

VEHICLE TRACKING (ANGLE) SYSTEM USING IOT TECHNOLOGY

Shaik Maznu¹, G. Deekshitha², G. Bhavana³, P. Yeshwanth⁴, K. Rajesh⁵

¹ Associate Professor, Department of ECE, VJIT, Aziznagr, CB post, Hyderabad, T.S., India.

² Student, Department of ECE, VJIT, Aziznagr, CB post, Hyderabad, T.S., India.

³ Student, Department of ECE, VJIT, Aziznagr, CB post, Hyderabad, T.S., India.

⁴ Student, Department of ECE, VJIT, Aziznagr, CB post, Hyderabad, T.S., India.

⁵ Student, Department of ECE, VJIT, Aziznagr, CB post, Hyderabad, T.S., India.

Abstract: An automobile tracking system is an electronic device installed in a automobile to know the owner or a third party to track the automobile location. This paper proposed to design a automobile tracking system that works using GPS and GSM Modules, which would be the less cost source of automobile tracking and it would work as anti-theft system. It is an embedded system which is used for tracking and positioning of any automobile by using Global Positioning System (GPS) and Global system for mobile communication (GSM). This proposed project will continuously monitor a moving Automobile and send the status of the Automobile on user demand. For doing so an Adriano is interfaced serially to a GSM Modem and GPS Receiver.

A GSM modem is used to send the position (Latitude and Longitude) of the automobile from a place where the automobile is actually there. The GPS modem will continuously give the data i.e. the latitude and longitude indicating the position of the automobile to the Adriano. The same data is sent to the Adriano continuously when it gets the request from the user. If the owner wants to track the automobile he has to send the request to the Adriano using the GSM Module. When Adriano get the request then it send the current position of the automobile to the registered numbered through the GSM Module.

Key words: *GPS System, GSM System, Automobile Tracking, Global Navigation, latitude, longitude.*

1. Introduction

The safety of private and public automobiles is a major concern nowadays so having GPS automobile tracking system helps the people to travel safely. This automobile tracking system can be in consumer's automobile as theft avoidance and recovering device. Police can act in accordance with the signal emitted by the tracking system to locate a purloin automobile. Generally, this kit is meant to be placed for the four wheelers but for country like India where most of the people are using two wheelers, here is the cheapest source of an anti-theft tracking system. Automobile tracking systems are commonly used by agile operators for fleet management functions such as routing, dispatch, on-board information and security.

Other applications like watch the driver driving behavior, such as an employer of an employee, or a parent with a teen driver. Automobile tracking systems are also popular in

consumer automobiles as a theft prevention and retrieval device. Police can simply follow the signal emitted by the tracking system and locate the stolen automobile. The rest of the paper is as follow. We review related technology in section. In section III we proposed the design of tracking system and execution. We conclude our work, advantages of device and future scope in section.

The Global Positioning System (GPS) is the only fully functional Global Navigation System (GNSS). The GPS uses a sequence of between 24 and 32 Medium Earth Orbit satellites that transmit accurate microwave signals that enable GPS receivers to determine their location, speed, direction, and time [1-4]. A GPS receiver receives the signals from at least three satellites to calculate distance and uses a triangulation technique to compute its two-dimension (latitude and longitude) position or at least four satellites to Compute its three-dimension (latitude, longitude and altitude) position[5-6]. Movement is the spatio-temporal (means both space extension and temporal duration) process par excellence. Technological advances of location-aware devices, surveillance systems and electronic transaction networks produce more and more chance to trace moving individuals. so, an eclectic set of disciplines including geography, data base research, animal behavior research, surveillance and security analysis, transport analysis and market research shows an increasing interest in movement patterns of entities moving in various spaces over various times scales [7-11]. In the database community there is plenty research on moving object databases (MOD) [12-13] and abstraction from spatial data queries to spatio-temporal data queries. In our proposed IOT based automobile tracking system sends us the geographical coordinates; with the help of these coordinates we can track our automobile position on the electronic maps using IOT. Based on this technology of tracking systems, we can share real time live information about transportation, automobile details and possible approach time.

