it implements a contactless experience. In this analysis, the importance of the contactless feature is shown which reveals the high demand for such an innovation for the hotel. As seen and conveyed 92% of the responses have expressed the dire need of the innovation by agreeing to the statement which involves the importance of the contactless feature, moreover the responses are directly related to the encouragement of using a smartphone instead of the traditional known methods of card keys and more. Notably, the responses from the four seasons hotel were remarkably larger in respect to the strong agreement to the innovation in compared to the other hotel. Lastly, the responses opinion in a more business aspect of branding in the context of the safety importance for the users from the COVID-19.

Conclusion

In this study, an intellectual NFC door access app is advanced for the first time in Malaysia using HCE innovation in the hotel industry by providing high authentication with cost-effectiveness for management and users. Yet with a significant convenient experience for users and the human resources field. Moreover, the advancement has an inspiring feature of eliminating any interaction which results in a notable improvement in reducing the contagious of COVID-19 to none. Although the project could remarkably provide high effectiveness, highest safety measurement, and spectacular convenient experience. The study of the evaluation is limited to online long-distance testing due to the COVID-19 lockdown thus to get clearer and accurate Real-time results in the hotel location would provide the study with higher evaluation results. Future work of enlarging the project to more areas and fields which need the technology as of medical industry and more.

eQ, Queue with QR Code

Lee Jun Yu, Mohd Fikree Hassan, Chit Su Mon

Introduction

The queue management system has been around for some years and the system is no stranger to public. The usage of the queue management system is to assist the vendors to manage the customer flow throughout the entire service process, from the moment the customer walks in until the customer leaves after the desired service is delivered. Such queue system exists in many sectors, for instance, post office, commercial banks, universities, government departments, restaurants, etc. Traditionally, queue management system comes in a form of kiosk-based system. A kiosk is a standalone, small, self-servicing machine designed to fulfil various business purposes. Kiosk usually exists in high-traffic area, typically seen in a crowded place with a long queue. The system is proven to be effective and useful, as a matter of fact, it is widely implemented and accepted for commercial purposes. However, study shows that the waiting in line is the primary factor of influence, and the outcomes directly affect the efficiency of the system, customer experience and satisfaction. Therefore, a queue management system with online feature can help service provider to manage customer flow as well as to prevent too many customers to crowd the location at a time, because it is not possible to practice social distancing with a huge crowd in a confining space.

Objectives

1) To reduce paper waste and go green. It is undeniable that the existing queue management system that uses paper tickets consumes a lot of paper to print ticket and subsequently contributing to landfill by producing huge amount of paper waste on annual basis. A paperless, digitalized queue system with QR code is environmentally friendly and does not produce any paper waste.

2) To make changes and improvements to existing system. With the identified problem statement, best thing to do to increase experience and efficiency of existing system is to implement new features. With more and more systems using QR code, such as registration and e-wallets, it is not hard to tell QR code is the technological gamechanger and its wide implementation has proven to be an effective feature.

3) To design a mobile queue system with QR code feature. With mandatory usage of 'MySejahtera' app to check-in as part of standard operating procedure (SOP) in the midst of COVID-19 pandemic, more people are getting used to QR code feature and it is proven to be convenient, effective, fast and easy to use.

Methods

The purpose of the quantitative data collection is to collect responses and opinions regarding arguments and questions to be answered. Responses are needed to prove the hypothesis such as the drawbacks of traditional queue system and how can the proposed solution resolve the existing issues. The survey is divided into 3 sections. In the demographic section, respondents are required to provide some profile data, such as gender, age group, occupation and smartphone ownership. Next, the experience section of the survey is to evaluate the personal experience of respondents with the QR code technology. Additionally, the next section of the survey contains linear scale-based questions and respondents are provided with arguments to rate from a scale 1 to 5, which rate 1 for strongly disagree while rate 5 represents strongly agree. The survey was anticipated to collect a minimum of 50 responses and distributed via social networks and connections. The survey form has received responses for a week and a total of 66 responses are collected which equivalent to 66 respondents have participated in this survey.

Results

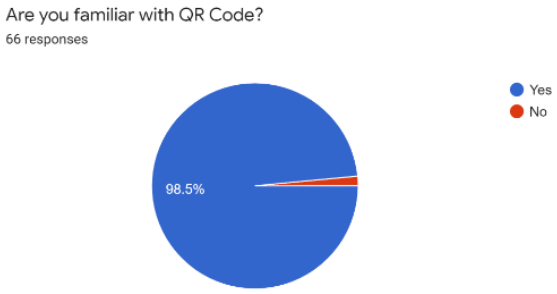

Fig. 1. Familiarity of QR code.

Result shows that 65 respondents (98.5%) are able to recognize the QR code and acknowledge their familiarity with the QR code. Only 1 respondent (1.5%) is not familiar with a QR code. From the results, we can see that QR code has been in service for a long time and most of the people know what is a QR code, what is the purpose and how to use it.

