SMART CAR PARKING LOT
USING AVR MICROCONTROLLER

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Abstract

With the increasing growth of automotive industrial in our world, the demand for the vacant parking is expected to grow rapidly in near future. By using the technology which is available nowadays, smart parking system is needed to reduce the problems faced by the vehicle owner. The design of smart parking system using AVR microcontroller. At the entrance, the customer has to key in their password to make the door at the entrance open up. Next, The sensor start to detect any vacancy spaces. After that, the liquid-crystal display (LCD) start to display any vacancy spaces available. Meanwhile the door at the entrance start to open and let the car to pass by. When the car has find out the spot of parking lot, the sensor which is located at the middle of parking spaces will detect the presence of the car and then data is send directly to the microcontroller as to counter the latest list of parking spaces and LCD will start to display the new vacant spaces.

LCD is used to guide the driver to the vacant space in a short time. With the vacant spaces display on the entrance gate, the customer is able to know is there any vacant space in the building and customer will be guide to the vacant space by the display in the building. In this system, it contained counter system and display system. The counter system is used to count the total vacant space which is available and counting the total vehicle in the building. Meanwhile, Infra-red sensor (IR sensor) is being used to detect either any vacant space was parked by any vehicle and the data will be sending to the main processor in AVR microcontroller for process. The display system is used to display all the data which was sent by the processor in the main entrance of the parking building and specified location to guide the driver to the vacant space. The data will be process by using programming and then the output will be display in the display components. It will be shown by the LCD which will able to drive the consumer to the located vacant space.

In this project, there is two input and two output. Keypad and sensor are act as input while for the result, motor which is located at the entrance gate will start to open up and LCD will display the list of vacant spaces.

TABLE OF CONTENT

Chapter 1

1.1 Introduction

1.1.1Background of study

"Parking is typically the second or third highest revenue source for a city" -by Zia Yusuf, President & CEO, Streetline Inc.

One of the problems created by road traffic is parking. Not only do vehicles require street space to move about, but also do they require space to park where the occupants can be loaded and unloaded. The period over which a car is parked is very great compared with the time it is in motion. The size of average parking space is 14m2 . it is roughly estimated that out of 8760 hours in a year, the car runs on an average for only 400 hours, leaving 8360 hours when it is parked. Every car owner would wish to park the car as close as possible to his destination so as to minimize the wal

Parking problem :

-Congestion

-Accidents

-Obstruction to fi fighting operations

-Effect on environment

Now a day's parking scenario has to be seriously impacted in every areas. Because parking problem has increase day by day at an alarming rate. Since the number of cars on the