

RFID Based Parking and Payment System Using Android

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Abstract— we propose a RFID vehicle parking and payment system using android where 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 wallet. This System makes the work easier on both the ends to keep a track as well as pay the amount in a very efficient way. When the car enters the parking base, the user have to register the RFID tag for unique identification and the user has to scan the card and the starting time and the user details is sent to the admin and when the user check out the car, the system automatically generates payment status and the amount in his wallet will be deducted.

Keywords— RFID

I.INTRODUCTION

Our System of RFID Parking and payment is very easy to tag a vehicle by using RFID tags[1] to identify the user and deduct amount from his wallet This System uses an Android Applications i.e. for the user.

The Front End uses Android Studio for the user and a website using HTML, PHP for the admin and Back end as a SQL Server .When the car enters the parking base, the user has to scan the card and the starting time and the user details is sent to the server and then the details can be viewed by the user via app and also admin. When the user takes out the car he scans the card again and if his wallet has the required amount in his application then the user can directly pay the amount. 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 keep a track of his transaction and likewise the parking website has all the details regarding each vehicle entered to parking spots.And also admin can see the user's transactions done every day.

II.EXISTING SYSTEM

The current system uses manually done vehicle parking management where the person is appointed at the gate who notes the car entry and exit times. Based on the time duration it is parked the amount will be asked to the customer to pay. As this is a manual process there may be chance of human error. To access any information about vehicle or owner we have to go through the registers in which the required information is written. This clearly is a time consuming task.

When the car enters the parking lot, the person enters all these details in a register. This system is obviously not convenient and cannot be used extensively

III.PROPOSED SYSTEM

The system we are proposing here is a RFID Vehicle Parking and Payments Using Android that removes the use of manual labour thus eliminating any kind of manual error which used to occur in the earlier parking systems implemented.

Entry-point and exit-point of the parking-lots will be under control with RFID readers, labels and barriers. Personnel costs will be reduced considerably using this technology. 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. Because we have added recharge module therefore user has to register into the system and he can see balance on his wallet. When the user takes out the car he scans the card again and if his wallet has the required amount in his application then the user can directly pay the amount. If the user has insufficient amount, then he can add via Pay-tm wallet and can pay.It will be avoided ticket-jamming problems for the ticket processing machines as well. Vehicle owners will not have to make any payments at each Entry-point thus a faster traffic flow will be possible.

IV.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)
```

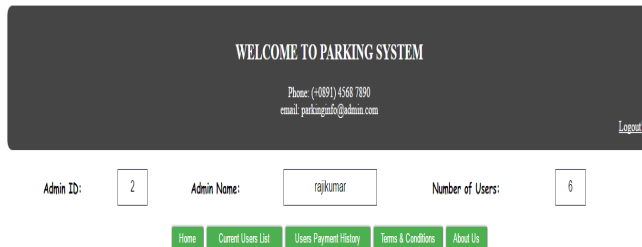
```

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,%s)",
(rfid,time.time(),0,0,'Central, Vizag',0))
db.commit()
    
