RFID Based Parking System Using Android

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Abstract - In this project we discuss about the parking system of vehicles using android and based on rfid..People in the metro cities encounter a lot of problem due for finding a parking spot. It's a controlled system which keeps on updating itself frequently and shows the real time info to the users .It is basically designed for the regulation of parking spots in offices,parks,cinemas,municipal parking spots and various spots within the city limits.The rfid tag installed contains the unique number for every vehicle and with the help of this id one can track and find the nearest parking location.

Keywords: rfid tag,,controlled system

1. Introduction

In recent decades we have seen exponential growth in the number of vehicles both personal and private. So it is a headache for every car owner to find a parking space. So what this system does is that there is a rfid tag which will be linked with android application so what a user does is opens up his app and start searching for nearby spots the main server finds the nearest spot and sends it back to the user along with direction. This save users time and money

2. Hardware Specification

RFID Module

RFID reader is widely used commercially and among those EM-18 is the first choice of many industry leaders,it reads 125 KHz tags.Some of the most eye gazing features are low cost,very convenient to use by any individual,energy efficient.It supports TTL serial & Wiegand 26 protocols ,when it interacts with microcontroller it uses anyone of these two.

Arduino

One of the most popular and widely used microcontroller is Arduino Uno,it is based on the AT328P.It contains 14 digital input and output pins,it has a usb connection which

can be used to connect it with the computer and its also got a reset button,thus making it allrounder for the use and convenience.While operating it needs AC to DC power adapter or battery

Uno board was the first introduction in Arduino boards which supported usb connection and is reference to all the future boards.

3. Need of RFID based parking system

In present it is a brainstorming task to find a praking spot which may many time take a lot of time and other following reasons:-
    a.   Takes lot of time
    b.   Lot of fuel is consumed.
    c.   Some nearby parking spots may be left vacant.
    d.   A lot of manual labour required.

4. Overview of project

Main component of the project are following:

4.1 Registration

The user has to firstly register himself with the application. The customer is asked for this username, password,email

id,contact details and all the sensitive details are encrypted to protect the info.

4.2 Login

The customer logins into his account using his credentials.Once login can further use the services.

4.3 Book now

Once logged in user can go to book now and start the process.Phones, Bluetooth gets connected with the device which uses the rfid tag.

4.4 Transaction

Once used the service the amount will be self deducted from the card according to the duration used.
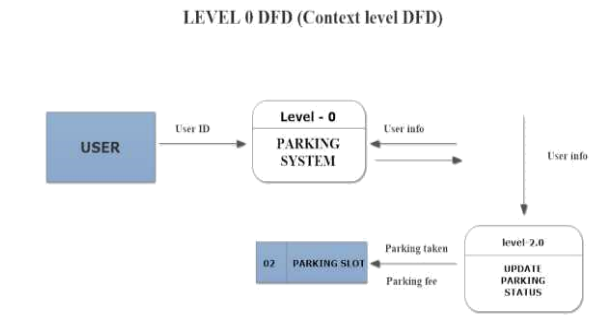
5. Architecture

Fig5.1(level 0 DFD)

User uses his unique id to login,his location details are used by the main system to send him the nearest preferred location.

6. Significance of study

Still today people are stuck in manual use for finding parking spot which may consume a lot of time, energy and human power. With this study we are eradicating the unnecessary elements involved in managing parking system.People can hassale free find the spots nearest to them and find the shortest route to it..It is estimated that India has very few regulated parking spaces that too are managed by humans and can be only found in top tier 1 cities which shows how the rest 90% of India works.
Some benefits which we may see in the near future:
*Security and control

*Facilitated collaboration
*Lower parking cost
*Reduce in vehicular traffic near parking spots
*Better management of vehicle
*Increased efficiency and management
*Better control on illegal vehicle by administration

7. Conclusion

As the time passes by the demand and need for technology is increasing and spreading rapidly.People are using technology right from buying groceries to book an airplane ticket.It has engulfed mind and heart of individual as use of technology is making life of people easy and hassle free ,allowing the to use their energy or spare time in some other activity.So,why not use technology to find your vehicle a perfect parking space and pay as well through it.It has three fold advantages one for user and other for parking dealer to hold the operation smoothly and last for administration in reducing traffic and illegal parking.

This technology once implemented will be boon for people going out regularly and for the tourists visiting from far away.Many times its seen that hill stations get overcrowded during summers and due to which administration bans the entry of any vehicle in the city area.Apart from this it will increase digital transactions and thus more deposit in tax.So this is win win situation for all the sectors.Initially implementation would take some work but will be a lot rewarding later.

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