2. Experiment Methodology

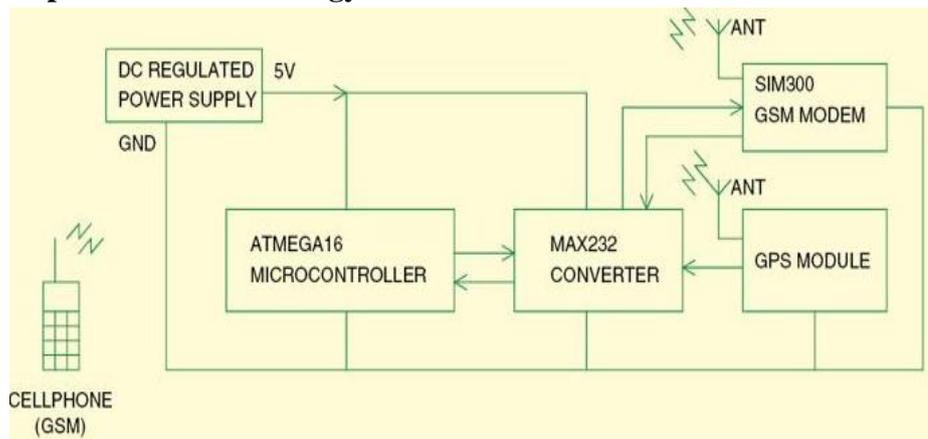


Fig.1. Tracking (angle) system diagram of GSM and GPS.

This circuit is mainly designed for tracking the location of objects. Most of the systems for tracking are made by using GPS. This is very convenient and easy. These systems are mostly used by tracking operators for tracking down a location of automobile, enrooting and others. This is excellent procedure to protect automobiles from being stolen. This tracking system

sends us the geographical coordinates and by using these coordinates we can track our automobile location on maps using IOT. By using this type of tracking system, we can share real time information about transport systems. And also, can be give real time information or position of moving automobiles with passengers.

3. Existing Methodology

An automobile tracking (angle) system consists of the use of automatic tracking of automobile location in individual automobiles by using software that collects the data for a picture of automobile locations. Modern automobile tracking systems commonly use GPS technology for locating the automobile, but other types of automatic automobile location technology can also be used. Automobile information and location can be viewed on electronic maps via the specialized software. People transit authorities are an increasingly common user of automobile tracking systems, particularly in large cities.

Many types of automobile tracking devices are existing. Typically, they are divided as "passive devices" and "active devices". Passive devices store location, speed of automobile and sometimes a trigger event such as key on/off, door open/closed. Once the automobile returns to a predetermined point, the device is removed and the data saved to a computer. These systems include auto download that transfer data via wireless download. Active devices also collect the same information but usually transmit the data in real time by cellular or satellite networks to a computer or data centre.

4. Proposed Methodology

The proposed automobile tracking system consists of a tracking monitor and controls the system, web interface to check automobiles' location and number of in-automobile units with embedded GPS receivers that have been installed inside each automobile as illustrated.

The automobile unit is responsible for detecting the location data repeatedly and save this information in an internal database. That data is then sent to the tracking server periodically. The time interval of data transmission depends on the chosen operation cost and the in-automobile unit this design will continuously monitor a shifting Automobile and find the status of the Automobile on demand. For doing so microcontroller is interfaced serially to a GSM Modem and GPS Receiver. A GSM modem is used to send the position (Latitude and Longitude) of the automobile.

The GPS modem will continuously send the data i.e. the latitude and longitude indicating the position of the automobile. The same data is sent to the mobile of owner at the other end from where the position of the automobile is demanded. When the request by user is sent to the number at the GSM modem, the system automatically sends a return reply to that mobile indicating the position of the automobile in terms of latitude and longitude in real time.