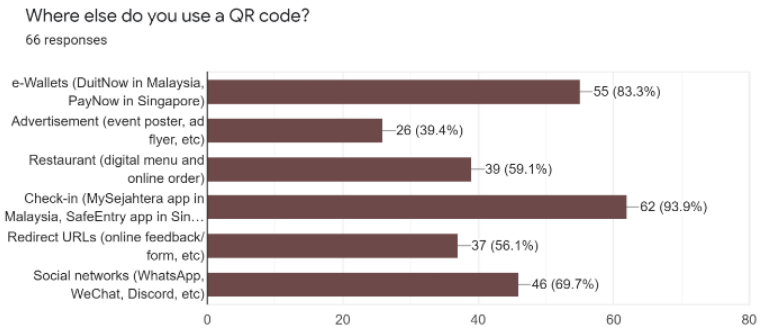

Fig. 2. Different applications of QR code.

55 respondents (83.3%) use the QR code in e-Wallet apps. 26 respondents (39.4%) use QR code in advertisement mediums. 39 respondents (59.1%) use QR code in restaurant digital menu. 62 respondents (93.9%) use QR code in check-in app, most popularly the MySejahtera app. 37 respondents (56.1%) use QR code in redirect URLs (online feedback form) to access webpages and lastly, 46 respondents (69.7%) use QR code in social network for web app quick login feature.

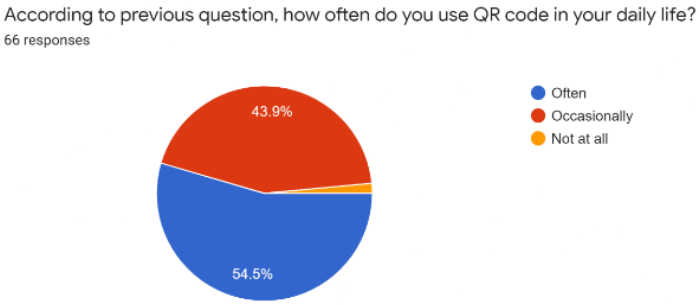

Fig. 3. Frequency of QR code usage.

1 respondent (1.5%) does not use QR code in their life, however, the remaining 65 respondents do use QR code in their daily lives with different frequencies. Among the 65 respondents, 36 of the respondents (54.5%) use QR code in the life very often, the other 29 respondents otherwise, use QR code in occasions. It can be concluded that almost all respondents use QR code in their lives, given the variety of QR code applications in different features and services.

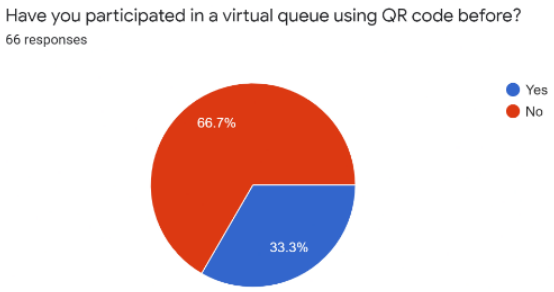

Fig. 4. Past experience of virtual queue using QR code.

44 respondents (66.7%) answer no and they are not familiar with a QR code based virtual queue system. While the other 22 respondents (33.3%) had experience with virtual queue system. From the statistics, it is understandable that a virtual queue system is still not widely implemented and used in public system.

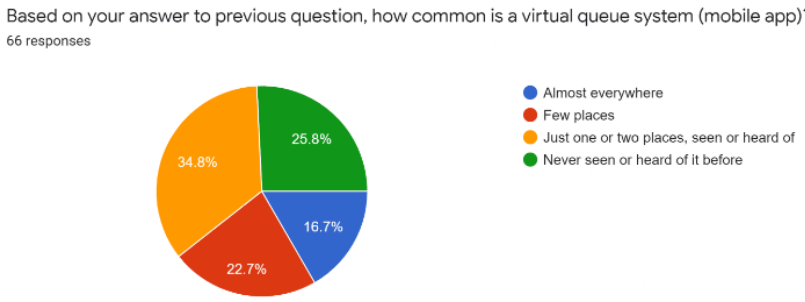

Fig. 5. Familiarity of any active virtual queue system.

11 respondents (16.7%) see virtual queue everywhere and it is in used at a lot of places they have visited before. 15 respondents (22.7%) say that only few places have adopted a virtual queue system, while more respondents with 23 of them (34.8%) only seen or heard of a virtual queue system before at very few places, most probably only one or two places. And finally, around a quarter of respondents, 17 of them (25.8%) have never seen or heard of a virtual queue system

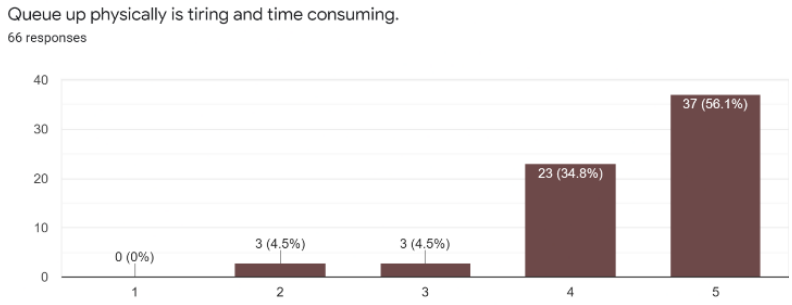

Fig. 6. Experience of physical queue.

