Vehicle Tracking System using GSM and GPS

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***Abstract*— With the growing need of GPS as a technology, vehicle tracking system becomes a common application. While GPS has many applications, vehicle tracking system is vastly used. This paper is proposed to design and develop a tracking system for vehicles. Within the daily operation of vehicles, people who board other transport facilities like office cars, city buses and college buses face problems with unexpected delays or irregular dispatching times. The tracking system proposed here helps you to locate any vehicle right at your fingertips. An app in your mobile phone will send an SMS to the GSM. No sooner, a message with longitude and latitude will be sent back to the mobile device which is parsed to display the approximate geographical position on the route map.**

***Index Terms*— GPS, GSM, vehicle tracking system**

I. Introduction

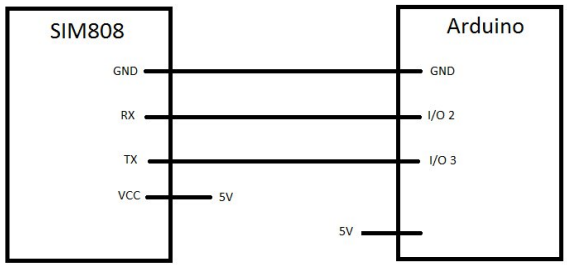
GPS (Global Positioning System) works by finding the exact location of an object or a moving object. Real time vehicle tracking system is a commonly used application. Vehicle tracking is particularly useful for security purposes. Security becomes a major concern with the increasing rate of burglary. The owner of the vehicle can find the exact location of the vehicle if it is ever stolen. This would, in turn, help the police to trace the stolen vehicle.

In this daily operation of public transport system, the fact that passengers are often late to their work is quite evident. Most of them decide to waste their time waiting. A map displaying the location of college buses or city buses would definitely help the students and employees. It would not only reduce their waiting time, but also advise them to opt another alternative. As GPS rolls in with this new application, the vehicle tracking system, it becomes fairly smart to many passengers and students as they would know the location of the vehicle. This information can be used to predict the vehicle arrival time. So, passengers or students have sufficient amount of time to make arrangements before they reach the bus stop. Moreover, as the use of private vehicles reduces, the pollution does too making it a better place to live in. Furthermore, this vehicle tracking system can also be used in navy operators for navy management functions, routing and security.

In addition to providing security, reducing pollution and increasing communication, this vehicle tracking system proposed here does not use internet thus making it flexible and user-friendly. As the mobile devices are portable, it becomes easy to locate the vehicles at any place thus increasing its flexibility. While this vehicle tracking system can be used for the above means, it is also important to note the same can be used for ambulance, fleets, police vehicles and stationary objects as well.

II. Methodology

A. Block Diagram



B. Requirements

1) Hardware Requirements

- Arduino UNO
- SIM 808 GPS GSM Module
- Jumper wires

2) Software Requirements

- Arduino IDE

III. Applications

- The basic use case is to track public transport like buses, trains, cabs etc. With the application in the phones users can track the bus and make sure they don’t miss it.
- In case of a stolen vehicle, the owner of the vehicle can always track the exact location of the vehicle.

IV. FUTURE SCOPE

- Disaster detection:

  This project can be applied to monitor exploration vehicles or people like hikers, mountaineers, small yachts etc., where the chances of getting lost are very high. We can use it either to track their location periodically or we can set checkpoints to make sure that they have safely covered a particular part of the track.
- General tracking:

  Another use in public transport is that, many people tend to sleep during their journey and miss their destinations as a result. Here we can use the application to make sure the person reaches his desired destination. It would function as a smart GPS alarm.
- Security:

  In case of lost baggage while travelling, the baggage can be tracked.
- Fleet Monitoring:

  When managing a fleet of vehicles, knowing the real time location of all drivers helps meet customer needs more efficiently. Especially when it’s a service based enterprise, drivers would only require a mobile phone.

V. CONCLUSION

This proposed system was very flexible and portable for tracking buses efficiently. Their location can be tracked in an app which sends an SMS and displays the location on a route map. This research serves the needs of passengers making the vehicle tracking system possible for better transportation. As discussed, enhancements to this project can be made such as including an alarm when one reaches one’s destination, over speeding alerts, monitor exploration vehicles and monitor assets for insurance.

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