

Implement Vehicle Management System Using Android

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ABSTRACT

In the proposed system, we shall be dealing with the management issues faced by common people for their vehicle. In today's time, vehicle is a most important part of our life and their management is also another issue. This application is a vehicle management application geared to control costs of your vehicle, from the supply of repair. If you are a driver and cares about the protection of your vehicle, and also the ideal tool to help you in this task. Also if you are going on a trip and you are concern about hotels, Atm, hospital, or any other thing this application will help you in this task. Also there is a tool which will generate QR-code for parking, toll payment and many other things so you don't need to carry cash everywhere. You organize and synchronize everything on your phone or tablet to consult whenever you need it, and can even be alerted by email or phone about important dates for your vehicle. The system tends to analyze various vehicle management needs of a user and provides solution for the same. The system concentrates on data given by user and gives a statistical report. The system reminds user to perform certain task which added by them earlier and also analyzes the data of users and gives a suggestion for the vehicle.

Keywords: RFID, QR-Code, GPS, Geo-fencing, LED and IDE.

I. INTRODUCTION

User will be able to add new profile and also to change the password. The user will also be able to add and edit vehicle information. He can add vehicle in form of two wheeler, four wheeler and etc. He can track the expense's made on vehicle weekly, monthly or yearly. The user have to add information about vehicle like name, model no, fuel type, license no, policy no, etc. and according to the given information the app will help the user to remind him about policy renewal, service date, etc. Also the will get alert and notes generated by app. The user can use the app to search various types of services like hotels, restraint, fuel station, hospitals, repair shops, Atm, parking, etc. near them. The user will be able to track down the vehicle where it is now in real time and also the user will be able to track the speed of his vehicle. The user can determine some amount of radius and speed beyond that the vehicle cannot go, if the vehicle cross that radius or speed they will get the information through message, so user does not have to concern about the safety of the vehicle the app will provide security to the vehicle. The user will get auto generated QR code by the app according to the information of the vehicle which will be linked with the user account so at the of toll crossing or at parking the

does not have to give money, the QR code will be scanned the amount will be automatically redeem for his account.

II. METHODS AND MATERIAL

Module Description

1. Login and Registration:

User can login or register his/herself to get access of this application.

2. Multiple Vehicle addition:

- Two Wheeler: In this module user can add two wheeler vehicle in the system according to fuel type, manufactured company, etc.
- Four Wheeler: In this module user can add four wheeler vehicle in the system according to fuel type, manufactured company, etc.
- Multiple axial: In this module user can add multiple axial vehicle in the system according to fuel type, manufactured company, etc.

3. Reports and Statistics:

- Tracking maintenances, services, costs, expenses of your vehicle.
- Report with best/worst fuel efficiency. Easy to track conditions you were under good or bad.
- Distance statistics: total distance, distance/year, distance/month, and distance/day.
- Cost statistics: cost per category (refuel, bill, services). Cost/distance, cost/year, cost/month, cost/day, consumption etc...
- Maintenance History of vehicle.

4. Reminders:

In this module system will generated reminders to the user about insurance expirydate, vehicle service date,pucc, etc. from the information given by user.

5. Search Engine:

In this module user will be able to find various kind of service such as Restaurants, Hotels, Gas Station, Hospitals, Atm, Auto Repair shops, Parking, Car Wash, etc.

6. Geofencing:

- In this module user can restrict their vehicle in a certain boundary of area.
- User have to mention the boundary and if vehicle go beyond that message alert send to the user.
- Geo-fencing (geofencing) is a feature in a software program that uses the global positioning system (GPS) or radio frequency identification (RFID) to define geographical boundaries.
- Geo-fencing allow an administrator to set up triggers so when a device enters (or exits) the boundaries defined by the administrator, an alert is issued.

7. Vehicle ID

- In this module each user's vehicle have one QR Code tag with the help of that vehicle gets the digital identity.
- User can pay tolls, parking fees at private parking spaces with the help with this module.

- Also anyone can use this module as an authorized parking facility.

8. Tools & technology

✓ Raspberry Pi:

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated, selling outside of its target market for uses such as robotics. Peripherals (including keyboards, mice and cases) are not included with the Raspberry Pi.

✓ Arduino:

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing.

✓ GPS Module:

The Global Positioning System (GPS) is a satellite-based navigation system that consists of 24 orbiting satellites, each of which makes two circuits around the Earth every 24 hours. These satellites transmit three bits of information – the satellite's number, its position in space, and the time the information is sent. These signals are picked up by the GPS receiver, which uses this information to calculate the distance between it and the GPS satellites.