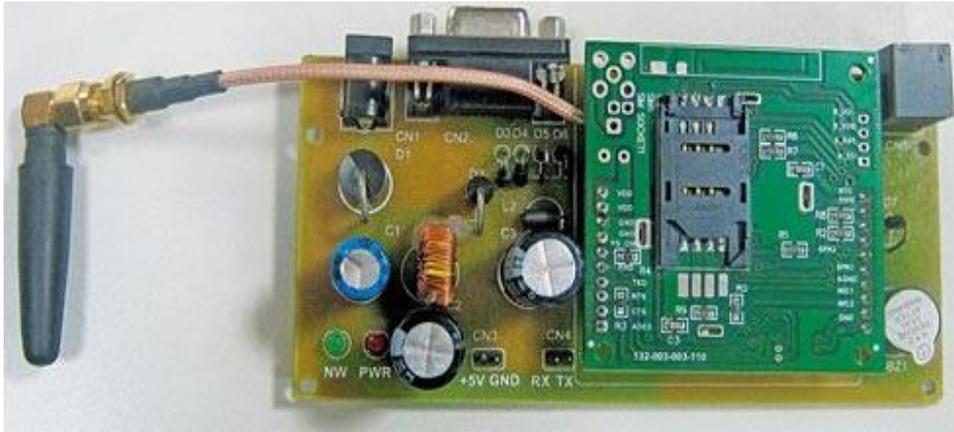


Fig. 2. Module of GPS System.

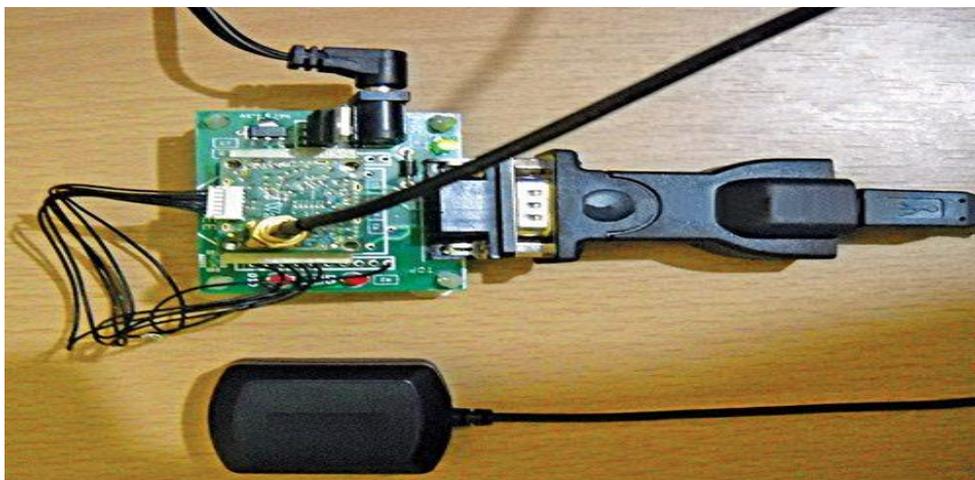


Fig. 3. Module of GSM System.

