Vehicle Service Status Monitoring System

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Abstract

As urban living environment is becoming more and more complex, people wants upcoming new technology. Vehicles have become passion of everyone in the society. As the vehicles are there, its servicing is the main issue. In the current scenario, people were not able to track their vehicle in the servicing showroom. To solve such problems, a vehicle tracking system with the help of android has been developed. Recently, vehicle tracking technologies have brought some breakthrough in these areas: commercial vehicle operations, emergency rescue, hazard material monitoring, and security etc. Android is an open source available for application development. When a vehicle is sent for servicing, client can see the live status of his vehicle service on his mobile just by entering unique id in the mobile application. Client can see the current status in percentage on progress bar. This application will be time efficient as person will get the notification about completion of vehicle servicing along with the costing on the mobile.

1. Introduction

The Proposed system provides live status of vehicle under servicing on android phone. To check a status of vehicle, client must register his details in application form. At server side this data is saved and unique id is generated by administrator. Status of servicing is shown through progress bar. Also automatic notification for service completion, about insurance expiry and costing is sent to client. This system is time efficient as we can track our vehicle's live servicing status. At the time of purchasing of vehicle, automatic registration about servicing will be done. When the customer wants to register for servicing then they can directly go on application and fill the registration form. Application form will contain the details like name, mobile number, IMEI number, vehicle number etc. this information will be sent to the server and unique id is assigned to the client. The server checks its servicing schedule and provides date to client; otherwise next date will be provided. Client can see the current status in percentage on progress bar. The benefit of this application is that it is time efficient, as in existing system, expected time of vehicle delivery is given, but the servicing is not done on time. Through this

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application we can just check the status and go to showroom if vehicle is ready. Also automatic notification about service finishing will be sent to client along with the costing. Along with these features, client can receive alerts along with notifications regarding free servicing dates to new customer and old customer can get expected servicing date, insurance expiry date will be given through notification.[1][5]

2. Literature Review

In existing system, there is facility of fixing appointment by making call or by websites of showrooms. Client can interact with showroom people by emails or phone calls. But sometimes there is ignorance from showroom side. So client may not get details abut servicing on time. Also it is tedious job for showroom people to handle all customers, give them servicing updates on right time through calls. In proposed system, an android application is going to be developed which will be useful for customers as well as for showroom people also. It will contain all features from proposed system in addition it will have the facility to keep track of vehicle servicing. As in existing system, delay is more while providing other information. Thus Time efficiency is the main feature for proposed system.

3. System Design

In proposed system, client will be android phone which will be interacting with administrator. Administrator will send the response through PHP response pages and data will be taken by the android device. It will parse the data in human readable format. When vehicle is sent for servicing, customer can check the service status of his vehicle on android application. Service in-charge will be responsible for providing the all details. System will consists of following parts.

1. **Input: -** User fills application form on android mobile. After that unique id is generated by the server

2. **Processing: -** Registration of user information then generates unique id and displays progress bar about live status of servicing .It will update the status time-to-time.

3. **Output: -** Notifications will be given about costing, insurance expiry, alerts through message
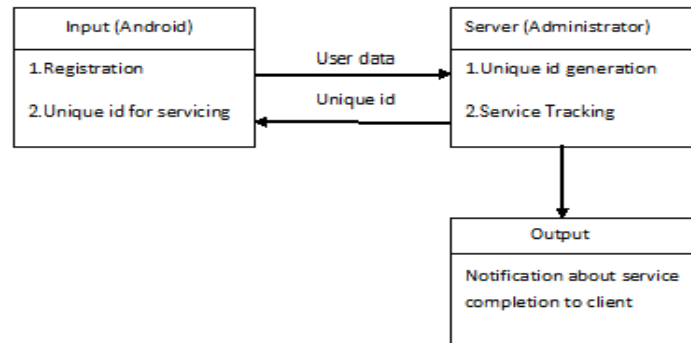

Fig: 1. Working of Application

3.1 Module 1: Registration

This consists of overall company information, information of vehicles and image.

One time registration form will be provided to the customer in which customer details have to be filled. This deta will be sent to the server.

3.2 Module 2:Unique id generation

After registration an unique customer id will be issued to the customer. Using this id he can register for servicing.

Then a unique service number will be given to the customer if there are no appointments for the date or else new date will be given to the customer.

3.3 Module 3: Service tracking

Service tracking will be provided to the customers having token id, provided during request for service tracking.

