Smart Renting of Cars Based on IoT

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Abstract— Tour for User as the name goes is an advance yet highly promising system helping a tourist or any user to get accurate and best data in no time. This Application acts as a Tour Guide giving out outputs to the user for Nearest Available Car like AC and NON AC. The System is highly reliable as it uses Google map API which are very accurate for User Tracking and same goes for the User to travel his Ride. Owner will Display his car whenever he didn't required to use as well as Track his car using GPS Tracking System and check the speed .The User has options to select for the places he wants to visit for instance with all Details of Car; the system will ask whether he is searching for the current locality or some other place. The System is very flexible in changing places and makes use of Google maps to display places if the user wishes to within particular distance mentioned by the user considering a fence of geo locations. We are going to implement smart car monitoring system for user and owner .In this paper owner will display his car on our application with all details and he will track his car by using GPS Tracking system. In our application user role is he will get a nearest available car. If parking slot are empty then it will park the Auto car.

Keywords: Smart Car, GPS, GSM Module

I. INTRODUCTION

Now a days cab plays a very crucial role in bridging the gap between public transportation and private transportation. There are many public transports like cabs, trains, rickshaw etc. but cab are very much convenient to user at the time they want.

Very firstly there are many drawbacks in zoom car like users cannot afford it because of its high prices as compare to them OLA and UBER are bit cheaper but there are again some of the drawbacks which we are overcoming by adding some of the features like tracking, control and see status of AC and ignition and billing. Worldwide, taxis fulfil the same goal but differ significantly in its style of booking, i.e., manual, automatic, or via brokers. This has gradually evolved with time and has surged from manual to a phone call or online mode. Manual cab booking system requires the passenger to physically book the cab through booking office which therefore provides the liberty and scope of bargaining at both ends. While in online mode, clients carry out booking either through phone or the Internet. This indeed is quicker and faster but hinders bargaining. We are going to implement smart car monitoring system for user and owner. In this paper owner will display his car on our application with all details and he will track his car by using GPS Tracking system. In our application user role is he will get a nearest available car.

II. LITERATURE SURVEY

[1]"Design and Implementation of an Intelligent (Cab Service System) ." Amar Nath, Ankit Khandelwal, Akul Kanojia, Ishitva Minocha, Rajdeep Niyogi

In this paper, we designed an intelligent agen based distributed approach for taxicab booking system. The proposed approach is able to deter the single point of failure, and utilize the local information of the different region of the city to improve the cab availability. Furthermore, to incorporate the bargaining facility and cabs driver participation, we designed the distributed algorithms (see Algorithm 1 and 2). One of the proposed distributed algorithms (Algorithm 2) is implemented by using JADE framework. As part of our ongoing and future work, we would implement our proposed system for real cab booking system.

[2]"Vehicle Delay Series Forecast Based on Trajectories Of GPS Tracked Cabs."Wenjuan Cui', Danhuai Guo1*I Scientific Data Center, Computer Network Information Center,Chinese Academy of Sciences, Beijing, China .

This paper has defined vehicle delay series which can evaluate LOS of intersection based on drivers' direct experience. We take advantage of large scale of but coarse-grained trajectories data of tracked cabs for rapid vehicle delay series calculation. The kNN anomaly detection algorithm is used on raw vehicle delay series. In pursuit of acquiring criteria for evaluating the performance, we compare several dominating and sophisticated time series analysis algorithms including ARIMA, DSHW, BATS and TBATS. Facing the challenges of outliers aroused from vehicle scarcity, we propose a new Robust TBATS algorithm. Experiments show that our proposed Robust TBA TS outperforms others significantly and is suitable for automatically online forecast of vehicle delay series. Moreover, we suppose several applications of vehicle delay series forecast and demonstrate one of them in route planning.

[3]"Intelligent Ridesharing System for Taxi to Reduce Cab Fee." Jian-Pan Li, Gwo-Jiun Homg, Sheng-Tzong Cheng, Chen-Fei Chen.

In this paper, we have proposed a taxi-sharing recommendation mechanism for both taxis and passengers, which combines a non-cooperative game model to solve the competition among taxis in need of route recommendations. Based on the historical intonation of taxis and passengers, we built time-dependent R-Trees to discover popular locations so that a server can suggest routes and locations using these R-Trees.

[4]"Development of Multiple Tracking System for Smart VIP Car Placement and Monitoring."Nizomjon Khajievt, Chol-U Lee2, Kyung-Sook Kim3, Seung-Ho Kim4, Ryum-Duck Oh5 1,2,5 Dept of Information convergence,Korea National University of Transportation 50, Daehak-ro,Daesowon-myeon,Chungju-si,Chungcheongbuk-do 2 7469.

