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RFID PARKING SYSTEM USING RANGE CIRCULAR QUERY

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The automated growth of wireless networks and mobile devices has prompted extensive research into mobile data applications. The project offers a new parking ticket marking system that makes it easier to mark a car using an RFID tracker to identify the user and the amount will be deducted directly from his wallet. This system makes the job easier for both sides to keep track and pay the price effectively. A geographical representation may include time information as it is not related to the item / person moving, and may be presented in various ways. The user can navigate well and can see their previous parking record. The user can keep records of his or her previous activities. Not too expensive. This project helps reduce manual labor, and saves time, and this modern type of parking helps minimize parking / space as we can walk up and down the parking lot. Entry and exit of the vehicle is considered under the scheme, and the card can be used for cash discount. By using a circular query processing, we will also set a limit where people can find parking nearby as they please. This project will help us navigate through the developed system and uplift the modern world.

Keywords: RFID, Automation, Parking-Lot

INTRODUCTION

Today's global security of technology is one of the biggest problems various forms of security are used with the help of technology.

RFID

RFID is a technology that helps identify animate or inanimate radio waves. RFID is one of the largest technologies that enables wireless data transmission. Although known for a long time, it has not been used very often in the industry. Because it was too expensive and there was no resistance between the production companies. It has taken a long time to be widely used. The purposes of using RFID technology are promoted in the following ways: by using RFID technology, the load achieved manually will be reduced [1]. RFID technology is universal, efficient and effective [2]. RFID technology enhances the company's efficiency and provides benefits to both companies and customer intelligence [3]. RFID technology is more secure compared to other networks [4]. RFID labels play an important role as inventory tracking technology [5].
RFID (Radio-frequency identification) is an automatic detection method where data stored on RFID tags or transponders is remotely accessed. An RFID tag is a tool that can be attached to or attached to

a product, animal or person for identification and tracking using radio waves. Some tags can be read from a few meters away, beyond the line of sight of the reader. These plans make it easy to park the buildings of large buildings and buildings and many other areas where much parking is needed. RFID is built from an antenna / coil, transponder and transceiver. RFID is of many types and is divided into various categories on the basis of their limitations as follows: -

- Very low RFID kits (30-500kHz)
- Medium RFID kits (900kHz-1500MHz)
- High-quality RFID kits (2.4-2.5GHz).

RFID Antenna

The antenna emits radio signals to activate the tag and read / write data to / from it. It's the line between the tag and the transceiver, which controls the data acquisition of the system and communication. The electromagnetic field produced by the antenna can always be present when multiple tags are always expected. If unwanted input is not required, the sensor device can be activated. The antenna is usually inserted with a transceiver and decoder to act as a read (detector), which can be configured either as a handheld gaming device or as an object-oriented device. The reader emits radio waves in the range of 2.5 cm to 30 meters or more, depending on its output power and the frequency of the radio used. When the RFID tag exceeds the electronic limit, it receives a signal of readmission. The reader determines the data entered in the integrated tag circuit (silicon chip) and connects it to a computer designed to work.

Tags (Transponders)

It contains a microchip containing information about the item and an antenna that transmits this data wirelessly to the reader. Most importantly, the chip contains the identifier used or the license number that identifies the item (such as bar codes). The main difference, however, is that RFID tags have higher data capacity than their bar code counterparts. This extends the options for the type of information that can be tagged; may include the manufacturer's name, batch or bulk number, weight, identity, destination, and history (such as the temperature range of the object exposed). In fact, an unlimited list of other types of information can be stored in RFID tags, depending on the application requirements.

The RFID tag can be applied to individual objects, cases or lungs for identification purposes, as well as fixed assets such as trailers, containers and totes. There are different types of tags with different capabilities:

- Read-only tag
- Write-once tag
- Full read –write tags

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We also use it to process questions in a circle for this. This is a program, with its help, where we need to track any moving object or find any location within a specified distance. Let's take an example; we need to find parking within 5 kilometers. After that we will be able to apply this idea. This idea is largely based on or focused on location-based service (LBS). There are several aspects to this question, namely: -

- This can help us find the best things to go with.
- This view involves a spatial parameter, which changes continuously with the motion of an object.
- This system provides new information and keeps its updates periodically.
- This is also based on the client relationship.

Existing System

An offline program that contains a lot of physical work that requires a lot of time and physical effort. There is a huge demand for workers with skills requirements, Users need to stand in line if they want to know the details of parking costs, details, time savings. It takes a lot of time and effort to gather information about cars. Relevant information is not available to users. Many times during the holidays consumers forget their parking lots and it will not be known whether the slot is available or not. They do not have to carry cash as they may be in line with the upcoming program. In the current system, there are more time-consuming crafts, more people are needed for the program. They have to create a charted system in an organized way. There is a need for many of these, sometimes it is very difficult to find parking, people will also be confused about their location, if the user needs any information, it will have to stand in line, because also the payment sometimes has a lot of problems, so a poorly executed system that requires a lot of time and if a token is issued. will be lost, causing many problems for the user and the administrator. In this program buyers can see all transactions and history. There are also issues with payment, time tolerance etc.