After the completion of each process the status would be uploaded on the server and the corresponding notification can be shown in progress bar in the android cell. The in charge of the corresponding process would be provided a separate log in to update the status of the vehicle. The corresponding service charges would be added to the

customer's bill automatically through the system. As soon as the service in charge uploads the service completion status the customer would be able to track it in the progress bar.

3.4 Module 4- Automatic notification of service completion

After the completion of the last process of the servicing an SMS or notification would be sent to the customer about the completion of the servicing and also the final payable bill amount would be sent to the customer.

Administration

A web based application will be developed for the administration purpose. The module would consist of different log in and screens and functionality for different log in. The administrator would be able to create, modify and delete accounts of the service in charge. The administrator would also be able to check the status of the service in charge for every vehicle and also the work performed. He would also be able to check the final bill amount for each customer. The admin would be provided with an interface for managing the company information.

4. Methodology

The System implementation consists of

interfacing of android phone with server side where database is stored. JSON (Java Script Object Notation) is an algorithm used for interfacing the android data with back end database i.e. Mysql. It is used for exchanging data from android device to web server and viceversa. Earlier XML was the means of data exchange format but as JSON is developed as lightweight format used in many applications. HTTP is a protocol used for using this technique. This interfacing is going to implement with the help of following steps as follows

1. Handshaking
2. Pairing
3. Socket Programming
4. Data Interchange

JSON Technique will be used to establish the connection between client and server. JSON consist of set of steps that are needed to be carried out such as build the json object, adding key-value pair, declaring http client and http server etc. For using JSON technique as a data interchange format, we are going

to develop a PHP based web service. It contains set of services like Request and response. [3][6]

Fig: 2. Interfacing of Client and Server through PHP web service

4.1 Algorithm

1. Request for connection establishment i.e. handshaking between android client and web server.
2. If permission granted from both side pairing is done.
3. Parse the data from android device in the form of JSON data with the PHP web service.
4. De-serialize the data with the help of HTTP request service.
5. Service execution.
6. Serialize the data with the HTTP response service in JSON format again.
7. Android client will fetch the JSON data and parse into user readable format.
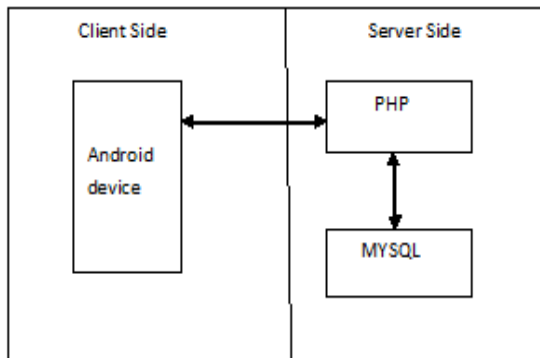
5. Simulation Results
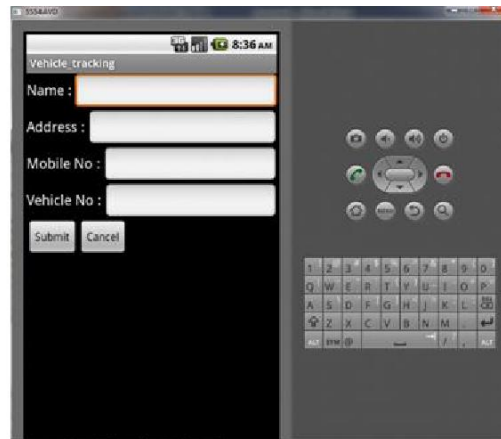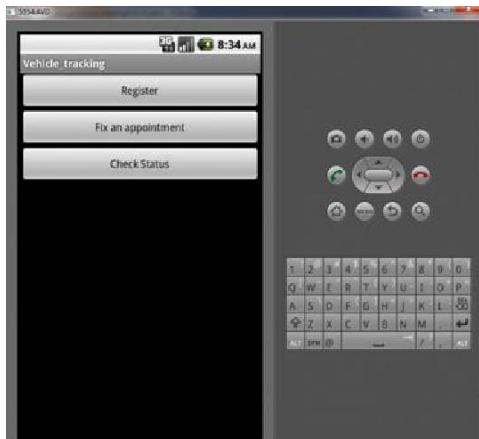
6. Conclusion

Client will be able to see live status of the vehicle servicing through the internet which includes.
1. See the status through progress bar.
2. At the time of registration comparison of the product along with list and cost is provided.
3. Notification will be given to client about the servicing done along with costing whether it is of fline or online.
4. Other alerts like insurance expiry date, next servicing date etc.
5. Legal Documentation is available through application. Administrator will have the overall control of the system.

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