



RFID BASED CAR PARKING SYSTEM USING ANDROID

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ABSTRACT

RFID vehicle parking and payment system using android. The manual work of parking and payment is reduced making it very easy to tag a vehicle by using RFID tracker to identify the user details and deduct amount from his/her wallet. This System makes the work easier such as booking the slot, paying the amount. Whenever the car enters the parking base, the user information in the RFID tag is read by the RFID reader and the starting time/entering time of the user details is sent to the admin. When the user checks out the car, the system automatically detects the ending/leaving time, generates payment status and the amount in his wallet will be deducted. So, there is no need to pay the amount for car parking manually.

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INTRODUCTION

Our System of RFID Parking and payment is very easy to tag a vehicle by using RFID tags in order to identify the user and deduct amount from his wallet. This System uses an Android Applications. The Front End uses Android Studio for the user and Back end as a SQL Server. When the car enters the parking base, RFID scanner will scans the RFID tag that is attached to the user's vehicle and the starting time and the user details is sent to the server and then the details can be viewed by the user and also by admin via app. When the user takes out the car, the system automatically generates payment status and if the wallet has the required amount in his application, then required money will be deducted from user's mobile wallet. If the user has insufficient amount, then he can add via wallet and can pay. The System analyses the start time and the end time and calculates the fare and that will display the total amount to the user's app. The user can able to see their transaction history and also the parking website has all the details of each vehicle entered to parking spots and also admin can see the user's transactions done every day.

Existing System: This RFID Vehicle Parking and Payments will remove the use of manual labour and it also eliminating any kind of manual error.

Entry-point and exit-point of the parking-lots will be under control with RFID readers, RFID tags and barriers. Entry-point and exit-point will be handled in a fast manner without having to stop the cars so that traffic jam problem will be avoided during these processes. Customers will not have to stop at the gate and pay amount. They can pay the amount via wallet in his application and they can also see their payment history. This application has a recharge module where users can able to add the amount in their wallet anytime. Vehicle owners will not have to make any payments at each Entry-point thus a faster traffic flow will be possible. In existing system, users cannot be able to book the parking slots via this mobile app and they also have to search the parking areas available near to their destination on their own which is a very time consuming task. This system is obviously not convenient and cannot be used extensively.

Proposed System: The system we are proposing here is a RFID Vehicle Parking and Payments Using Android that removes the difficulties which used to occur in the earlier parking systems implemented. The parking systems that is implemented earlier does not had the feature of showing the number of available parking areas and it also does not had the feature of booking the parking slots via the mobile app. All these difficulties will be removed in this proposed system. This

system will shows the number of parking areas available near to users destination. It also shows them the number of free slots and already booked slots in each parking area. Users can able to book the parking slots from anywhere and at anytime and they can also cancel their booking anytime. When the user selects the parking area, the direction to reach that parking area will be shown to the them thus saves users time. When the vehicle reaches the parking base, the RFID scanner will automatically scans the RFID tag that is attached to the vehicle and retrieve the users information present in the RFID tag and send that information to the server. After the vehicle gets authenticated, it will be allowed to pass through the entrance gates. When the vehicle reaches the exit gates, based upon the duration time the required amount will be deducted from users wallet.

Source Code

```

RFID reading and database connection 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) 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,'Central,
Vizag',0))
db.commit()
    
```

Outputs



Fig. 1. Admin Login Page

Tag ID	User ID	In-time	Out-time	Amount Payable	Status
1212	Central/Vizag	07:46 AM, 17-03-2017	08:40 AM, 20-03-2017	10	Pending
123	Central/Vizag	06:57 AM, 19-05-1984	You are in	-	Pending
132	Central/Vizag	04:46 AM, 19-05-1984	You are in	-	Pending
122	Central/Vizag	06:55 AM, 16-02-2017	You are in	-	Pending
146	Central/Vizag	04:11 AM, 19-01-2008	You are in	-	Pending
180089F3B75	Central/Vizag	03:46 AM, 17-03-2017	You are in	-	Pending

Fig. 2. Current User List in Car Parking Area

Tag ID	User ID	In-time	Out-time	Amount Paid	Total Time	Status
20001C9FC9AA	Krishna	07:15 PM, 29-03-2017	08:48 AM, 30-03-2017	Rs. 20/-	85mins	Paid
180089F3B75	Raju	07:28 PM, 29-03-2017	08:47 AM, 30-03-2017	Rs. 20/-	80mins	Paid
180089F3B75	Raju	07:46 PM, 29-03-2017	08:47 AM, 30-03-2017	Rs. 10/-	40mins	Paid
20001C9FC9AA	Krishna	07:47 PM, 29-03-2017	08:48 AM, 30-03-2017	Rs. 10/-	15mins	Paid
20001C9FC9AA	Krishna	07:47 PM, 29-03-2017	08:48 AM, 30-03-2017	Rs. 20/-	65mins	Paid
180089F3B75	Raju	07:48 PM, 29-03-2017	08:47 AM, 30-03-2017	Rs. 20/-	80mins	Paid
20001C9FC9AA	Krishna	07:48 PM, 29-03-2017	08:48 AM, 30-03-2017	Rs. 20/-	70mins	Paid
20001C9FC9AA	Krishna	07:49 PM, 29-03-2017	08:48 AM, 30-03-2017	Rs. 10/-	35mins	Paid
20001C9FC9AA	Krishna	07:50 PM, 29-03-2017	08:48 AM, 30-03-2017	Rs. 10/-	45mins	Paid

Fig. 3. Payment History of User



Fig. 4. User Login Page



Fig. 5. Home Page of User

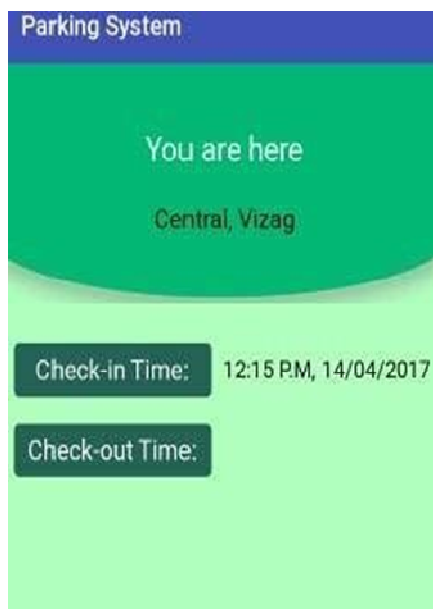


Fig. 6. User Check-in Page



Fig. 7. User Check-out Page



Fig. 8. Transaction Status of User

Conclusion

Everyone has many problems in parking vehicles, like having no change to pay and also carrying ticket until they go out. The parking problem is quite acute in places of entertainment such as theatres and shopping malls. We touched a small scenario of parking problem in this paper. The plan helps both the visitors and administrators. It helps the visitors in paying amount through application wallet, and also they do not want to carry the tickets as we designed an application to know the current status. It also helps the administrators to no need of checking their ticket as they having a website to know all the users information.

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