UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DEVELOPMENT OF QUEUE LINE SYSTEM FOR WASHING MACHINE USING ANDROID

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Electronic Engineering Technology (Industrial Electronics) with Honours.

by

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This report is submitted to the Faculty of Electrical and Electronic Engineering Technology of Universiti Teknikal Malaysia Melaka (UTeM) as a partial fulfilment of the requirements for the degree of Bachelor of Electronic Engineering Technology (Industrial Electronics) with Honours. The member of the supervisory is as follow:

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ABSTRAK

Pada masa kini, masa itu emas. Dari kajian berhubung kehidupan pelajar di Kolej Satria UTeM, pelajar mempunyai masa yang terhad untuk melakukan aktiviti sampingan termasuk menguruskan pakaian kotor sendiri. Ini kerena, masa yang diperlukan untuk menunggu sebuah mesin pencuci pakaian amat lama dan bagi pelajar tersebut pembaziran masa berlaku di situ. Ada pada waktunya, pelajar harus menunggu sehingga pengkalan data pakaian yang sudah dibasuh oleh pelajar sebelumnya agar barisan tidak dipotong dan akan menyebabkan pelajar tersebut mengambil masa untuk menunggu lagi. Setelah menyelidik masalah yang berkaitan, sebuah system yang di inovasikan akan direka "Pengurusan Sistem Beratur Menggunakan Android". Ia akan menghasilkan penjimatan masa kepada pelajar dalam sistem beratur untuk sebuah mesin basuh. Pelajar tidak perlu kerap untuk menunggu dan juga pelajar boleh membuat aktiviti lain seperti menyiapkan tugasan, membuat ulangkaji pelajaran tanpa perlu sering memantau mesin basuh. Projek ini dihasilkan menggunakan dua teras aplikasi dengan menggunakan perisian *MIT App, Arduino IDE* dan juga pangkalan data *Firebase.* Kesemuanya di gabungkan untuk menghasilkan aplikasi bagi memudahkan pengguna mesin basuh. Pengaktifan aplikasi tersebut bermula apabila pengguna mengimbas Kod *QR* yang di nyatakan sebagai mesin basuh utama. Pengkalan data bagi system ini akan di tetapkan semula apabila menjelang 12:00 tengah malam. Kesemua objektif untuk penghasilan projek telah tercapai melalui keputusan uji kaji terhadap projek dan juga dapatan analisa pembinaan projek.

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ABSTRACT

Nowadays, time is gold. From the observation of student life at Satra Hostel in UTeM, student have limited time to do side activities including managing their own laundry. This is because, the time required to wait for a washing machine it takes a long time. In time, students should wait until the previous washed-out clothes have to be cut off and will cause the student to take longer to wait. After researching related issues, an innovate system will be proposed "The Queue Line System using Android". It will produce time savings for students in queuing systems for a washing machine. Student does not have to wait for too long and can-do other activities while waiting such as do their assignment, make a revision and other practical things without having regularly monitor washing machines. This project is using development of system which is the MIT App Inventor, Arduino IDE and Database using Firebase System. All of system been combined to build the application to make the user much easier. The system will be activated when the user scan the QR Code and being stated as Machine 1. The database will be reset on 12:00am. All the objective had been achieved from the analysis and testing result.

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DEDICATION

To my beloved parent,
Md Yusof bin Abdul Rahman and Zainab binti Mohamad that always be there for me.
To my siblings that always generates and gives some idea to complete this report,
Mohamad Huzaimi bin Md Yusof,
Mohamad Huzaidi bin Md Yusof,
Mohamad Hanif Hazlami bin Md Yusof.

To my supervisor, for the guidance and encouragement,
IR Mohammad ‘Afif bin Kasno.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This project is focusing on creating and developing a monitoring queue line system for washing machine in Satria Collage user based in Universiti Teknikal Malaysia Melaka (UTeM). In this era, time is gold. Waiting or be in queue line is such a waste of time. In the obstacle there is many places like bank, a popular restaurant, registration office, hospital and many government office services using this queue line system that they have to wait for a long time without even do anything until they be served.

It is different for the washing machine situation. There is no monitoring system. Each of the user must wait either for the washing machine to be done for the next user or need to be alert for each time by make sure the washing machine have already done for the current time user.

Moreover, the specifically of this system it will send a queue line number through notification or message system to the student the real time user and reminding the upcoming student which is another user that their turns are just around the corner, an aspect which is very helpful especially for those who are outside of the waiting area.

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1.2 Problem Statement

UTeM student that stayed in Satria, mostly failed to manage their time very well. Student rush in doing everything. Mostly, student that stayed in Collage Satria had the pack schedule. It is risking for them to manage their time to do different things because it will disturb the schedule. In their daily basis student already spend a lot of time at faculty throughout the day and once they arrived in the College it nearly night that they have to rush to manage their self and quickly do a revision and assignment.

In this case, student will be delayed doing the laundry and causes until they realized that there is no more clean attire left for them and student will rush in to do the laundry. Washing machine services in Satria UTeM always have the foremost of user. Throughout during on weekdays or weekend the washing machine will continuously have a user moreover on weekend and on the middle of the week. In this case, students have waited for a long time until the washing machine was done either for the real time user or for subsequent user.

Mostly, the matter that being face by subsequent user as a result of they not dare to go away the washer to try and do different things as a result of they afraid that they are going to be cheated even supposing that they had left their laundry basket to say that they are subsequent user or they cannot estimate the important time once the washer are going to be done specifically. With this proposed system, student ready to understand the estimation time by system. Initial user can receive notification once their laundry nearly done and next user can receive another notification once their queue is nearing and they'll standby. This can build student way easier to arrange their work rather that had to attend while not doing something whereas looking forward to the washer. With

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this projected system, it will build student way easier as a result of it is direct act with system by their own Smartphone devices that just for automaton communication system user.

1.3 Objectives

- To study Android development such in generate Quick Response code (QR code), scanning system and real time system.
- To provide a stress-free waiting that easy student to manage and make a better decision about where to spend their time.
- To analyses the performance of development queue management system using Android for the washing machine.

1.4 Scope

This proposed system could help student to queue in line while not waiting too long or be cheated just in case they have to leave the line for a few reasons only for a moment. Every of the user only need to scan the QR code that be generates from the system that be form in a card for every user and scan it on the scanner that have at the washer machine. Once the QR code done to be scan, the system will ask the user to enter the phone number for system to send the notifications status of their queue in line and status of the washing machine. Throughout waiting time, user is able to go anyplace or continue do their task with no worries. Once the washer machine almost done, the real

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