The system benefits from smart parking go well beyond avoiding the unnecessary circling of city blocks. It also allows cities to develop fully integrated multimodal smart transportation systems conclusively; this paper is extremely significant for new researchers in the innovation of new techniques to manage the problems which are faced by

drivers nowadays. Real-time parking lots streaming through Android application are highly recommended in which will easily help the drivers to allocate the vacant parking lots. It will make the management of the parking spaces effectively, by eliminating the need of manual labour work.

III. PROPOSED SYSTEM

The main modules in this system are:-

A. Customer:

1) Log in with user name and password and can Perform his task over time.
2) set AC/Non AC
3) car type
4) start location
5) end location
6) Distance
7) Wallet
8) Add Balance
9) check balance
10) check Location
11) check Speed

B. Admin:

Admin has its log in. Admin has all rights of his application and can only do modification.

1) Registration
2) Conformation
3) Check status
4) Bill charge
5) View history
6) Generate bill

In Proposed system we are analysing Smart car for people. In that Admin can register the Android application and registration is successful then login the application. Similarly user can register the same application and registration is successful then login the application. User using the android application can search the near smart car. Then using GPS they pick to user and User select the area and Bill is generate and pay the bill using android application and travelling with smart car. If user choice they can on the Air conditioner or not. Then user sends the request to admin. Then admin accept the request and as per air conditioner charge they generate the bill and user can on the Air conditioner and reach to selected area .If user go to another area then admin off the smart car.

IV. SYSTEM ARCHITECTURE

In system architecture admin have a car and they rent it for travel purpose. User using application search the car on application via GPS and GSM module

GSM is a cellular network in that cell phones are connected to it by searching for cells in the immediate vicinity. The GSM can send the data using radio wave.

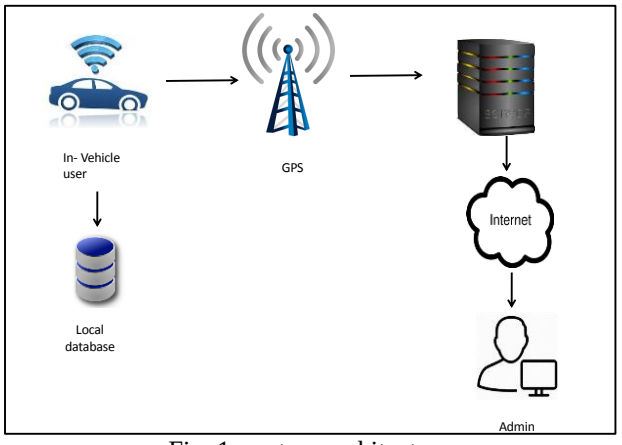

Fig. 1: system architecture

Above diagram is our system's architecture diagram:

V. MATHEMATICAL MODEL

S= {I, O, Function, success, failure}
Input: Input=Search a Car for Travelling
Output: Output=Get a Car for travelling
Functions: {f1, f2, f3, f4, f5, f6, f7}
Where, f1= User Do the registration for Travelling
f2= User will get Nearest Available Car
f3= User will do travelling
f4= Admin will update his car details on Application
f5=Admin will track his car
f6=Admin Having Authority to Car ON/OFF
f7= Admin will Generate Bill as AC and Non AC Car
Success condition = According to proper inputs, User will get Car in nearest Area.
Failure condition = Wrong inputs, Network Failure.

VI. DATA FLOW DIAGRAM

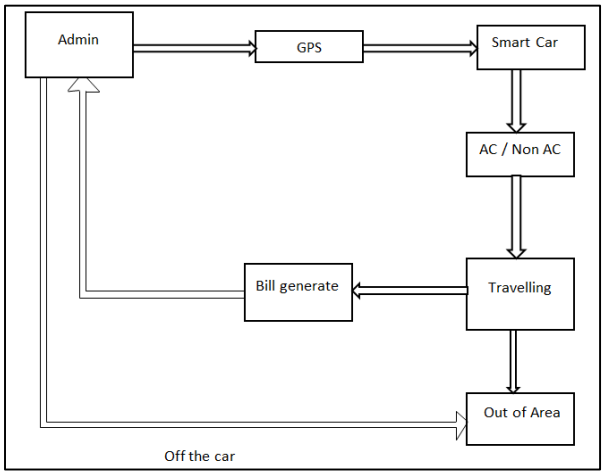

Fig. 2: Data Flow Diagram

VII. ADVANTAGES

- It is convenient and simple, just open an app, set the destination, and book your cab.
- Rates are Cheap compared to other taxis.
- Everything is computerized. Billing, payments, etc. So you have to pay service tax at any cost.
- User friendly for customer as well as owner.
- S

VIII. APPLICATION

- In Rental agencies
- In Finance companies
- For Tourism sector
- In school and colleges

IX. CONCLUSION

In this system we have implemented the renting of car which is user friendly for both owner and the user. User is going to rent the car via an application and is beneficial for both of them. Also tracking of car with the help of GPS and calculation of the total fare of the journey based on the status of air conditioner will be displayed to the user and payment is done accordingly.