37 respondents (56.1%) strongly agree that physical queue up is indeed a tiring and time consuming. While 23 of the respondents (34.8%) agree with the argument, the remaining 6 respondents, with 3 respondents (4.5%) feel neutral and another 3 respondents (4.5%) disagree with it.

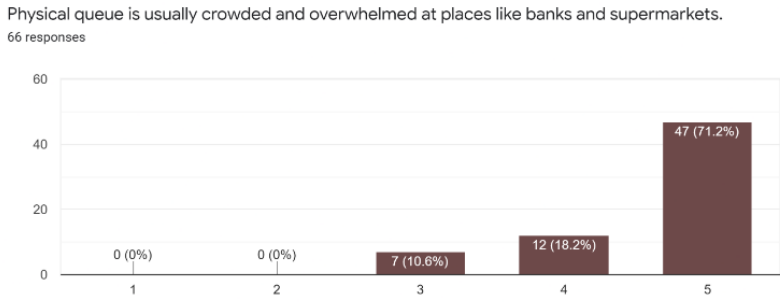

Fig. 7. Situation of physical queue.

47 of them (71.2%) strongly agree that the physical queue is usually crowded and overwhelmed most of the time. 12 respondents (18.2%) agree with the statement and 7 respondents feel neutral with the statement. While the physical queue situation may vary based on many factors, such as timing, location and service sector - generally speaking, people do agree that physical queue is usually crowded with many people waiting in line.

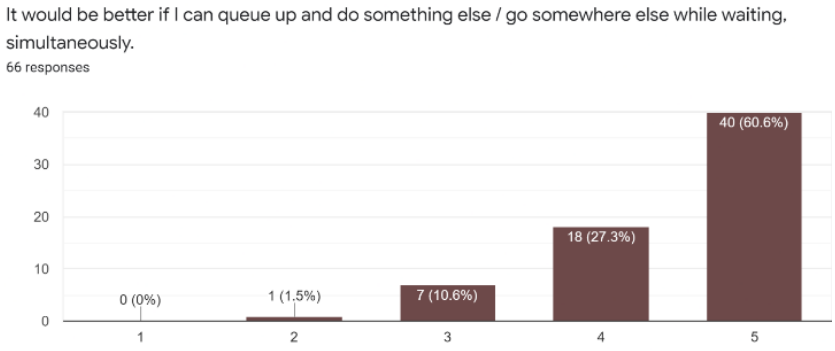

Fig. 8. Multitasking while waiting in line.

40 of the respondents (60.6%) strongly agree that multitasking while waiting for queue is a good idea. 18 of the respondents (27.3%) agree with it. The remaining 7 respondents (10.6%) however, feel neutral with the idea of multitasking and 1 respondent (1.5%) disagree with the statement.

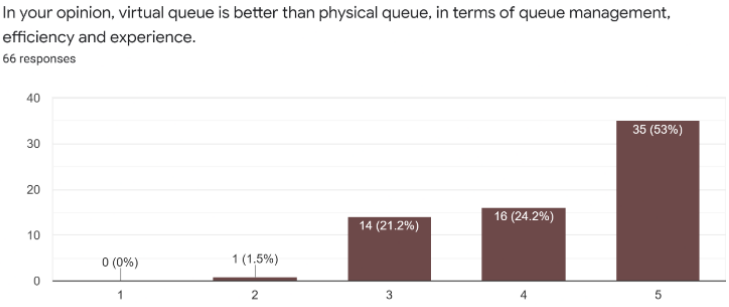

Fig. 9. Comparion between physical and virtual queue.

35 respondents (53%) strongly agree that virtual queue can do a better job than physical queue. 16 respondents (24.2%) agree the same thing, while on the other hand, 14 respondents (21.2%) stay neutral and 1 respondent (1.5%) disagrees.

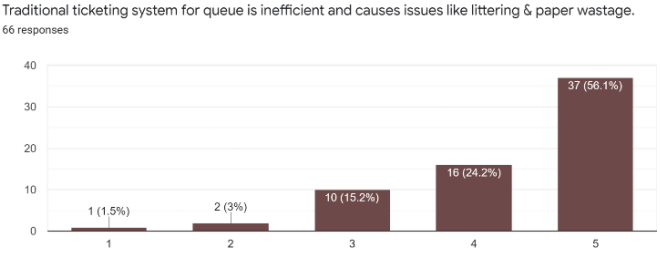

Fig. 10. Con of traditional kiosk-based system for physical queue.

