

Communication System for Biking Community Using GPS

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Abstract- *GPS is one the most significant technique that has technological exploration and ease the work in tracking and tracing of objects. This paper analyses the most appropriate route which features in navigation system based on GPS. At present there are many biking communities but none offers a communication system with riders those are riding with the admin. So the “communicating system for biking community using GPS” gives the feature of communicating with each rider and this feature helps in achieving successful rides. I came across a biking group name R.O.A.D (Riders of Adventurous Destination) and they have not used any technology for their riders, with this we got the idea to implement a GPS tracking system which will connect all the riders to their admin and help in locating the exact location of each rider.*

Key words- *GPS, biking community, communication system.*

1. Introduction

GPS has been used for over a decade and is used in day to day life for tracking purpose whether its a shipping consignment, a school bus, cars, an address to a unknown location. All of the mentioned things use a single GPS tracking system. In this paper we have enlighten the idea of tracking number of GPS devices that will be connected to the main device that will show the exact route of all the riding members. In this proposed system the admin will be able to locate all the riders those are associated with the ride. In this application the location is refreshed every 5 seconds so that the admin gets the exact location of every rider. If any rider gets stuck anywhere during the journey then the admin will get to know through the GPS system and admin will then sends the route to overcome the problem occurred to any rider. In this proposed system the admin will get to know that all the riders are on their way towards the destination

with the shortest path possible. The Global Positioning System of the Admin will keep every rider connected with the Admin and all the riders would not disperse or lag behind, if any mishappening occurs or any rider lags behind then the admin will instantly know when he will look into the Global Positioning system that a rider is unable to follow up with the ride and will send help instantly. The global Positioning System of the Admin will update every 5seconds so that the Admin gets the exact location of each rider. There are many places where Global Positioning System does not work, so there needs to be some solution so that the Admin could trace all the riders even if Global Positioning System does not work. The solution to this problem is discussed in this paper.

In existing systems the owner use to get SMS from tracking device, which did not provide the exact location of tracked vehicle. This problem is overcome in the methodology purposed for “communicating system for biking community using GPS”, the admin gets the exact location of each rider as the location is refreshed every 5seconds and this includes longitude and altitude distance that riders are having from their admin. GPS helps in tracing exact location and as the riders moves their route gets updated via google map[5].

There are many areas where GPS doesn't fetch any information then the admin will lose its connection to its riding team. Global Positioning System gives the exact location but what if the GPS does not work? Due to the unavailability of GPS and no connectivity the Admin will mislay its contact with every rider. The solution to this problem is Network Triangulation Location (NTL). The Network Triangulation Location uses the nearest tower to the signal of the mobile and with triangulation of signal strength of the three nearest towers, the nearest distance of the mobile and its location is detected. With NTL the Admin will be able to communicate to the lost rider and will get update of each rider.

An online GPS tracking system helps in time optimisation and gives updated location of every rider to the admin. GPS system helps in fetching and displaying updated information every 5seconds as the location gets refreshed and exact location gets stored in the database [7].

2. Literature Survey

To determine precise location of object Abid Khan and Ravi Mishra have proposed tracking unit which is attached and using GSM modem this information can be transmitted to remote user. This system contains GPS and GSM modems along with ARM processor that is setup in the vehicle. Through SMS the location of vehicle can be reported. GSM and GPS technologies help to track the vehicle's exact information. Real time control is provided by SMS system. You can monitor the location from anywhere using this system [2].

Rodrigo R. Oliveira, Felipe C. Noguez, Cristiano A. Costa, Jorge L. Barbosa and Mario P. Prado has proposed a model to get the exact position of vehicle. The device used for tracking the location of vehicle is named as SWTRACK. The distributor companies use this model to get the location of their respective vehicles. It also provides the mechanism to monitor the detours coming in the planned route and sends a alarm message through the device [3].

The vehicle Positioning monitoring system was designed by Zechun Huang, Dingfa Huang, Zhu Xu and Zhigen Xu using CORS and Mobile GIS. The accuracy and precision is provided by CORS service network and Mobile which has also verified the feasibility to integrate CORS and Mobile GIS for mobile location services. GPS helps in to get accuracy and high speed for performing in faster way. It is best suited for taxi monitoring and navigation, vehicle anti theft and other fields [4].

