

UNIVERSITI TEKNOLOGI MARA

CAR PARKING SYSTEM USING RFID

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ABSTRACT

This project is a car parking system using RFID that utilizes Arduino and ultrasonic sensors. The objective is to create an efficient, automated, and secure method for managing and controlling vehicle access to parking spaces. To accomplish the objectives, the design and planning phase starts by identifying requirements and selecting appropriate components, including an LCD to inform whether parking slots are full or available. Hardware assembly involves setting up the Arduino board as the central controller, installing RFID modules at entry and exit points for vehicle identification, and placing ultrasonic sensors to monitor parking space occupancy. The inclusion of an LCD enhances user interaction by providing real-time status of parking availability. The system contributes significantly to parking management by automating access and optimizing space utilization, leading to enhanced efficiency and reduced congestion. It increases security through authorized access, lowers operational costs by minimizing the need for manual supervision, and offers environmental benefits by decreasing idle time and emissions.

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

Parking is not only a fundamental aspect of urban transportation infrastructure but also an area ripe for innovation and technological advancements. The conventional parking system, with its reliance on human management and manual searching for available spaces, indeed faces several challenges. Fortunately, modern technology, like Radio-Frequency Identification (RFID), can play a pivotal role in addressing these issues.

By integrating RFID technology into the parking management system, a seamless and efficient experience can be provided to both drivers and security personnel. RFID tags on vehicles can facilitate quick and automated entry and exit processes, reducing the time and effort required from human attendants. This not only streamlines the parking process but also enhances security, as guards can easily identify and verify vehicles in real-time, minimizing the risk of unauthorized access.

Furthermore, the incorporation of sensors in parking lots to monitor and relay information about parking space availability is a game-changer. These sensors can detect vacant spots and communicate this information to drivers through mobile apps or electronic signage, significantly reducing the frustration of searching for a parking