37 respondents (56.1%) do strongly agree with the statement and acknowledge the issues with the existing system. 16 respondents (24.2%) agree with the cons. 10 respondents (15.2%) feel neutral, 2 respondents (3%) disagree and lastly, 1 respondent (1.5%) strongly agree with the situation.

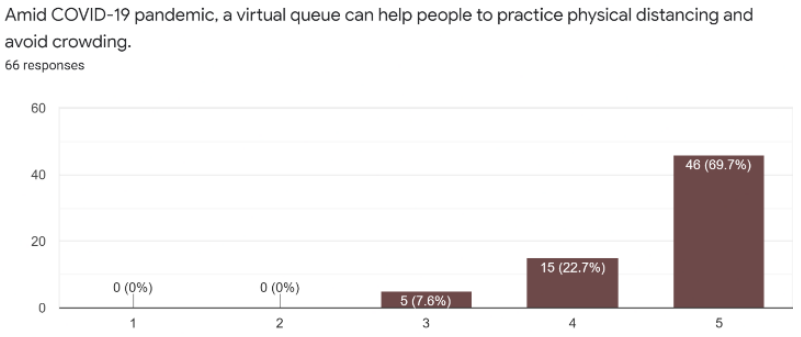

Fig. 11. Pros of virtual queue during pandemic.

46 respondents (69.7%) strongly agree that virtual queue can help people to maintain physical distancing and avoid crowding. Another 15 respondents (22.7%) agree with the virtual queue as better alternative and remaining 5 respondents (7.6%) stay neutral.

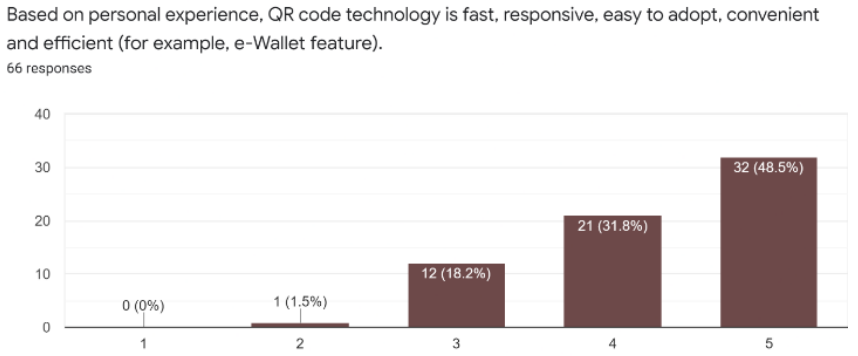

Fig. 12. Esential characteristics of QR code technology.

32 respondents (48.5%) strongly agree with the statement and feel the same based on their personal experience. 21 respondents (31.8%) agree, 12 respondents (18.2%) feel neutral and 1 respondent (1.5%) disagrees.

Conclusion

As per the survey responses, many suggestions and recommendations are made. Some of the participants suggested that adopting the hybrid system is a great idea,

instead of a total replacement. The hybrid system is a combination of the existing system and the virtual queue system. It is a good idea to implement such hybrid system to ensure a smooth experience and transition from one to another in the future. Future work should cover the quality of life (QoL) updates and improvements. Useful features as per suggestion and recommendation. Future study should focus on the topic of virtual queue system that uses QR code technology. The survey revealed that virtual queue system is still very new and not widely implemented. More studies need to be conducted to find out how common is the virtual queue system and measures to promote virtual queue system.

Color Correction Simulation Website

Christopher Ooi Qi Ping, Mohd Fikree Hassan, Kasthuri Subaramaniam

Introduction

When it comes to perceiving colours, people who suffer from colour vision deficiency do significantly worse than those who have excellent eyesight. For the most part, kids perceive the world in a different light when it comes to colours. The condition is caused by a genetically based impairment that is inherited from either one or both parents who are colour vision deficient gene carriers. According to the American Optometric Association, colour vision deficiency can be classified into three categories: Protanopia, which causes difficulty distinguishing between red and green hues, Deuteranopia, which causes difficulty distinguishing between yellow and blue hues, and Complete Color Blindness, which causes the sufferer to perceive the world as shades of black and white. Color vision impairment affects about 8% of the world's male population and 0.005% of the world's female population, according to the World Health Organization.

Objectives

This project has two major purposes:

1. To aid people with Protanopia (Red-blindness), Deuteranopia (Green-blindness), and Tritanopia (Blue-blindness) to distinguish colours using some algorithms that tune the RGB of a photo.

2. To provide an easy-using website allowing the colour-blindness sufferer to upload their photos at ease and distinguish colours with convenience.