```

VI.OUTPUTS

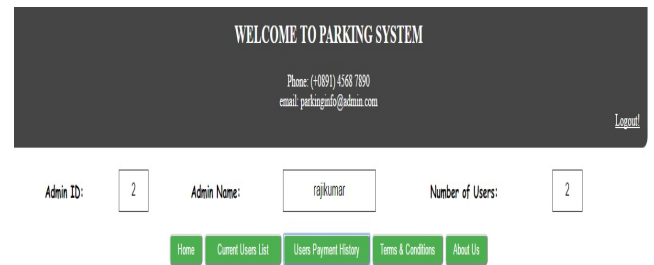


Fig 1. Admin Login



Tag ID	User ID	In-time	Out-time	Amount Payable	Status
1212	Central Vizag	07:44 AM, 27-03-2017	08:40 AM, 27-03-2017	10	Pending
123	Central, Vizag	06:57 AM, 29-05-1984	You are in	-	Pending
232	Central, Vizag	04:43 AM, 29-05-1984	You are in	-	Pending
222	Central, Vizag	06:55 AM, 16-02-2017	You are in	-	Pending
646	Central, Vizag	04:14 AM, 19-01-2038	You are in	-	Pending
1800893F5BF5	Central, Vizag	03:46 AM, 27-03-2017	You are in	-	Pending

Fig2.Current User List in Parking Area



Tag ID	User ID	In-time	Out-time	Amount Paid	Total Time	Status
20002C9FC9AA	Krishna	07:15 PM, 29-03-2017	06:48 AM, 30-03-2017	Rs. 20/-	65 mins	Paid
1800893F5BF5	Raju	07:28 PM, 29-03-2017	06:47 AM, 30-03-2017	Rs. 20/-	80 mins	Paid
1800893F5BF5	Raju	07:46 PM, 29-03-2017	06:47 AM, 30-03-2017	Rs. 10/-	40 mins	Paid
20002C9FC9AA	Krishna	07:47 PM, 29-03-2017	06:48 AM, 30-03-2017	Rs. 10/-	15 mins	Paid
20002C9FC9AA	Krishna	07:47 PM, 29-03-2017	06:48 AM, 30-03-2017	Rs. 20/-	65 mins	Paid
1800893F5BF5	Raju	07:48 PM, 29-03-2017	06:47 AM, 30-03-2017	Rs. 20/-	90 mins	Paid
20002C9FC9AA	Krishna	07:48 PM, 29-03-2017	06:48 AM, 30-03-2017	Rs. 20/-	70 mins	Paid
20002C9FC9AA	Krishna	07:49 PM, 29-03-2017	06:48 AM, 30-03-2017	Rs. 10/-	35 mins	Paid
20002C9FC9AA	Krishna	07:50 PM, 29-03-2017	06:48 AM, 30-03-2017	Rs. 10/-	45 mins	Paid

Fig3.User Payment History

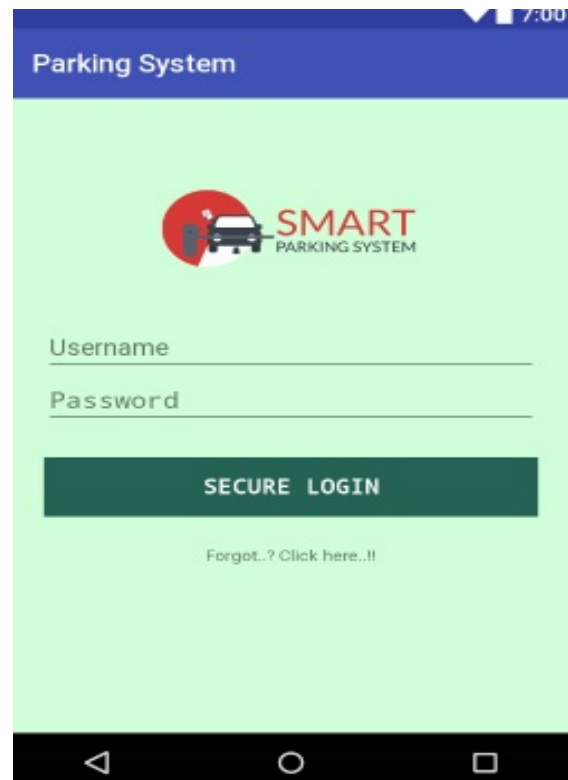


Fig4. User Login



Fig5.User Home Page



Fig7.User Check-out

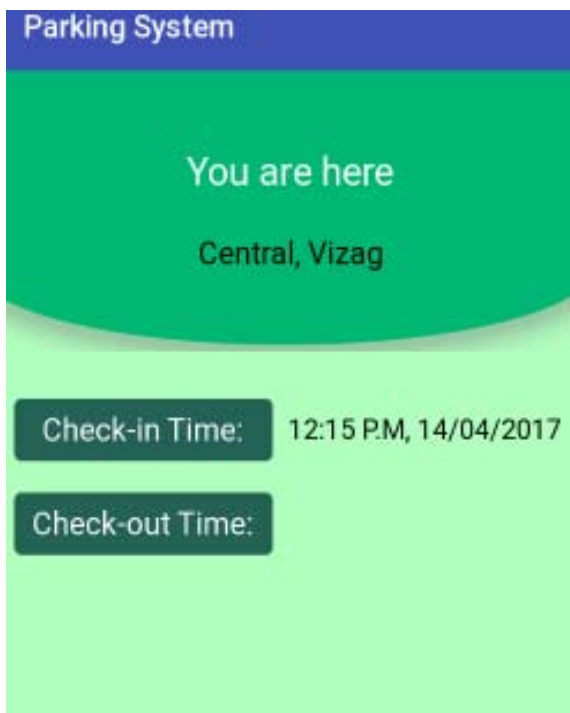


Fig6.User Check-in

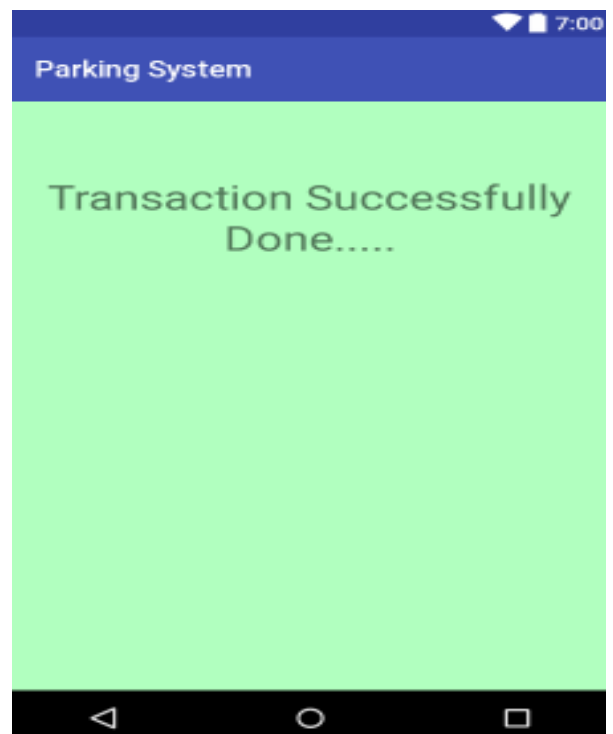


Fig8.Transaction Status

VII.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.

REFERENCES

- [1] <https://www.hidglobal.com/products/rfid-tags>
- [2] <http://www.engpaper.com/traffic-control%20a0system-using%20rfid.htm>
- [3] RFID Technology Principles, Advantages, Limitations & Its Applications by Mandeep Kaur, Manjeet Sandhu, Neeraj Mohan and Parvinder S. Sandhu, International Journal of Computer and Electrical Engineering, Vol.3, No.1, February, 2011
- [4] <http://www.ijfrse.org/>