

RFID Parking System Using Circular Range Query

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Abstract- The spontaneous growth of wireless communication networks and mobile devices has motivated an intense research in mobile data applications. With the help of this type of modern application, the current system of parking system will be improved and well manageable and also provide advanced version of parking system. This system makes the work easier for both the ends to keep a track as well as pay the amount in a very efficient way. And by the system of in range query we will be able to track moving objects, and we will also get to know about the vacant parking slot in a limited distance. The user can go cashless and can also see the record of their previous parking. The user can keep the records of its previous activities. It is not too costly. This project helps to reduce the manual work, it also saves time, this type of modern parking helps the reduction in parking area/place as we can go through floor and underground system parking. The entry and exit of vehicle is monitored under a system, and a card can be used for the deduction of money. By using circular query processing, we will also set a limit by which people can find nearby parking slot as per their convenience. This project will help us to go through advanced automation system and uplift the modern world.

INTRODUCTION

The goal of this project is to create a RFID based automated parking system. This help to get rid from the current scenario of messed up parking system. In this modern era, when everything is going to be automated, then we are also creating a modern parking system. Through this, we can able to reduce the cost and management of current operations of manual parking system like entry and exit of vehicle, vacant parking slot, calculation of timing of parking, price, bill payment and many more. We are using RFID in this project.

RFID

RFID (Radio-frequency identification) is an automatic identification method wherein the data stored on RFID tags or transponders is remotely

retrieved. These system ease parking systems of malls and buildings and many more places where such a big space of parking needed. A RFID is made up from an antenna/coil, a transponder and a transceiver. RFID is of many types and they are divided on different categories on the basis of their frequency ranges are as follows:-

- Low- frequency RFID kits (30-500kHz)
- Mid-frequency RFID kits (900kHz-1500MHz)
- High-frequency RFID kits (2.4-2.5GHz).

RFID antenna

By the help of the RFID antenna, we will able to reworking of tags receive by the emitted radio signals and read or write data from it. Its working is in between tag and transceiver because it controls the system data communication. The antenna emits electromagnetic field which has to be present when several tags are in continuity. With the range of 2 cm to a little more around 30 cm, the reader emits radio waves, which depend upon its power output and also on the frequency of radio used. The reader decodes the encoded data in the silicon chip and for the processing of data, it communicates with the host computer for the processing system.

Tags (transponders)

For the identification of the information about the antenna and all other devices (here antenna is used for the transmit of the data wirelessly) it consists of microchip. There is a difference between RFID tag and counterparts of barcode is that tags have higher data capacity. It makes easy for us to find various information like name of the owner, tag number, weight, history and many more. The RFID tag can be put on an individual item for the identifying and to fixing of assets. There are different types of tags with varying capabilities:

- 1 Read-only tag
- 2 Write-once tag
- 3 Full read –write tags

We are also using circular query processing in this. This is the system, with the help of it, when we need to track any moving object or find any place within the limited range. Let's take an example; we need to find parking spots within 5 km. Then we will get to know about by the using of this theory. This idea is mainly based or focused upon location based service (LBS). There are some characteristics of this query, are as follows:-

- 1 This can help us to locate the objects in moving state also.
- 2 This theory involves a location parameter, which is changing continuously with the movement of object.
- 3 This system gives updated information and maintain its updates with time to time.
- 4 This is also based on client-server relationship.

LITERATURE SURVEY

EXISTING SYSTEM

The existing offline system which consist a lot of manual work which takes a lot of time and physical effort. There need a lot of employees with the needs of the skills, Users need to stand in a queue if they want to know the details of parking charges, details, time slots. It takes a lot of time and effort to collect information about vehicles. Proper information is not available to the users. Many times in festive season consumer forget their parking slots and cannot be known whether the slot is available or not. They not need to carry cash as they can go cashless with the upcoming system. In the existing system, there are manual works which takes lots of time, many people required for this system. They have to make a charted plan in a systematic .way. There are many employees need for this, sometimes it is very difficult to find parking spots, people will also confused about their location, if user need any information, they have to stand in the queue, for also the payment sometimes many issues will generate, so it is very messed up system which requires lots of time and also if issued token will be lost, it creates a lot of problems for the user and admin. In this system the consumer cannot see its all transaction and history. There are also issues in fare, timing slots etc.