In existing system owner use to get SMS from tracking device, which did not provide the exact location of riders. As per the observation existing system provides only some features like SMS services and tracking user location. The contribution which author made was like locating multiple riders location on Google Map and their exact location. This will enhance the admin with complete information about his riders location. This will be useful for admin to easily track their riders.

GPS has been used for over a decade and is used in day to day life for tracking purpose whether its a

shipping consignment, a school bus, cars, an address to a unknown location. It is very useful in today's time as it ensures exact location and helps in monitoring the location or path people needs to search [8].

All the features that has been used till today in GPS are not completely successful because of the poor SMS service or unavailability of complete information about the exact location. The proposed system solves the problem of getting exact location as the server refreshes the location of each rider every 5seconds and admin gets the current and exact location of each rider every time he views the tracking system. With exact location the admin knows where each rider is and all the riders are on correct route to the destination or not. GPS tracking helps in saving time and energy of both the rider and the admin, a correct navigation route helps in reaching the destination in time [6].

3. Proposed Methodology

GPS based tracking system uses the GPS technology, GSM service and Android mobile. This system has three main modules transmitting unit, monitoring unit and server. Transmitting side performs tracking functionality. It tracks the rider through GPS and transmits its current location to the server. The main function of monitoring side is to provide login interface to user and to show the google map with rider locations to the admin. Server works as a central connector for transmitting unit and monitoring unit. As both transmitting side and monitoring side communicate with each other through Server only. The transmitting side tracker application obtains its current location through GPS technology and update it to server.

Project components:

It has two units-

1. Transmitting unit
2. Monitoring unit

Transmitting Unit contains Android mobile which has inbuilt GPS, GSM modem and GPRS functionality. Therefore the mobile will be used as transmitting unit. The GPS system will be in ON mode on each riders and the admin mobile then the mobile sends current location from each rider mobile to the server which is saved in the database with latitude and longitude exact and current details. The

admin then fetches current location for each rider by clicking on the google map that shows the exact position where each rider is. Data in the database gets refreshed every 5seconds and admin gets current location of each rider every time he checks each riders location.

Monitoring unit is an Android Application through which user will get to know the actual position of all the riders. This android provides the user interface through which admin communicate with system. It provides login to the system. After login to the system user is will get google map with exact location of riders. The admin then fetches current location for each rider by clicking on the google map that shows the exact position where each rider is. Data in the database gets refreshed every 5seconds and admin gets current location of each rider every time he checks each riders location.

In this application the admin will be able to observe each rider at the time of their journey towards the destination. Admin will be updated with each rider current location and is able to view the path each rider is following. All the riders will be able to trace the admin location which they all have to follow to reach the decided destination. Admin can see every rider all at once and riders will be able to locate only the admin as they have to follow the path shown by the admin.

4. Result

After successful implementation of Global Positioning System for Biking Community we obtained following results:

At monitoring side, initially rider needs to perform Login activity. Login page provides Login interface to the rider. When rider will enter user name and password then system will do validation to check whether the entered username and password is correct or not. If the entered username or password is wrong then system gives an error message. And if it is correct then user gets directed to next page with successful login. After successful login all the riders will be directed to the admin GPS system and admin then can track the exact location of all the riders.

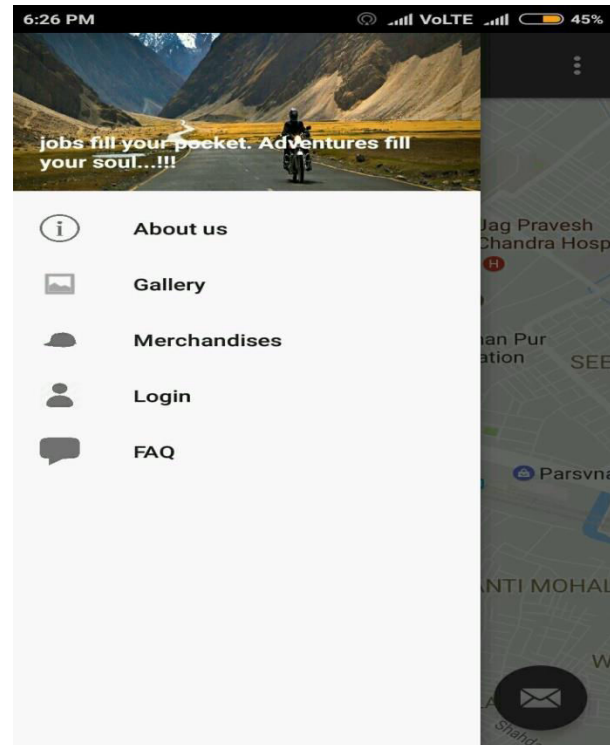


Figure1 Home Page

This is the first page which is seen when the app opens up. It has a drawer navigator that consists of information about : about us, gallery, merchandise, login, FAQ of the application.