Methods

A computerized simulation on a HTML/CSS-built website with embedded JavaScript to convert the captured RGB space of the uploaded image, tuning the value as the output. An alpha testing phase was undergone internally; then a beta testing phase was undergone by looking for 10 volunteers who suffer from colour vision deficiency by using several electronic devices and provide feedback. The issues identified during the testing phases were fixed simultaneously. The 10 volunteers that has taken part in this project are all male. 6 of them are aged between 21 to 25, 2 of them are aged between 16 to 20, while age range 31 to 35 and 26 to 30 have each volunteer for both. It is an expected results as male is more common to be suffering from colour vision deficiency in comparison with female.

Results

From the result, it can be seen that among 10 volunteers, 10% saw an average difference among the initial picture and the processed picture, 30% saw quite a big difference in them, and finally, 60% saw major differences between the images. It is safe to assume that image processing does help people with colour vision deficiency to see the differences in images.

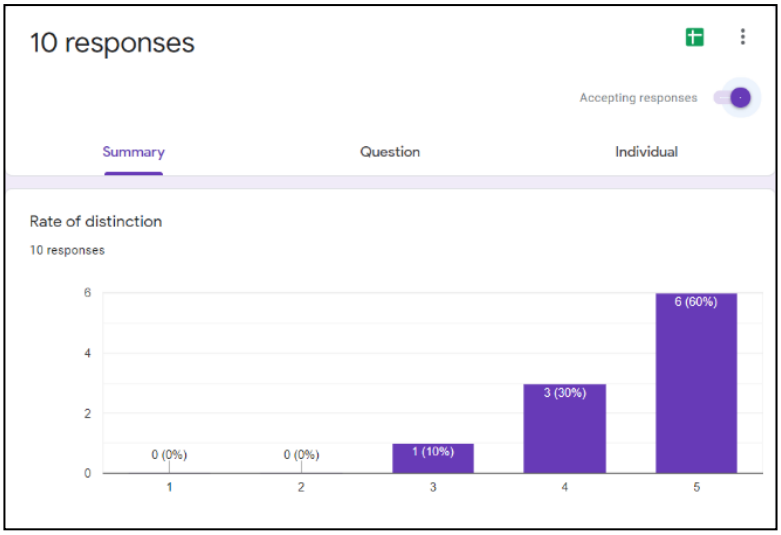

Fig. 14: Result of a questionnaire surveying the results on the rate of colour distinction between the original image and the processed image

Conclusion

In this paper, a website that allows the upload of images and processes the colour of the image by tuning the RGB value has been proposed. It successfully assisted the colour blinds to improve their colour visibility by increasing the colour distinction in the images that their eyes initially failed to detect. The responses from volunteers are favourable. By designing the website in a less-heavy and convenient-to-use interface, they can access the website anytime and anywhere to differentiate colours that they are unable to.In future works, I hope to include the function of processing the image into the views of different lenses: which is no lens, normal lens, and inverse lens, to assist more people with the availability of more features.

Online Booking Sports Facilities in the Republic of Equatorial Guinea

Salomon Ebi Esono Avomo, Abdul Samad Shibghatullah, Joseph Ng Poh Soon

Introduction

The main idea behind this project is to offer users a reliable, safe, and efficient way to book sports facilities. One of the main reasons why it has been decided to carry out this project is because of the difficulties that the population of Malabo has when they want to book sports facilities. As a computer science student, it is essential to develop a project where I can apply all the knowledge acquired from the beginning of my career at my University "UCSI", and this project is an opportunity to demonstrate it. The result of this project is the combination of several disciplines of computer science, such as, "Research Methods", "Introduction to Internet Technologies", "Software Project Management", "Database", Business System Development Tools", "Object-Oriented", "Introduction to Human-Computer Interaction", all the knowledge acquired in the areas mentioned above have made this project possible

Objectives

The main idea behind this project is to offer users a reliable, safe, and efficient way to book sports.

RO1: To know if user are willing to use a website for booking sport facilities before materializing it.

RO2: To know if user are comfortable with either manual or online booking system.

RO3: To know how user would like receive their booking confirmation detail once there are made.

Methodology

This study will use a Quantitative and Qualitative research method, and also a mixed method research. This methodology of data collection will be conducted between citizens of the Republic of Equatorial Guinea as the market target of the system, the that will be used to collect the data will be google forms. By using this research methodology the study will get enough information from user via survey and interview questions as it is shown in the following table. The data collected will drive to a conclusion that will demonstrate whether the project can be successful or not

Results

This study make a research about two type of booking system. A manual booking system with an online booking system, both systems offer the same service but between both one better than the one. This study aim to improve the booking system by offering a website for booking sport facilities, this innovative has different features that will serves as an improvement in the booking sector. The following represent preliminary and technical data collection. Figure 3 and figure 4 summarizes all the responses get from the data collected from user side.

