



# **Android Based 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. The application will be installed on mobile; details about showroom will be available. At the time of purchasing automatic registration will be done or he can fill the registration form after words. Once the registration is done, there is no need to register again. Application form will contain the basic details and this information will be sent to the server and unique id will be assigned to the client. The server will checks its servicing schedule and provides appointment to client. 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. The insurance expiry date will also be provided through notifications on the mobile.

**Keywords:** Internet, tracking, progress bar, notification, JSON parsing.

## **I. INTRODUCTION**

In the existing system we were fixing the appointment through websites. After the completion of servicing a message was given through phone that service is completed. But if there is a problem in the network then we will not be able receive the message. As if employees are not present at that moment the message will not be given to the customer. Existing system involves human intervention due to which delay may be there in conveying servicing details to customer. Through application administrator will be able to keep continuous contact with customers and access the database easily, fetch the corresponding details and provide it to the customer. [2]

In the proposed system along with appointment fixing, live service status tracking is possible and some extra features like notifications along with costing, next servicing dates will be given on android phone. The actual time which is given to customer, he will be able to receive the vehicle at that time. 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. After installing the application on phone, details about showroom will be available. At the time of purchasing of vehicle, automatic registration about servicing will be done. Once the registration is done, there is no need to register again. 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. When a vehicle is sent for servicing, client can see the live status of his vehicle service on his phone just by entering unique id on the application. 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 application we can just check the status and go to showroom if vehicle is ready. 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]



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## II.RELATED WORK

Implementation of system involves android application development. In that android tools (SDK) are used to design application form i.e. Registration module. Data from user will be accepted through this GUI. From Server side appropriate response will be given to the customer using web service. As android data parsing and server side data parsing is different, it is managed through PHP web service. Main aim is to provide tracking of service to the customer that will be provided by server side and displayed in the form of progress bar. Notification will be given using android services.

## III.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. Service in-charge will be responsible for providing the all details.

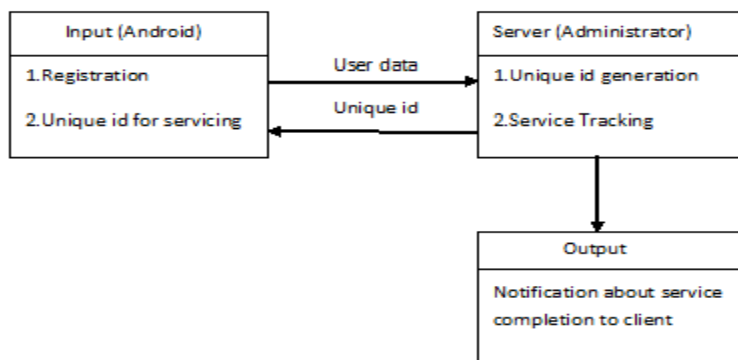


Fig1- System Design

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

## IV.MODULE DESIGN

### A. Modules

#### 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 data will be sent to the server.



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### 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) 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.

### 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.

### B. 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.

## V.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 vice versa. 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 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]

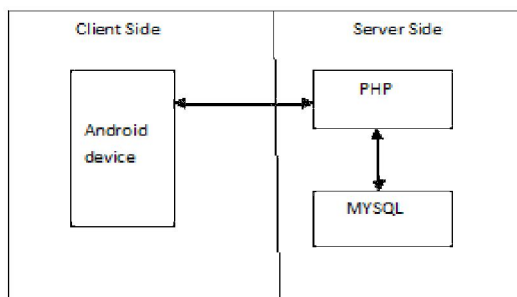


Fig -2 Interfacing of Client and Server through PHP web service



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The proposed system consists of android phone at client side and at server side MYsql database will be stored. For interacting with server, PHP based web service will be used. Interaction between client and server will do through PHP service.

### 4.1 JSON Algorithm

#### A. Client side:

1. Create socket that will communicate with server.
2. Open the port for establishing communication.
3. Check for the response from server side. Server side port should be made visible for communication.
4. Request for connection establishment i.e. handshaking between android client and web server.
5. If permission granted from server, send data.

#### B. Server Side:

1. Listen to incoming request. If request found assign port and create server socket.
2. If socket established and pairing between both sockets is done, Receive incoming data using PHP web service.  
PHP Web service will contain HTTP Request And HTTP Response for interacting with android client.
3. Check Incoming data in Database and get response.
  - a. If (response==true) then Send corresponding data to client.
  - b. If(response==false) then go to step 10
4. Parse the data from android device in the form of JSON data with the PHP web service.
5. De-serialize the data with the help of HTTP request service.
6. Service execution.
7. Serialize the data with the HTTP response service in JSON format again.
8. Android client will fetch the JSON data and parse into user readable format
9. If data sending finished, go to step 10.  
Else go to step 3.
10. Destroy the sockets and disable the ports using  
Socket. Destroy ();  
Port. Enabled=false.

## VI. SIMULATION RESULTS

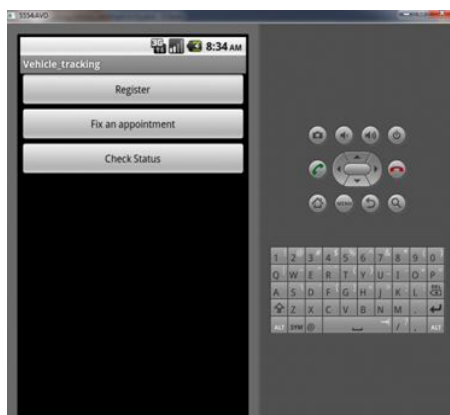


Fig. 3(a): List of activities.

Fig 3(a) Application will contain the main page having options for registration, appointment fixing and tracking.



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By selecting particular option, corresponding service will be provided.

Fig. 3(b): Registration Form

Fig.3 (b) will be available when new customer will select registration option to fix appointment. Without Registration, new customer cannot use the further services.



Fig.3(c): Live tracking through Progress Bar

Live tracking will be provided to the customer when servicing starts through progress bar. The progress bar will be updated after every 10-15 minutes.

### VII.CONCLUSION

Client will be able to see live status of the vehicle servicing through the internet which includes.

- See the status through progress bar.
- At the time of registration comparison of the product along with list and cost is provided.
- Notification will be given to client about the servicing done along with costing whether it is offline or online.
- Other alerts like insurance expiry date, next servicing date etc.
- Legal Documentation is available through application. Administrator will have the overall control of the system.



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