



اَوْنُوْرَسِيْتِي تِيْكْنُوْلُوْجِي مَارَا
UNIVERSITI
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**SECURE PAYMENT PARKING
SYSTEM (SPS) with EXCEL
DATABASE SOFTWARE**

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ABSTRACT

Car parking systems play a vital role in managing the increasing demand for parking spaces in urban areas. According to statistical data, the number of vehicles on the roads has been steadily increasing, leading to overcrowded parking lots and time-consuming parking procedures. To amidst this situation, "Secure Payment Parking System (SPS) with Excel Software Database System" is built. This project addresses the need for an efficient and secure car parking solution, leveraging ESP32 and ESP32 CAM modules, infrared sensors, LEDs, and a custom mobile application developed with MIT App Inventor. The problem statement underscores the challenges associated with conventional parking systems, including traffic delays and inconvenient payment system such queuing at the payment counter. In response to the limitations of traditional gate-based parking systems, the project introduces a "one-way step entry" approach. The focus of this project are to streamline the parking experience and enhance security. Also this project can develop an intelligent online parking payment system that allows users to conveniently check-in using QR code thus making online payment and exit the system with an exit gateway verification code. The project benefits include a more efficient parking process, reduced user waiting times, secure payment processing, and enhanced user experience. Future recommendations may involve expanding the system to include additional payment options, integrating with smart city infrastructure, and incorporating machine learning algorithms for predictive parking availability.

Keywords – Parking lot, secure payment, application, MIT App Inventor, Excell Database Software, ESP32 module, ESP32 Cam module, IR sensor, LED, QR camstem,

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CHAPTER 1

INTRODUCTION

This chapter will give a general overview of the process that led to the conception of this project. This chapter includes the following: background information, goals, problem statement, work scope, project significance, project contribution, and summary.

1.1 Introduction

Car parking systems play a vital role in managing the increasing demand for parking spaces in urban areas. As cities continue to grow and vehicle ownership rises, the efficient utilization of parking facilities becomes crucial. In recent years, there has been a pressing need for innovative solutions to enhance the convenience and effectiveness of car parking management. According to statistical data, the number of vehicles on the roads has been steadily increasing, leading to overcrowded parking lots and time-consuming parking procedures.

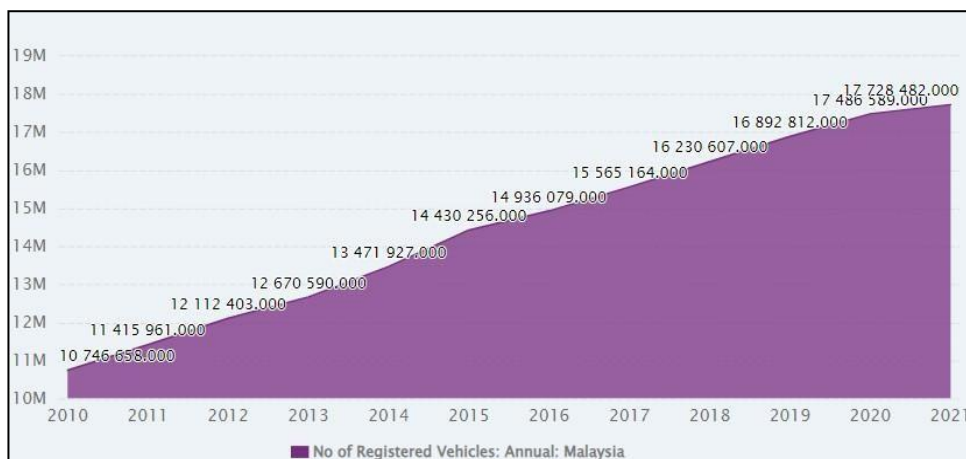


Figure 1.1 : Malaysia's Number of Registered Vehicles from 1986 to 2021[1]