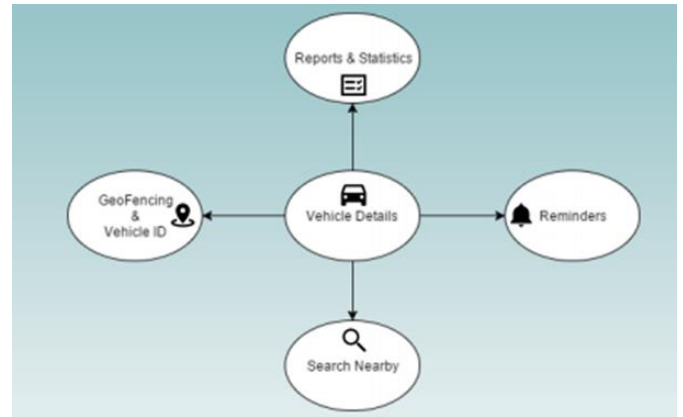
9. Research Gap

As we know vehicle is most important thing in day-to-day life and its management is such a headache. In today's life the user is so busy in his daily routine life that it has become a tedious task for him to manage all the things such as vehicle refueling, geofencing limits and so on. Due to that many people have already taken initiative for its management and many application are built in the market. But in our application we have

merged various module which are already existing in different-different application because our purpose is to implement all the modules in one single application and provide an easy and simple framework to the user which will make his daily life easy and better. So we have built an application named 'Vehicle management System'. There are around seven modules in our application such as login, report and statistics, reminder, search engine, geo-fencing and vehicle Id. This all modules will enhance the user performance. This application will benefit the user in many different ways.

10. Methodology

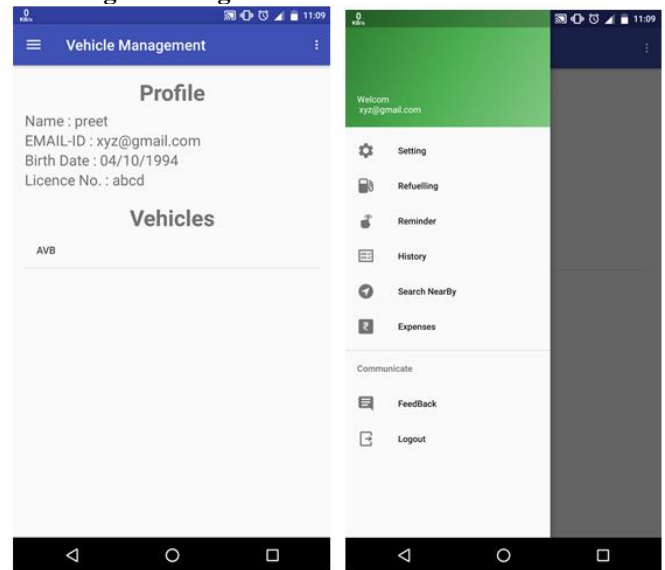
- First of all user have to do registration in our application if the user is already being registered the he have to Login in our application through login and registration module.
- Then the user have to add his vehicle and edit its information such as fuel type, license no, vehicle registration no, fuel capacity, etc. then according to the given information the user will get reports basis on expenses which have been added by the user in form of weekly, monthly and yearly through settings>add vehicle>edit vehicle.
- User have to set reminders in form of alert and notes so that user will never forget its important works like servicing of the vehicle, insurance policy renewal and etc. through Reminder module.
- Then the user have to set radius beyond which he does not want its vehicle to go if the vehicle goes beyond its radius then user will get notification through Geo-fencing module.
- User have to give information of about the vehicle and his bank account so every time user will cross the toll both, he does not have to stand in queue, the amount will automatically paid through scanning QR-Code.