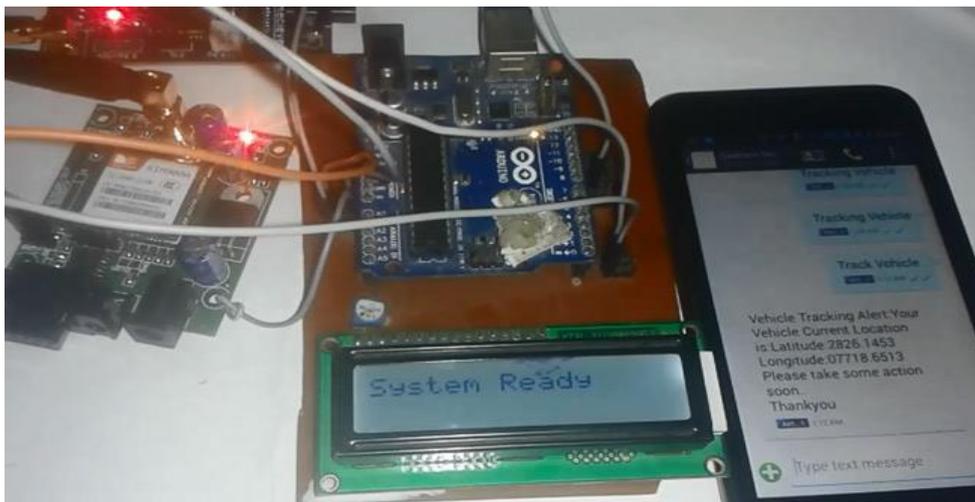


Fig. 4. Output of automobile tracking system.

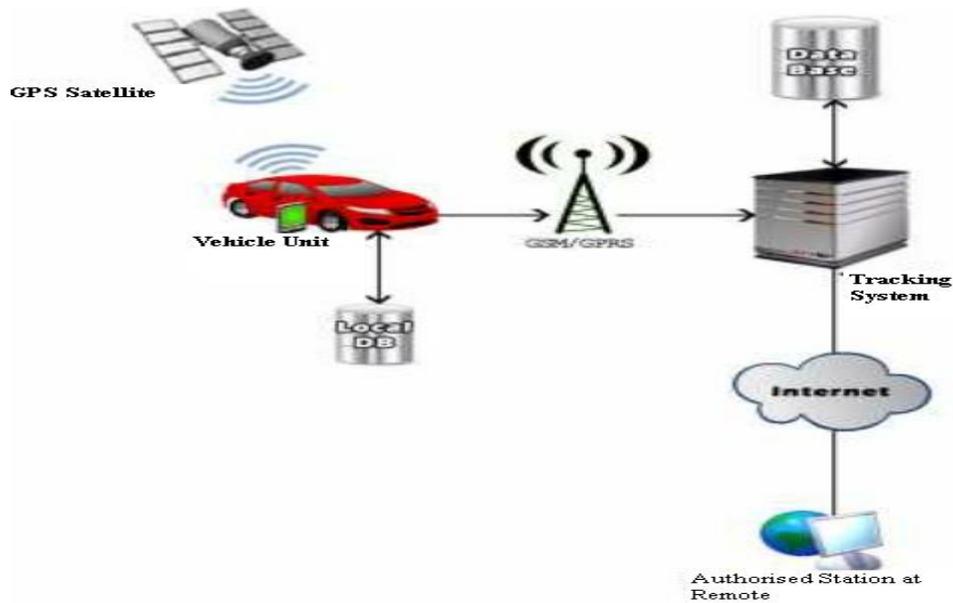


Fig. 5. Tracking (angle) System model of a Proposed Project.

5. Results and Conclusion

In this paper we proposed an anti-stealing system which can be used to track (angle) a automobile fitted with the proposed tracking (angle) device using IOT in it. It can also be used in asset tracking, wild animals tracking and in shield automobile get back from theft. We may integrate other related devices such as automobile tracking (angle) using IOT devices in a automobile such as sensors in future. By establishing a personal computer with server to see the automobile tracking (angle), enrouted and other information on our computer, we can load the trajectory path of automobile. The IOT sensors are installed in our automobile that can report the automobile information to our established server and it can form an IOT tracking system. Therefore automobiles owners prefer to use GPS as security measure for various reason such as locating latitude and longitude, especially while travelling in a foreign land. GPS help us to identify location when you are lost. Automobile tracking systems using IOT are mostly used by naval operators for ship management functions such as enrouting, delivering, on-board data information and security. Other applications include monitoring automobile driving behaviour, such as an employer of an employee, or a parent with a teen driver. The automobile tracking system through IOT technology can be tracked by receiving messages through mobile phone. There is a message command by which we can track (angle) the automobile and this command is to send an SMS; “TRACK (angle) Automobile” to the registered SIM card number in the GSM modem. This command initiates the GPS modem and receives the latitude and longitude position and this information will then be sent as SMS to the mobile device. Whenever theft occurs or on demand request of the automobile’s location, the device sends a message to the automobile owner’s mobile device as shown on the mobile phone screen. In future with the help of advanced microcontrollers and tracking (angle) sensors and GPS and GSM module we can achieve exact locations and better information to the society.