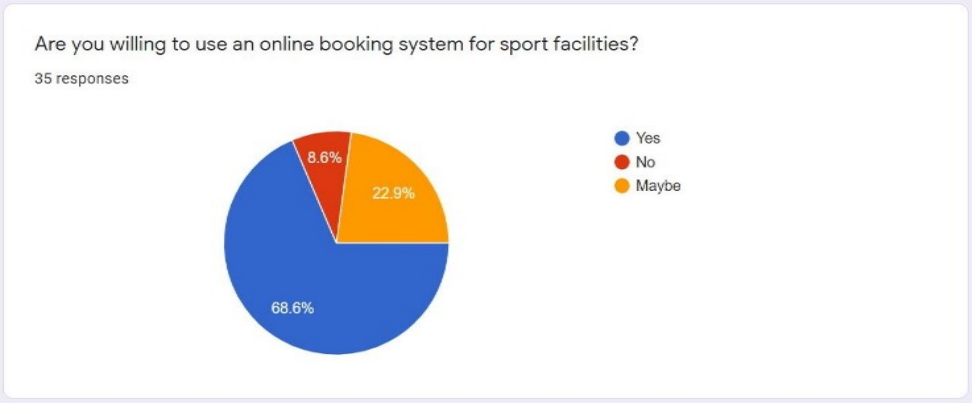

Figure 3: To know if Equatorial Guinea citizens are willing to use online booking system.

As illustrated in figure 3, most of repondents are willing to use online booking system for booking sport facilities in Equatorial Guinea. This can help encourage the development of the website as most of the citizens in Equatorial Guinea agree to the system. As the first online system in this country in this it was important to know perception of user about a system like this for them to use. 68.6% represent the amount of respondents that said “YES”, for use an online booking system and 8.6% represent the amount of respodents that said “NO”. As the majority agree is a great beginning for the implementation of the system.

Figure 4: Improvement of the services if the online booking system is implemented.

Figure 4 shows that 57.1% and 17.1% are happy to have an online booking system in Equatorial Guinea. This statement prove that the implementation of the will highly success full because only 8.6% of respondents said they are unhappy with an online booking system. The respondents were those who have sport facilities to rent, for them it is a great idea to help them manage their sport facilities in order to have a better control of them and to give clients what they want.

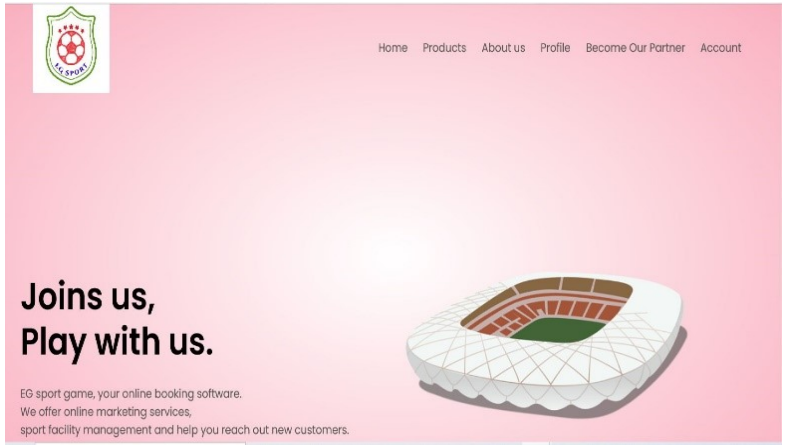

Figure 5: Home page of the website.

Figure 6 display the home screen, a simple home page without a lot of things making it fancy, attractive and easy to use for the users. From the home page user can see the content of the website and also can go into the rest of the of the pages that composed the website. User can only access this home page only if he

successfully log into the system otherwise he will not be able to access the home page or do make any booking at all. In the right side user can see the field and upside user can see the different pages, profile, product, account. From left side the motto of system “JOIN US, PLAY WITH US”. There is also a logo there that represent the system.

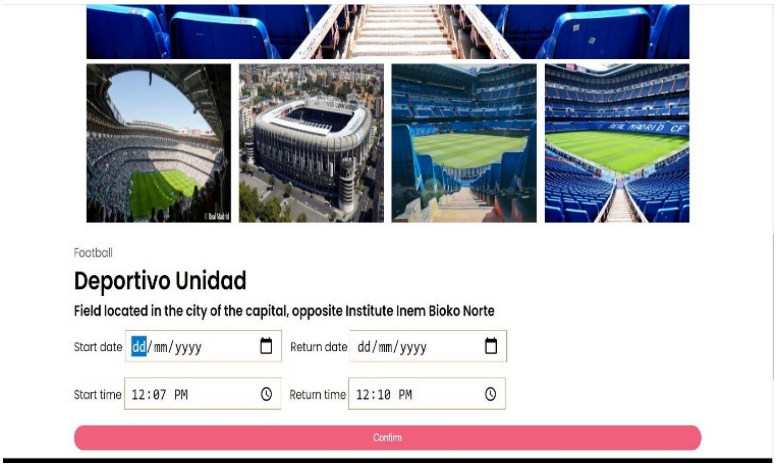

Figure 6: Booking page

This figures illustrates a product selected ready for booking, from the screen user can see different photos of the field, the name of the field, location of the field. In case user wants to book there is an start date and return date, start time and return time, the field can be booked only for hours, and daily due to high demand of user. Once user selected all these details the next step is hit in confirm button to get the booking done and it will take just a few second, once the booking is made user will receive a notification of the booking with the booking details. To get to the page user must login first, then go to products and then select the field and user will have screen like in the figure 6.