III. RESULTS AND DISCUSSION

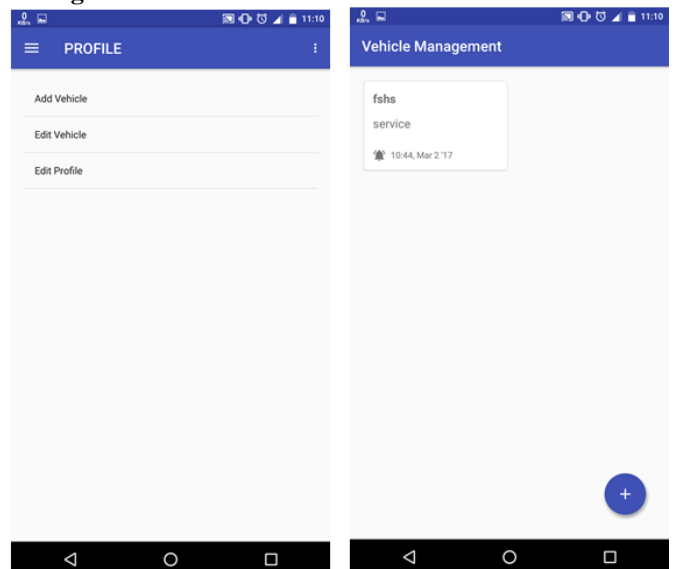
Model Implementation

Home Page & Navigation

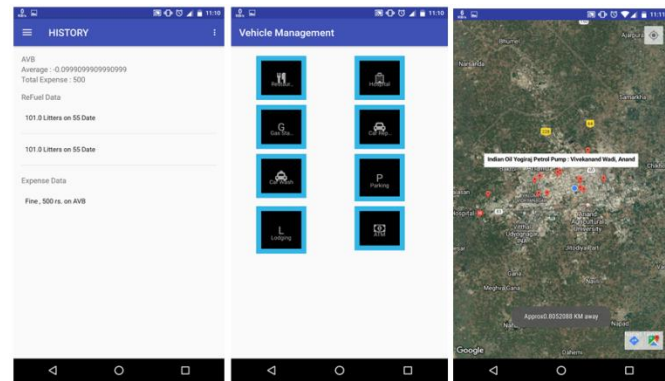


As you can there is two images 1. Home page and 2. Navigation menu. In Home page the history of the vehicle is shown and in Navigation menu different modules of application is shown.

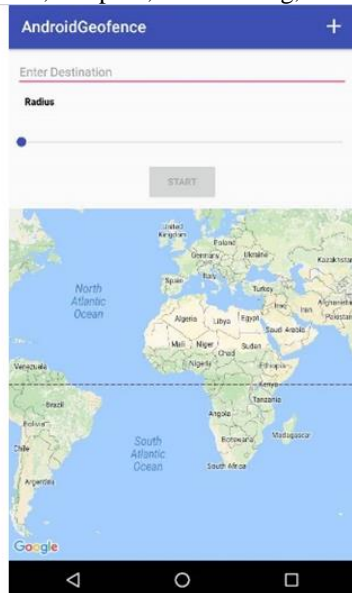
Setting and Reminders



As you can see there is two images 1. Setting and 2. Reminders. In this module user can add, edit vehicle and also be able to edit his profile. In this module user can set Reminders in form of alerts and notes.

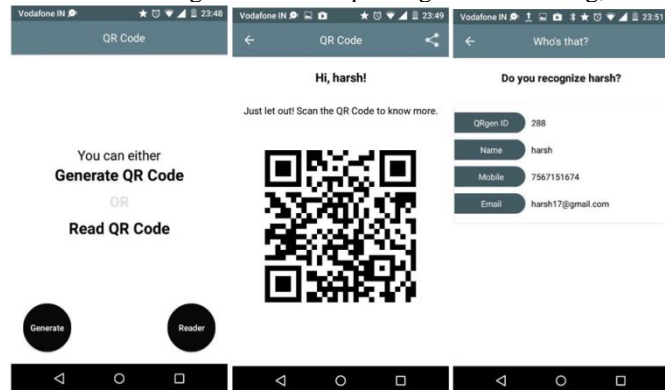


As you can see there is two image 1. History and 2. Search. In this module the complete history of Expenses made on his vehicle in form weekly, monthly and yearly. In this module user can search useful places such as Hotels, Restaurant, and Fuel station, Atms, Hospital, Car washing, etc.



Vehicle ID:

As you see in this images 1. Geo-fencing and 2. Vehicle Id. In geo-fencing user can determine the radius beyond which he does not want to send his vehicle and though the vehicle goes the user will get notification. In vehicle ID the QR-Code will be generated which will be linked with his account so user does not have to give at time of parking or toll crossing, etc.



IV. CONCLUSION

So this application is used to help the user for the management of their vehicle. The user can add multi expenses that he has done on his vehicle and by those data a monthly report will be provided to the user on a timely duration through this application so the user can track their maintenance report of the vehicle also the user can track their date of policy renewal, servicing date of the vehicle and many more.

V. REFERENCES

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