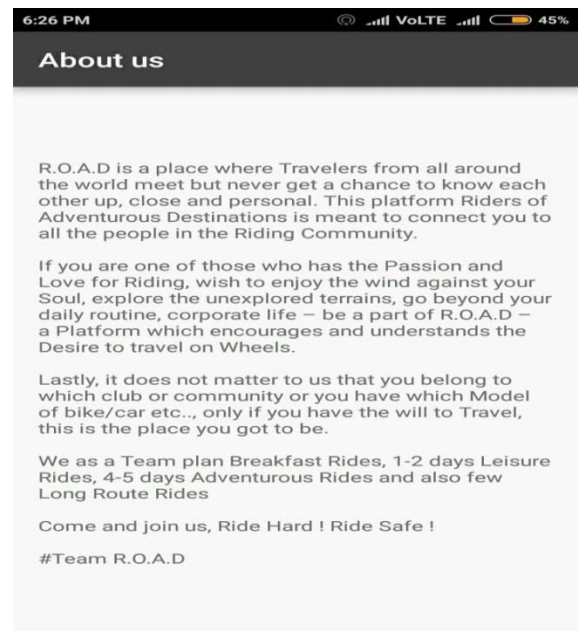


Figure2 About us

This page contains information about what R.O.A.D is all about. R.O.A.D is not only a riding community but it also creates brotherhood, a bond which is unbreakable and together they all are a family.

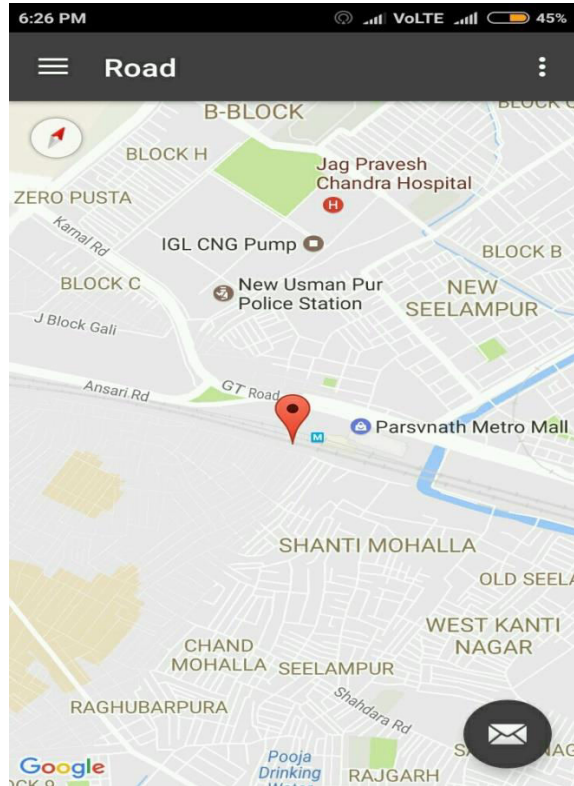


Figure3 GPS map

This page shows GPS location of each rider via google map. MAP helps in locating the exact and current location of each rider which is then sent to the database and admin can track all the riders at once.

5. Conclusion

This proposed system allows admin of the biking community to track their riders and to get exact location of riders. The system allows admin to monitor the travelled routes through a web client that uses the Google Maps API and shows colors on the map to indicate if the riders are taking the right route or not. The general evaluation result is that the system proved to be reliable as to view the positioning of the riders.

Future scope for this methodology can include a chatbox so that riders can talk to admin anytime the

rider wants. This feature will enable each rider to communicate their thoughts views about the ongoing ride or anything they want the admin to know during the journey. This feature will ease things between the admin and the rider during their journey.

6. References

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