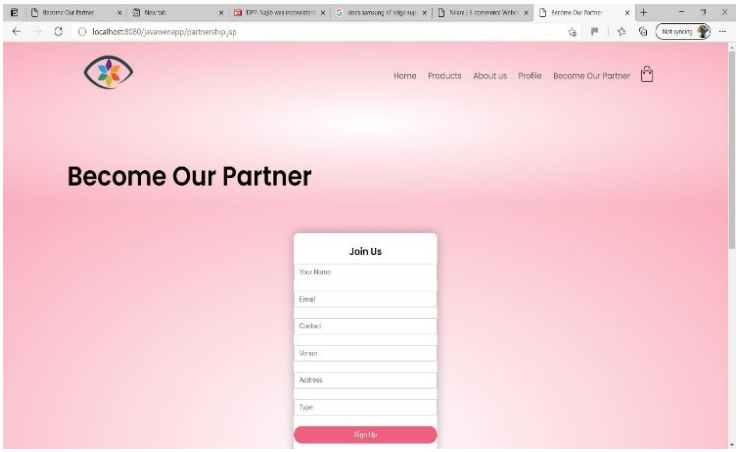

Figure 7: Addig new partners to the system.

As it is illustrated in figure 7, the aim of the study is not only to provide a bokking system for users. There is an space for those who want to join and help them manage their sport facilities and offer marketing services for the sport facilities in order to reach out new customers. By joining us, user must name, email, contact, venue, address, and the type of venue. Once the sport facility is register it be seen by all visitors website, the aim is to provide one system that offers many services.

Conclusion

The objective of this project is to design a website that allows the population of the Republic of Equatorial Guinea to reserve sports facilities online. Through the website, users will be able to reserve sports facilities such as soccer fields, futsal, and basketball. This project aims to solve the problem of the unbalanced use of sports facilities in Equatorial Guinea, to offer users a safer and easier environment for booking, and at the same time, it will be possible to better control the sports facilities. With this website users will no longer have to go personally to the offices of the sports facilities to make reservations since through this website they will be able to obtain all the necessary information about the sports facilities and they will also be able to make their reservations through the website. This project is a way to motivate users to use automated systems and to reserve sports facilities due to the quality service offered by this system. This website was designed and implemented using tools such as NetBeans-8.2 and MySQL 8.0 for the database, if the system meets the expectations it can be implemented in other areas to manage the sports facilities of those areas.

A Fleet Vehicle Tracking Mobile Application

Melissa Antanasio, Abdul Samad Shibghatullah, Shayla Islam

Introduction

In the era we live in, the increasing volume and number of individuals, goods, and information that needs to circulate worldwide, makes mobility an important asset. Logistics and transportation businesses are compelled more than ever to be reliable, deliver quality service efficiently and promptly, reduce costs and maximize the use of their vehicles altogether . New technologies are developed every day to satisfy people's need to have fast and smart systems to make their lives easier. Real-time tracking systems have significantly improved the efficiency of transportation services, especially in the logistics sector. Many researchers have conducted numerous studies on real-time vehicle tracking and management systems. These tracking systems are popular for providing ease of travel, preventing theft, and locating stolen vehicles. Many researchers prefer to use Global Positioning Systems (GPS) to locate the vehicle. A GPS receiver can get signals from at least three satellites within a specific range and it provides much geographical data, such as speed, longitude, and latitude, to determine the location of an object.

Objective

This study is conducted to propose a new vehicle tracking app that improves the driver's security by stopping the ignition of the car when alcohol is detected on the driver's breath, hence preventing drunk driving.

Methodology

This project uses a preliminary study to help us understand better the current situation of the topic, identify issues that need to be addressed, and solidify the requirements of this project. A literature review was made to bring clarity and focus to the problem this research is intended to solve. Moreover, a qualitative survey will take place to know what are the feelings of the future users towards the proposed application. The interviews will take place in Mozambique where a manager, driver, and police office will be interviewed. Choosing the right methodology to develop software is very important and can increase the success rate. Many methodologies have been elaborated over time and this project implements a rapid application development methodology. Using this methodology can result in relatively low expenses with the fast development of the system from beginning to finish. Changes in the course of development are easy to make due to the division of the software into smaller parts. In this methodology, the focus is on the features of the software and the requirements are minimized to fit the time if necessary.