X. FUTURE SCOPE

In future scope we can implement system in more easy way using different technique rather that GPS system also provide various security measures for protection and validation and provide real time wallet like paytm, phone pay, google pay and attaching bank account for real time transactions.

XI. RESULT

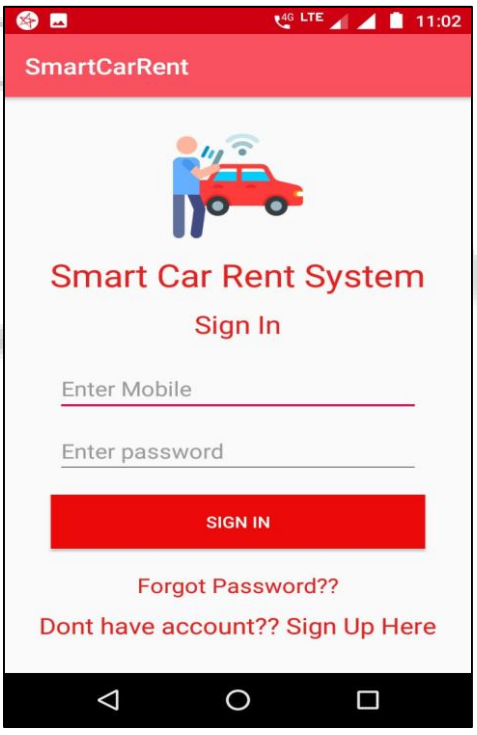

Fig. 3: Screenshot of Sign in

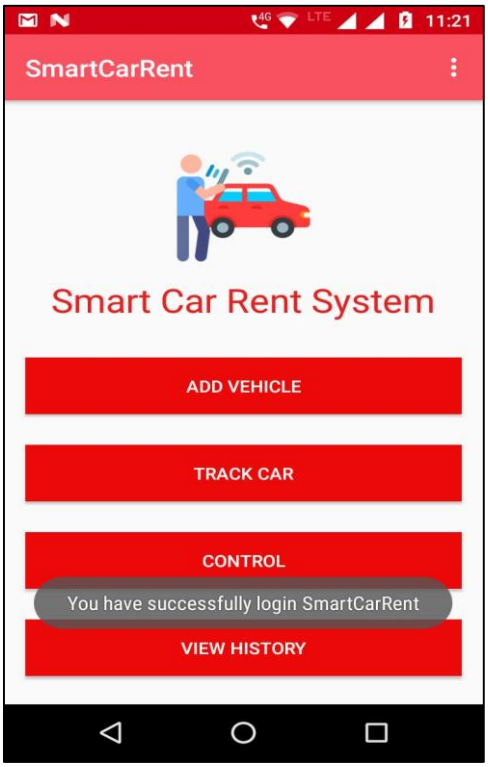

Fig. 4: Screenshot of Owner Dashboard

