

Car Park Navigation and Management System: A Software Solution

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Introduction

The Car Park Management and Navigation System is a system designed to reduce the number of problems associated with parking cars. Aims of this project are to create a systematic method of parking cars, to reduce congestion in parking lots and to prevent the occurrence of indiscriminate parking.

Parking in the urban areas has become increasingly part and parcel of successful business; more and more shoppers get attracted to organized shopping complexes where ample, secure and effectively managed parking is provided. This project has focused on developing software that will effectively manage the parking facilities and manage parking in order to optimize the use of limited parking spaces and increase customer satisfaction. To achieve this objective, a qualitative and quantitative research design was used whereby survey used as the research instruments in data collection.

Methodology

Basically, the entire project was divided in to five main sub modules for the convenience of proper development. They are Number Plate Recognition System, Payment System, Car Detection System with a model car park, Image Capturing System, and the Database.

The system displays free spaces in the car park using green color indicator lamps. Customer entering to the system can select a slot by pressing a push button associated to the particular free slot and the indicator lamp will turned to red color. When the customer is in front of the entrance gate it captures an image of the car number plate and save it in the disk. Saved image processed by the number plate recognition application and gives out the output as ASCII characters and will be saved in the database. After that the customer gets permission to get into the car park.

When customer moved away from the car park particular space is updated automatically switching on the green indicator at the relevant space on the display board. When car is at the exit gate, it again captures the image, processes the number plate and update the database with the exit time. At that time it calls the payment systems where the customer can pay his/her bill. When customer clicks the 'Show My Bill', it shows the customer bill and asks to select a payment method. Customer can press a button and select a payment method he/she likes. Customer has options for three payment methods namely, credit card, SMS and cash. After the withdrawal process GUI displays a message which shows that the customer can exit.

Results and discussion

The parking management system is suited for the current Sri Lankan society with the technology and usage. The prototype would help the parking authorities as well as the customers of the car park in the following ways-

- Reduction in time as well as fuel spent by customers to search for parking spaces.

- Reduction in congestion caused due to cars driving around and looking for parking spaces.
- Facility to pay in automatic machines via SMS, Credit Card, which would save customers from looking for change to buy tickets at the ticketing machines.

References

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