Obstacles to Existing Order

- In existing programs, more staff will be needed for manual labor.
- It requires a lot of time and a lot of undamaged programming.

- The buyer needs to be ready for cash.
- During the holidays, there will be many parking problems.
- There is an advanced booking and live tracking system

Circular question processing

The idea of questioning mobile objects originated in the early 1990s when the deployment of major cellular networks began. Questions such as "find petrol stations near Alice while driving" or "find all taxi cabins within 1 km distance from Alice" were identified. A decade later, advanced devices such as digital personal assistants were becoming popular, and CSQs began to attract more attention in the space data community.

- With the help of this, costumers know about nearby parking lots.
- Costumers know about nearby parking within a given range.
- The server compares the secure region using monitoring and outputs and returns to the client.
- Advance reservations can be made within this.

Proposed Plan

In the proposed system, information about the vehicle can be obtained in a simple and easy way that does not take time or effort. This system provides an easy way to find a parking space or vacant space within a short space of time. Users can search for parking information, fees and can pay through their wallet and keep records with them. This program enables users to communicate directly with the host which avoids inappropriate communication. The system calculates the vehicle's entry and exit time and in this case calculates the fare and will be paid directly through the buyer's fund through the RFID application.

MODULES

User's app

The user needs to register with the application by entering all the details. The user can get login by enter valid username and password. They can search information of the parking and can add money, check history and current parking plots, user can also change password if they feel uncomfortable.

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- **Login**: The user has to login using his RFID id and password and he is remembered the system until he logs out.
- **Add Money**: The user is allowed to add money into his wallet using his Debit or Credit Card.
- **History**: The user is allowed to see his previous Parking history.
- **Current Parking**: This module shows the user if he has parked his vehicle in any parking plots and shows the time and amount that he will have to pay.
- **Change Password**: The user is allowed to change his password.
- **Booking**: Advance booking can also be done.

RFID/ ADMIN app

The admin needs to register first with the app by entering all the details. Admin can get login by enter valid username and password. They can add parking slots, scan the RFID card at entry and exit time, and view the transaction of every vehicle.

- **Login:** The Admin has to login into the system keep the internal data secure.
- **Add Parking Slots:** The Admin is responsible to add parking slots.
- **Scan**: The App is mostly on this model listening to the RFID cards and on both entry and exit the data is sent to the parking app and it does it works.
- **Transactions:** The Admin can view all the vehicles which were parked and the ones which are still parke

Implementation and Architecture Diagram

Block Diagram

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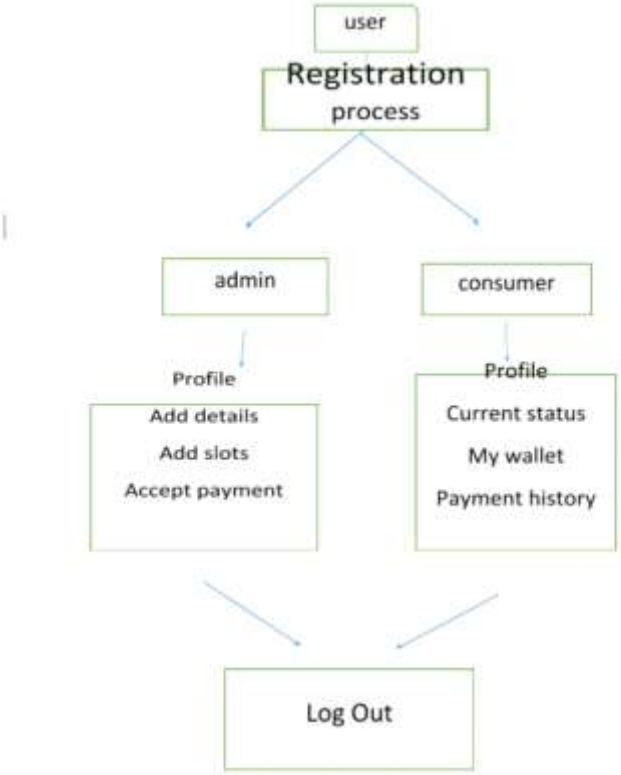

