

TRACKING SYSTEM FOR AIRPORT TRAFFIC CONTROL (ATC) SERVICE VEHICLES

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Abstract

This project deals with the problem of absence of real-time 24/7 surveillance on service vehicles. A real-time manual surveillance on multiple service vehicles (such as cars, jeeps, etc.) is practically impossible for any person who is located at a distance of nearly 5 km from the service vehicle. An application will be installed to the mobiles of the drivers of the service vehicles. This application consists of the two modules: the user module and the driver module. The user module of the application will assist the ATC officer (the user) to locate and keep a check on the service vehicles without any bother. The driver module is focused on handling requests from the user. The application uses Firebase database and Android studio for the same. The application will allow us to serve the intended purpose. Further this application can be expanded for future use for the security purposes.

1. INTRODUCTION

The tracking application used for the ATC service vehicles is the alternative to the generally used tracker kit. The application is developed by keeping the demands of the ATC in mind. The ATC officials demanded that any physical tracker kit should not be included to track their service vehicles for their safety issues. This tracking application is free of any arduino kits involvement. The tracking application is a solution to such environments where attaching any physical parts is considered as a violation of certain principles of the institution.

This tracking application is presently developed for android mobiles only. It also has a future scope of expanding it to iOS.

2. THE APPLICATION

This application is developed as two modules. The two modules of this application are as follows:

1. The user module
2. The driver module.

The following is the main screen of the application. Here you have two options to choose from

1. "I'm a driver"
2. "I'm a customer"



After choosing the option you are moved on to the next page wherein you need to register with the application.

Following is the registration page for the two modules listed in the application:



You need to register within the application irrespective of your choice. This registration will indeed be useful for the user in the future. All the

essential fields during registration that are filled are stored into the database.

After the registration process is completed, you are moved onto the login page of the particular module. Following are the login pages of the two modules of the tracking application:

- The user/customer module



The user/customer module login page consists of customer login id and a password. Only authorized personnel are given access to the further part of the application.

- The driver module



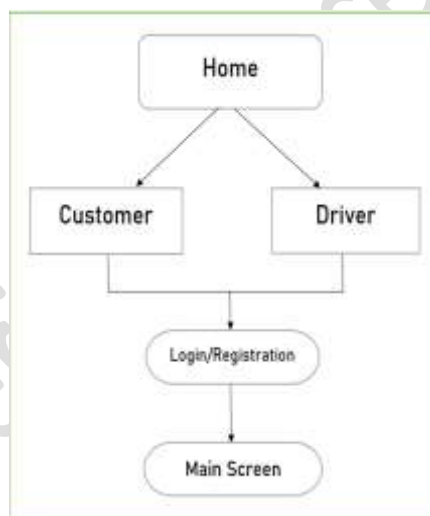
The driver module login page consists of driver login id and a password. Only authorized personnel are given access to the further part of the application. The authentication and authorization in this application is maintained through its database.

After logging in successfully, the authorized entity is moved onto the next page. This page consist of the map which helps us to trace and locate the service vehicle. The map embedded in this tracking application is taken from Google Maps API. There is a possibility that the Google Maps API might not

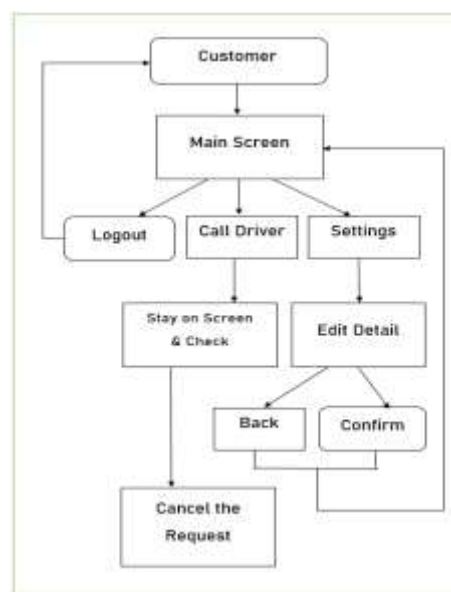
work in certain situations for your application. In that case, an alternative for this is embedding the Google Map iFrame.

3. APPLICATION AT A GLANCE (THE FLOW)

The flow of the tracking application is as given in the flow diagram. The flow diagram shows the bifurcation of the application into the two modules viz., the user/customer module and the driver module.



3.1. THE USER/CUSTOMER

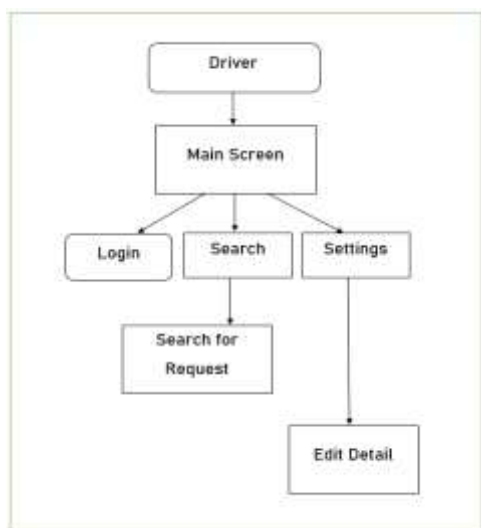


The flow of user/customer module is shown as above. The main screen is produced after the successful 'logging in' through the

customer's login page. The main screen is ingrained with three buttons viz., logout, call driver and settings. The logout button assists the user to logout from the customer module. The 'call driver' buttons assists the user to call the driver that is available close by the user's location. The 'settings' button assists the user to modify their data. The user also is provided with the 'cancel the request' button after he/she has called the driver.

3.2. THE DRIVER

The flow of driver module is shown as below. The main screen is produced after the successful 'logging in' through the driver's login page. The main screen is ingrained with three buttons viz., login, call driver and settings. The login button assists the driver to show that he is available for the service or he is some service is ongoing.



The 'search' buttons enables the driver to see if there is any request for the service to be provided or not. Also the 'settings' button provided helps the driver to modify the details that has been provide during the registration. The main screen is the traceable map which is embedded into the application by the help of Google Maps API.

4. THE CONCLUSION

The tracking application is the alternative solution to the problem wherein you cannot attach any physical device/object due to the institution's certain restrictions. It is the user friendly way of

tracing any vehicles without involving yourself physically. This application can be used by any person without having any knowledge about technical aspects.

This application can also be modified and developed further for the security purposes of the ATC officials.

ACKNOWLEDGEMENTS

In this paper we have presented the alternative for the physical tracing device/kit. We are very thankful to our department of computer engineering and also the officials of ATC, (AAI) Nagpur for providing us with opportunity to present this alternative solution.

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