

INTELLIGENT PARKING CONDOMINIUM SYSTEM WITH SMARTPHONE

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ABSTRACT

Nowadays, the driver faces the challenge of the congestion to find the parking spot available. This paper presents an intelligent parking system in the parking area by introducing the intelligent parking system employing Near Field Communication (NFC) technology. This paper aims to solve the problem executed by the driver such as congestion in parking area. The problem of unnecessary time consumption in finding a parking spot especially in a residential parking area. This problem can cause the driver waste time just only to find the parking spot available. Besides that, this work is developed based on hardware and software to ensure the project is certified tested successfully [1]. For the hardware function is to enter the parking system and to find the parking spot. The hardware will be used Arduino embedded as a medium to interface with the all components such as servo motor, ultra sonic sensor, IR sensor, NFC sensor and LED. While for the software is to create profile account inside the application. The software will be used Java language to create database system by using Android Studio. As a whole, the result gets from this project achieved as desired. This project success use Near Field Communication (NFC) technology and a smartphone (android) as replace the card access recently in the smart parking system. Furthermore, the user who use existing Radio Frequency Identification (RFID) card will be reduce the resulting low cost, more facility and eco-friendly [2].

TABLE OF CONTENT

CHAPTER	LIST OF THE TITLE	PAGE
	APPROVAL	i
	DECLARATION	ii
	ACKNOWLEDGEMENT	iii
	ABSTRACT	iv
	TABLE OF CONTENT	v
	LIST OF FIGURES	viii
	LIST OF TABLES	x
1	INTRODUCTION.....	1
1.1	Overview of study	
1.2	Problem statement	
1.3	Significant of Project	
1.4	Objectives	
1.5	Scope of Project	
1.6	Thesis organization	
2	LITERATURE REVIEW.....	5
2.1	Innovative Smart Car Parking System with NFC Access	
2.2	A Reservation-Based Smart Parking System	
2.3	Smart Parking System	
2.4	NFC Technology	
3	METHODOLOGY.....	9
3.1	Introduction	
3.2	Description of The Data Flow of Overall Planning Project	

Chapter 1

INTRODUCTION

1.1 OVERVIEW OF STUDY

In the era of rapid globalization, the hot topic that people often talk about the congestion of vehicles is increasingly crowded, irrespective of place and time, especially to find vacant parking space. This is due to the number of vehicles is increasing day by day especially in Malaysia. Malaysia is one of the developing countries in terms of automotive. New vehicle sales in Malaysia for the month of October 2015 is a 9% increase or 4,648 units when compared to in September 2015, according to the Malaysia Automotive Association (MAA) [3]. Therefore, there are the big problem for most drivers to face the problem congestion especially to find the vacant parking spot.

The project wants to develop and improve a recently parking system, especially in area residential condominium. This is because, like to upgrade security features more detailed and facilitate the process of parking the vehicle[2]. In addition, to reduce the maintenance cost and also to reduce problem the losing card pass to enter the recently parking system.

In this work, an intelligent parking system is proposed. A system employs smartphone application to identify the vacant parking spot. The work will utilize near field communication (NFC) sensor as the main function to detect signal from database in the smartphone. The NFC shield is near field communication that able a powered device like a phone to reads and writes through NFC chip[4]. This system also uses applications as an interface to the NFC. Both hardware and software will be developed and verified to test the system based on the proposed model. For the hardware, use an Arduino as a main brain to interface or connect a another device.