

CHAPTER 1

INTRODUCTION

1.1. Background

The parking lot is a place used by two-wheeled or four-wheeled drivers to park their vehicles for a while or even for some time. And in this modern era, it is rare for parking lots that have a manual system to use parking attendants to assist in coordinating to regulate motorists in parking their vehicles, especially cars. There have been many in big cities and even small towns that use a modern parking monitoring system by using sensors on the bars so that the parking bars open automatically and using cameras for Automatic Number Plate Recognition (ANPR) or capturing vehicle plate numbers and issuing tickets issued. contains code information from plates that have been recorded in the system. However, there are still a lot of complaints from drivers, especially cars, due to the lack of information about whether or not there is a parking slot available at the parking location, which often causes drivers to need more time to find out where the available parking slots are. And drivers also often feel overwhelmed when in the parking location there is no difference for high car parking slots and short car parking slots.

To reduce the existing problems is to create a system that can provide information that will be displayed on the serial monitor clearly such as the number of parking slots available in each existing slot, making a distinction between the location of parking slots for tall and short cars, and directing the car to slots that match the height of the car as well as information on incoming cars to go to the distance of the available and closest slot from the entry location by using the dijkstra algorithm where the algorithm calculates the distance from the parking entrance to each available slot and according to the height of the incoming car.

This This monitoring system contains complete information, starting from the number of slots available in each slot, namely slotA and slotB, where each slot has a different parking height, so that it is more effective and car drivers can feel comfortable with the differentiators of each existing slot and adjusted accordingly. with the height of the car. This system provides information on the height of the incoming car, and if the height of the car is $>185\text{cm}$ then it is a tall car type, the system directs the car to enter slotA and the algorithm provides information on the closest distance to the parking slot on the part of slotA that is still available, as well as if the car has a height of $<185\text{cm}$, the system directs the car to slot B and the algorithm

calculates the distance of the closest slot on the part of slotB that is still available and the servo moves to open the bar so that the car can go to the slot that matches the information. If the condition of all slots is full, the system informs the height of the incoming car and the system informs that the slot is full and the servo is open so that the car can get out of the available exit at the end of the parking lot.

Here are some problem formulations that will provide an overview of how the parking monitoring system is as follows:

1. How to create an IoT-based car parking monitoring system?
2. How does this monitoring system operate?
3. How is the performance of the IOT-based parking car parking monitoring system?

1.2. Scope

The limitations of the monitoring system are as follows:

1. The system is made in the form of a prototype.
2. The system distinguishes the car slot into two based on the height of the car, not the width of the car.
3. The system can display information on the amount of each slot that is still available.
4. The system can display the height information of the incoming car which will be directed to the appropriate slot.
5. The system can calculate the distance of the available and closest parking slot according to the height of the incoming car.

1.3. Objective

The purpose of making this parking monitoring system is to help solve some of the problems that existed in the previous system, so that motorists get complete information on conditions in the existing parking lot.