Drawbacks of the Existing System

- 1 In existing system, lots of employees will be required for manual work.
- 2 It requires lots of time and very messed up system.
- 3 Consumer need to be ready with cash.
- 4 In time during festive season, there will be a lot of problems for the parking space.
- 5 There is advanced booking and live tracking system

CIRCULAR QUERY PROCESSING

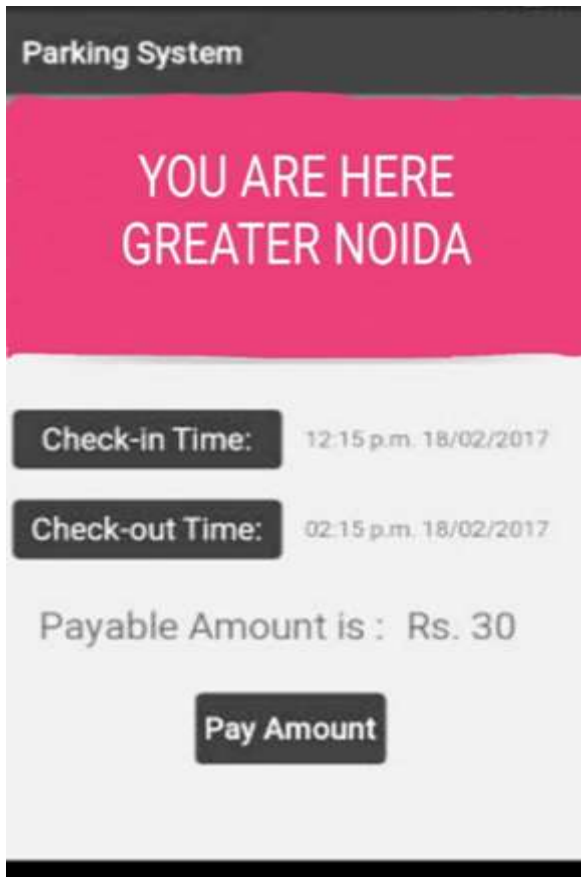
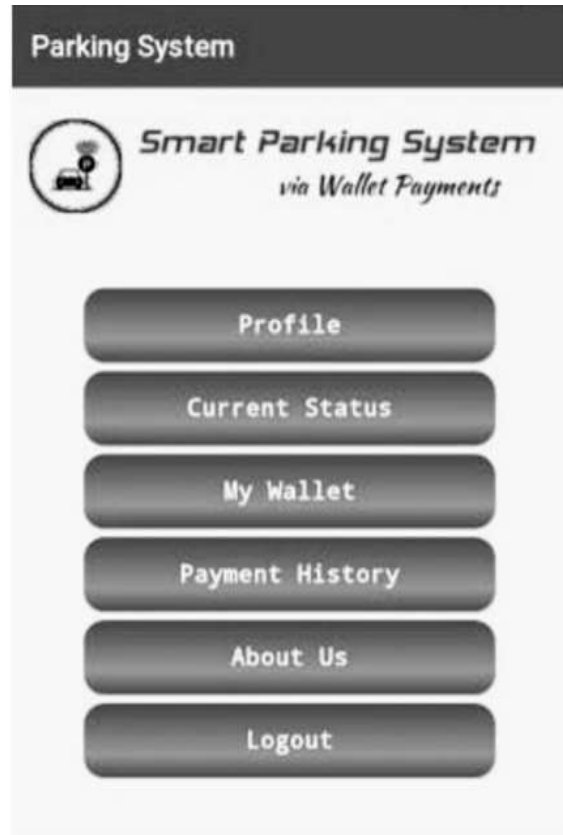
The idea of in range query for moving object was came to know around 1990 when the deployment of large mobile cellular networks. It helps us to find us the nearest service around us within given range. For example queries like "find best restaurants near me" or "find parking spot within 5 km range. And now a days, these type of applications are available in mobiles also, many types of databases are involved in this. Some features of this circular range query are:-

- With the help of this, costumers get to know about the nearby parking slots.
- Costumers get to know about the nearby parking place within given range.
- The server computes the safe region using guard objects and results and returns back to the client.
- Advance booking can also be done within this.

METHODOLOGY ADOPTED

In the proposed system, the information about vehicle can be found in an easy and simple way which does not take any time or effort. This system provides an easy way to find parking spot or vacant space within less time. Users can search details of the parking time, money charged and can pay through his wallet and keep records with them. This system enables users to communicate with admin directly which avoids miscommunication. The system calculates the entry and exit time of a vehicle and by this it calculates the fare and it will be directly pay through the consumer wallet by the RFID app.

RESULT



CONCLUSION

At present the system of RFID parking system is in the developing stage and it is working currently in the limited area with the limited facilities, sensors and in a limited range. This system can be easily changeable according to the need and it can be monitored for the vast parking space and more slots. Thus it scale can be easily adjusted to the needs of the specific customer. Also it can be modified to add more features to suit specific needs or to adjust its cost-benefit ratio. Many projects are currently ongoing for the advancement of this technology and to upgrade it from prototype to the more advanced and finished product. All these aspects are currently being considered in detail to decide future course of the system. This project helps the consumer to save time and to get rid from the messed up parking system. By the use of online application they can locate the parking space in the circular region, and they can also pay money by their wallet.

Adaptive Project Framework

The scope of the project is variable. And the time and cost should be constant for the whole project. It is also inferred from the project that the scope of the project during the execution can be adjusted in order to get the maximum business value from the project. There is increase in productivity, saves time, accurate timing details are measured with the help of modules. Information Technology Infrastructure Library (ITIL) This method is a collection of best system in project management. ITIL covers a vast aspect of project management which starts from the organizational management level.

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