Source Code

```
import serial
import MySQLdb
 import time
 db = MySQLdb.connect(host='localhost'
, user='root',passwd='',db='details')
 ser = serial.Serial ( port = 'COM10', baudrate = '9600')
 while True:
 out = ser.read(12)
 print out
rf_id = out
  cur = db.cursor()
  s = cur.execute("select * from transactiondetails where
 rfid = %s and status = %s",(rf_id,0))
  Count = cur. rowcount
   print count     if count == 1:
    Row = cur. fetch one ()
    in_time = row[1]
    out_time = time.time()
    cal_time = (out_time-in_time)
    c= (cal_time/60)
    if c > 10 :
   cal_amount = int((c/10) * 10)
```

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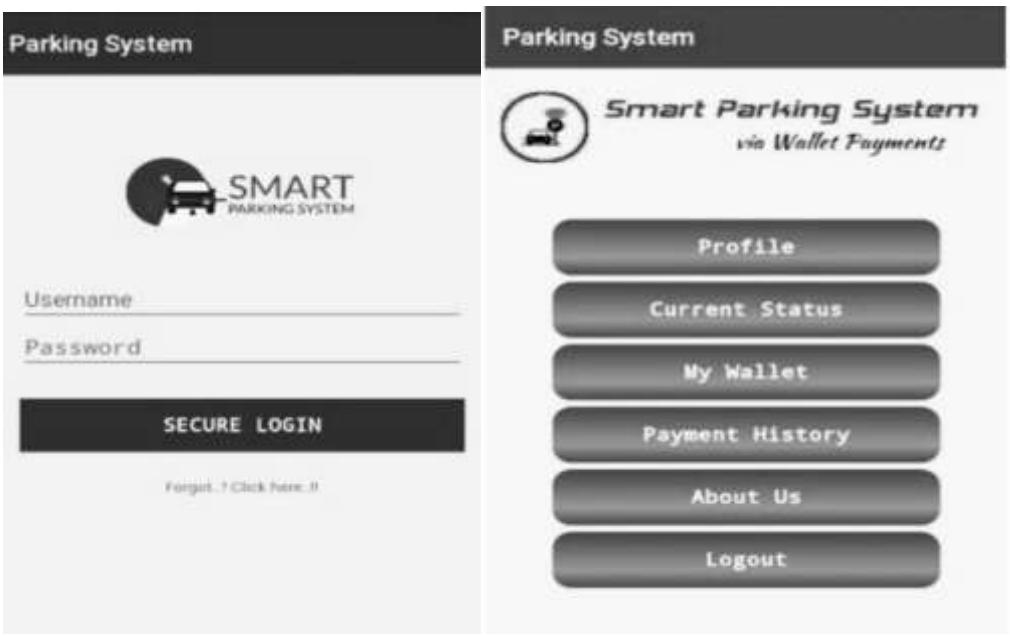
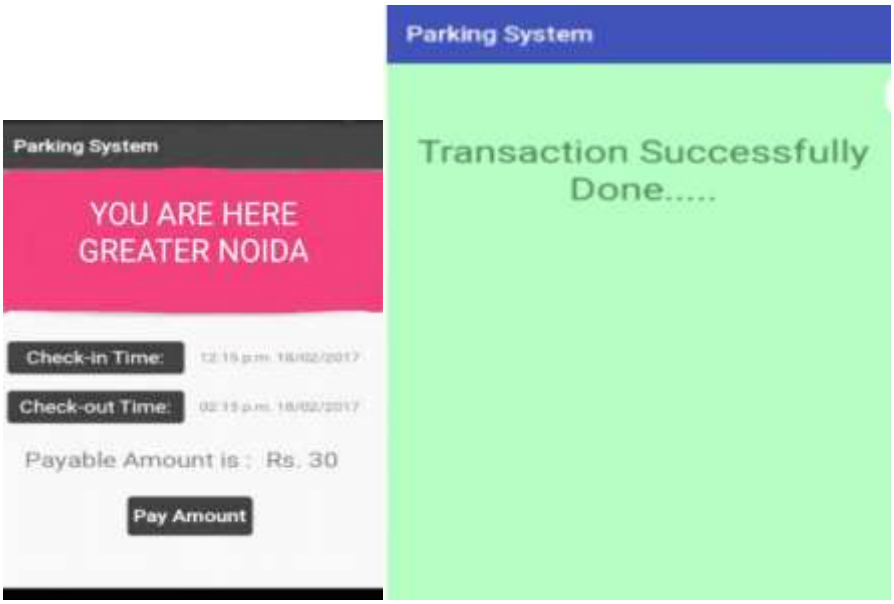
```
 else :
cal_amount = 10
 cur.execute("update transactiondetails set outtime = %s,
amount = %s, totaltime = %s  where
rfid= %s",(out_time,cal_amount,c,out))
  db.commit()
  print in_time
  print out_time
   print c
else :
cur.execute("insert into
transactiondetails(rfid,intime,amount,status,place,totaltime)
values(%s,%s,%s,%s,%s,%s)",
(rfid,time.time(),0,0,'Greater''Noida',0))
   db.commit()
```

Result





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