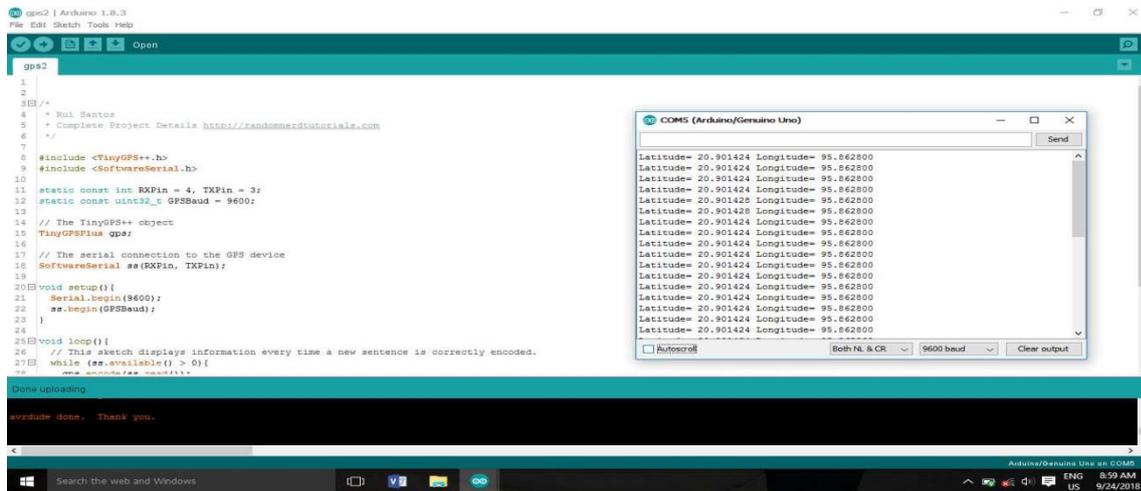


Fig. 6. Serial monitor of GPS Module of existing project.

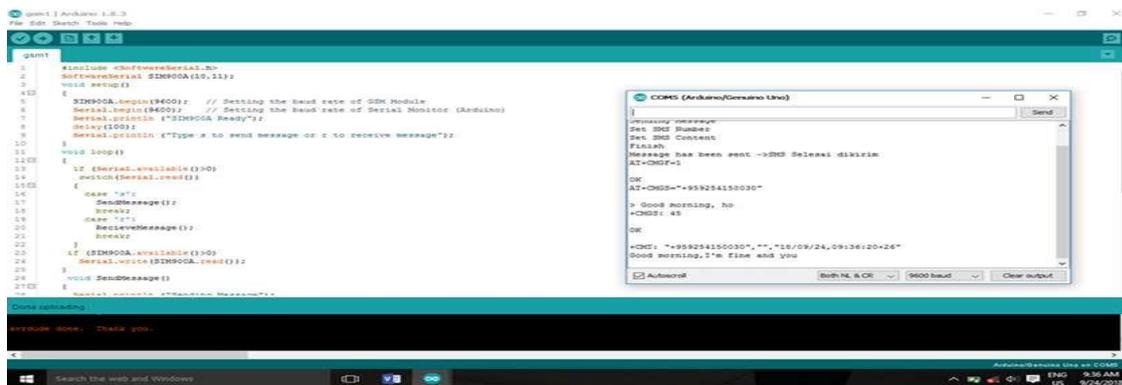


Fig. 7. Serial monitor of proposed system GPS Module.

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