ANDROID-BASED CAR PARKING MONITORING SYSTEM

(ACPMS)

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JANUARY 2019
I Dr. Nor Bakiah Binti Abd Warif hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science (Computer System & Networking)

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STUDENT’S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRAK

Peningkatan bilangan kenderaan di jalan raya hari ini boleh menyebabkan lalu lintas menjadi sesak kerana kenderaan adalah keperluan asas yang digunakan oleh semua orang. Memandangkan jumlah pertumbuhan penggunaan kenderaan, keperluan tempat meletak kereta juga akan menjadi terhad dan akan menjadi masalah bagi pengguna mencari ruang letak kereta terutama di pusat membeli-belah. Teknologi sebagai Internet of Thing (IoT) adalah sistem peranti pengkomputeran yang saling berkaitan dengan keupayaan untuk memindahkan data melalui rangkaian tanpa memerlukan interaksi manusia-ke-manusia atau manusia-ke-komputer yang digunakan dalam hampir setiap jenis bidang dalam masyarakat hari ini. Dalam konteks karya ini, aplikasi mudah alih untuk pengguna dibangunkan untuk memudahkan dalam mencari tempat parkir yang khusus. Sistem Android-based Car Parking Monitoring System mampu menyediakan pengguna untuk mengkaji semula ruang letak kereta yang ada dan mencari tempat letak kereta terdekat dari lokasi pengguna semasa dengan sensor yang dilengkapi untuk mengesan kereta masuk dan keluar dari ruang letak kereta di pusat membeli-belah. Oleh itu, dengan skrin paparan yang mudah dan mesra pengguna yang dibentangkan, pengguna boleh memahami dan menggunakan aplikasi mudah alih ini untuk mendapatkan ruang letak kereta. Akhirnya, kajian ini menerokai penggunaan teknologi Internet of Thing dalam persekitaran sebenar untuk tujuan pengesanan gerakan dan perkhidmatan lokasi untuk memberitahu pengguna yang telah digambarkan dalam aplikasi mudah alih.
ABSTRACT

The increasing number of vehicles on the road today can cause of traffic jammed since vehicle is a basic necessity used by all people. As the growth number of vehicles usage, the needs of car parking lot also will be limited and will be a problem for user to find a parking space especially in shopping mall. Technologies as Internet of Thing (IoT) is a system of interrelated computing devices with ability to transfer data over a network without requiring human-to-human or human-to-computer interaction being are utilized in almost every kind of fields in today society. In the context of this work, a mobile application for user is developed to facilitate in finding a specific parking space. Android-based Car Parking Monitoring System is capable to provide a user to review the available parking space and find the nearest parking from current user location with sensor equipped to detect incoming and outgoing cars from parking space in the mall. Therefore, with the simple and user-friendly interface presented, user can easily understand and use this mobile application to explore the parking space. Finally, this study explored the used of Internet of Thing technology in real environment for the purpose of movement detection and location service to notify the user that has been visualized in mobile application.
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CHAPTER 1

INTRODUCTION

1.1 Introduction

In this sophisticated era, the sharp rises in vehicle usage by the local in Malaysia are very high. This is because of the increasing of population especially in the cities because today the vehicle is a necessity (Parking, Event, & Network, 2018). This problem also led to difficulties for car parking hence the number of parking requirements are not in line with the increasing in the number of vehicles, especially cars.

Internet of Thing (IoT) is a platform for human to make things easy for their daily life using the ability to transfer data over a network. Study has been made that IoT is one of the most rapidly growth technology that used network physical device that embedded with any electronics, software, sensors and network connectivity which enables these objects to connect and exchange data (Friess, 2018).

In order to make it easier for users to find a parking space, the concept of Android-based Car Parking Monitoring System (ACPMS) has been research to be implement. This system is based on real time concept which is users just need to access the application via smartphone then view the number of available parking space in the specific mall. ACPMS needs a different type of equipment such as Arduino Uno, ultra-sonic sensor, assorted wired and Mobile apps.
1.2 Problem Statement

The difficulty in finding car parking space is particularly significant in shopping malls where it is difficult for user to figure out whether parking is available or not. They need to find parking space from one level to another, especially on weekends and public holidays which is malls usually packed with people. As the result, user may waste a lot of time and unnecessary energy while they turn around in the car park without direction and may cause car traffic congestion in parking space. This problem can also increase stress and frustrated then it can lead to bad mood for them.

Current parking system only provides information for available parking space at the main entrance parking gate. User still have the difficulty to find an available parking due to the in and out parking is update from time to time. So, the available parking that user see at the main entrance are not sure will be available or not when the user arrives at their destination.

The other current parking system is using GSM that will give information when the users send SMS to the system to get a new assigned parking space. This will consume extra bill charge each time user use the system and consume more time for SMS to process sending and receiving the message compare to current technology.

1.3 Objective

The main objective of the design is to build application that can show available mall parking space in real-time for the user.

Specific Objective:

i. To study the current limitation of parking availability system.

ii. To design a prototype device for user to monitor parking space that available via mobile phone.

iii. To evaluate the prototype of the proposed system.
1.4 **Scope**

The following is the scope of this research:

I. The system for indoor and outdoor parking space.
II. Only can be use when connected to any internet.
III. Android only.

1.5 **Thesis Organization**

This report for Arduino-Based Car Parking Monitoring System consists of five chapters. Chapter 1 contain introduction of the project, problem statement, objective and scope of the project. Chapter 2 will discuss about literature review that will compare and describe about the existing system. Chapter 3 contain methodology and flow of the system. Chapter 4 will describe on implementation, testing and result. The final chapter which is chapter 5 will conclude the entire project of Arduino-based car parking monitoring system future works about the project.
REFERENCES