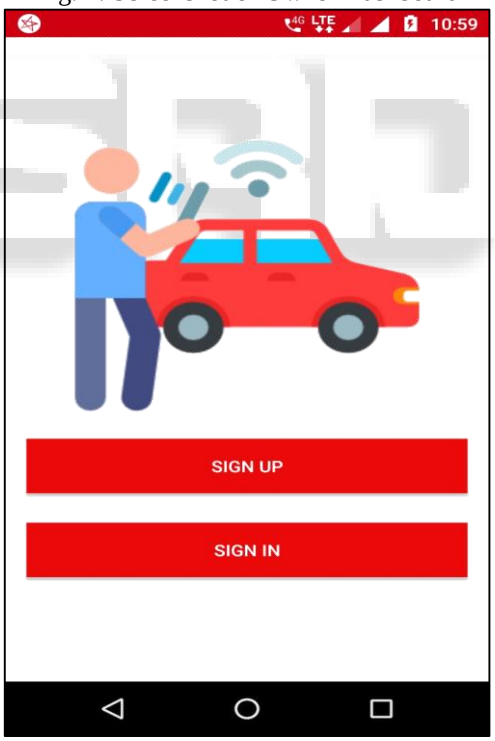

Fig. 5: Screenshot of Sign in and Sign up

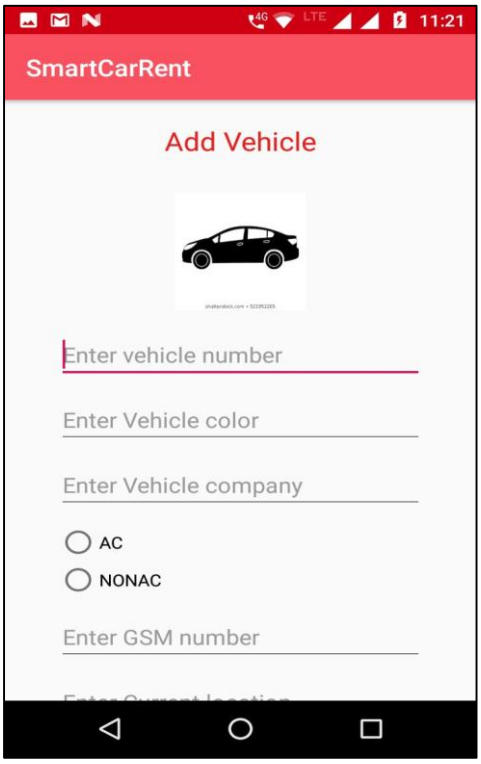

Fig. 6: Screenshot of Adding a Car

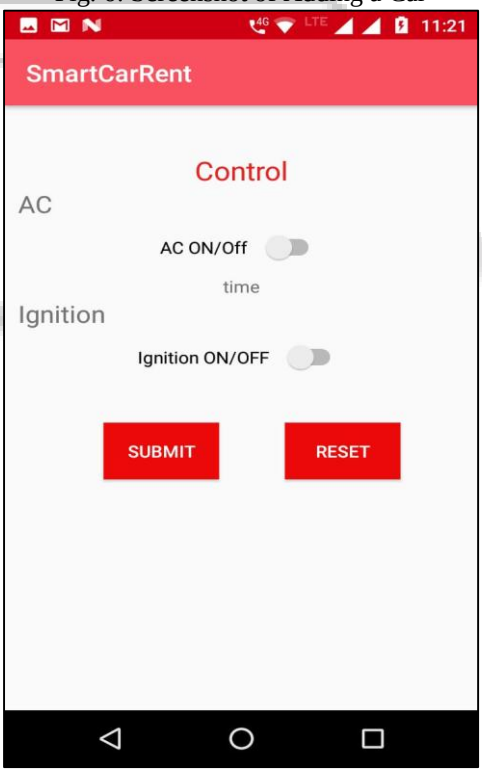

Fig. 7: Screenshot of controlling AC and Ignition

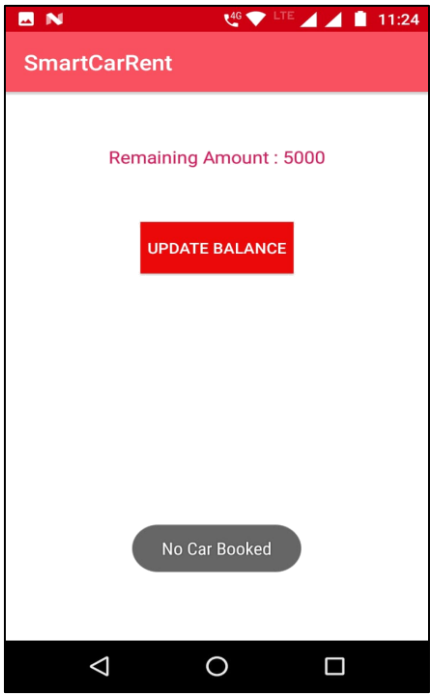

Fig. 8: Screenshot of dummy wallet

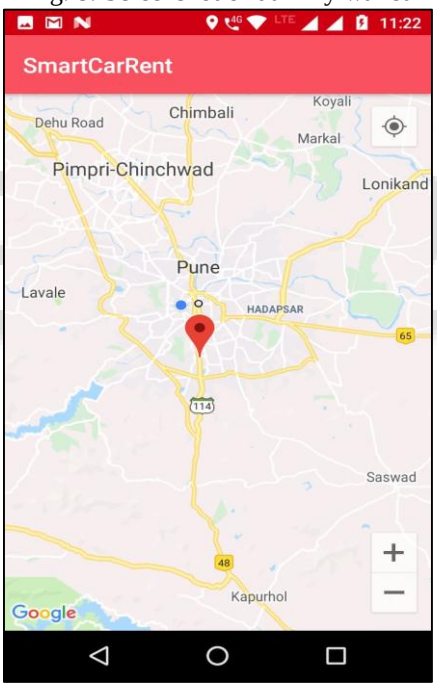

Fig. 9: Screenshot of result showing Map

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