Results

Results from the interview show that in 2020, Mozambique registered 1005 serious accidents caused by drunk driving and a total of 3075 cases in the first quarter of 2021. The numbers have been decreasing due to the ongoing pandemic and the strict measures taken by the government to contain the virus. The president of Mozambique has recently announced that buying and selling alcoholic drinks can only happen between 7 am to 1 pm. With the frequency of these events, the transit police position themselves in strategic and tactical locations to face these events, following various operational and educational plans, advertisement campaigns. In some cases, public transportation drivers are caught drunk while driving and also cargo drivers. For the case of cargo drivers, it is harder to control cargo drivers since they travel long distances through deserted roads.

An alcohol detection would prevent unexpected expenses like penalties and shortage of staff if a driver's license is taken for driving drunk. This would also reduce the tendency to consume alcohol during working hours and even close to working hours as there can still be residual alcohol in the driver's breath even after twelve hours post-drinking. The route suggestion feature would reduce the time spent driving and the burden to create new routes to avoid delays. With the tracking system, the managers would be able to see if the drivers are complying with their work and not using the car for personal reasons. The travel history helps to plan future trips and ensure that the drivers are following the tasks. Regarding the potential of the app in the current market, it was found that the app can prosper.

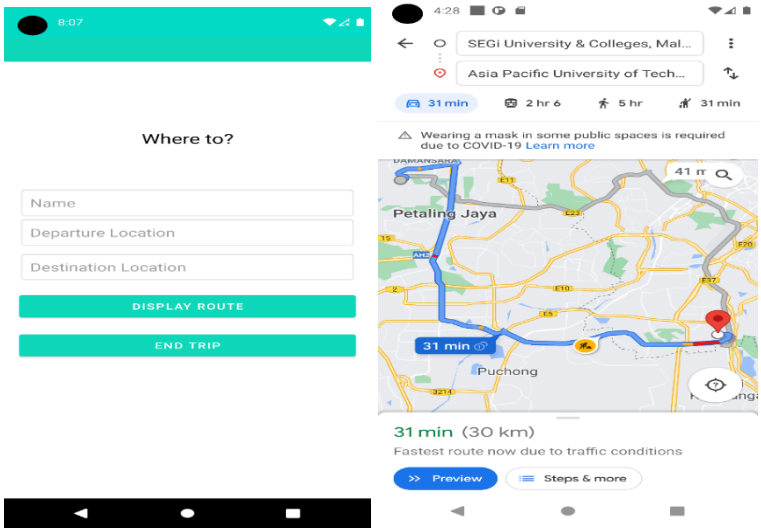

Figure 1: Logging trip and route suggestion

The driver should provide their name, destination, and departure point to be able to log a trip. If not all fields are filled, the application asks the user to fill them before proceeding. When the driver clicks on the display route button, the trip is saved along with the start time based on the phone's time, and google maps opens to show the suggested route. After arriving at their destination, the driver must click on the end trip button to mark the end of the trip. This step is very important because it logs the end time of the trip.

Figure 2: Travel History

The above figure shows the list of the all trips made. The list is updated every time the driver logs the end of the trip.

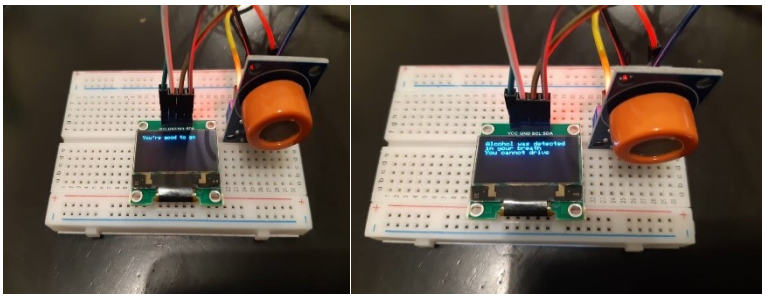

Figure 3: Alcohol Sensor

Conclusion

This project aims to study the use of fleet management systems to improve the operations of transportation companies. Fleet management systems have been improving the way transportation businesses operate by providing an extensive amount of data used by managers for decision making and also. A lot of work has also been done to improve the security of the driver, but to date, little work has been done to prevent drivers from driving under the influence of alcohol. For this reason, the author decided to investigate the impact of drunk driving and propose

a fleet vehicle tracking application capable of preventing drivers to drive while drunk. An in-depth literature review is conducted to better understand existing work done in fleet management systems, their most common features, and their impact. Furthermore, the author investigated the risks of driving under the influence and what work has been done to prevent it. Moreover, a qualitative survey is conducted to help determine the relevance of the work and its impact on the management of fleets. The results from the qualitative survey showed that the work proposed has great potential and facilitated operations. Rapid application development is used to develop the application so that the development process can be fast and easily accommodate changes in requirements. After that, the system is tested to determine whether it meets the project's objectives or not and if it is accepted by users. The results showed that the system's performance was good and it can improve the operations of fleet companies