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Paper Authors

DR. H N SURESH, MONISHAA A



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GSM AND GPS BASED LIVE VEHICLE TRACKING SYSTEM USING EEPROM

¹DR. H N SURESH, ²MONISHAA A

¹Professor and PG coordinator Electronics and Instrumentation Department

²Electronics and Instrumentation Department Bangalore Institute of Technology

V.V. Puram, Bengaluru-560004, India

¹hnsureshbit@gmail.com ²monishaa.xolcano@gmail.com

Abstract -Tracking location place a leading role regarding their safety measures of school children during travel in vehicle from school to home and to monitor their travelling place of live tracking vehicle. GSM which is supposed on 2G based network uses GPS to track the locating position through co-ordinates. With the ease of SIM available on GSM module which reordering use of GPRS, the internet gets connected which also connects the hardware devices over the network to IoT platform of Blynk which is mobile IoT. EEPROM internal Arduino memory is used in Arduino IDE for storage purpose which also works even when power is turned inactive. Through latitude and longitude the position of vehicle is tracked from anyplace. School management and including many parents can track their children during their travel. Login credentials are shared with parents to keep tracking which will be easier to pick up and drop and to locate current location.

Keywords - Global system for mobile communication (GSM), Global positioning system (GSM), General packet radio service (GPRS), Internet of things (IoT), Integrated development environment (IDE), Electrically erasable read only memory (EEPROM).

I. INTRODUCTION

Nowadays tracking and monitoring plays a major role to know the information about the motion of the vehicle to ensure the safety of the person. This is where GPS plays its role of existence, which is cheap and secure. Global positioning system is the arrangement by which anyone can acquire information regarding position being anyplace in the world. GPS system primitively NAVSTAR form of GPS which is a network of celestial body based that works on the principle of Broadcasting navigation. Radio-communication navigation is the application of the wireless absolute frequency to regulate the rigorous orientation of an target on Earth. NAVSTAR is designed to operate with minimum of 24 satellites in orbit. It operates individually in all android mobile phones. This universal navigation gives the best

solution which has great accuracy in finding out geographic position, time information, and location. The functionality of GPS scheme entirely depends on the cellular communication equipment. It will not work absolutely when there is poor cellular network, in this case the application of providing exact location gets failure [1].The proposed methodology mainly focuses on tracking of live location of the moving school vehicle. The purpose for comparison of images of different locations where vehicle is moving by including its coordinates. Live updates of location position using GPS is calculated.

II. LITERATURE SURVEY

Lee S, Tewolde G, Kwon J [2] proposed a method of using device communicating that are based upon location which retrieves ongoing localization without making call to anyone or

perturbing the person travelling inside the bus. This proposed technique helps a person who is waiting with patience for the bus to track the position orientation of the bus. The coordinators and the people travelling inside bus should possess an android impelled mobile phone with internet connectivity. GPS supports area following with backing of GSM in cellular telephony to account conveyance area information. The drawback of this arrangement is need of internet to track all the time. Pradhip V. Mistary, RajanH . Chile [3] proposed a Realistic instance vehicle pursual system supported on arm7 GPS technique and GSM discipline which is enforced for monitoring the happening of the equipped vehicle of any location at any period time. In this paper, author proposes GSM modem integrated with objective of facultative users to locate their vehicles with the ease of and in the expedient fashion. This system of rules furnish the adroitness to track to the exploiter for their vehicle distant. It uses mobile web for providing system information. The drawback of this technique is there is no proper updates in tracking vehicle. Tracking the travelling vehicle for the multiple users is not possible using this system.

Akshatha S A [4] exhibited a review on GPS supported vehicle trailing over tracking and observance system . In this paper, solutions for exoteric transportation of public are produced and realized. Here GPS antenna along with Raspberry pi microcontroller are considered. Outcome of this arrangement makes employment of GPS antenna that helps in give a direction travelling vehicle to the passengers using location following the use of space based navigation system. The drawback of this technique used is the cost of microcontroller used is high and system may not be effective as

the driver should drive the vehicle in the passenger defined path.

Sowjanya Kotte and HimaBindhu Y anamadala [5] showed different kind of working using GSM and GPS on Google Earth for advanced vehicle tracking system. The information fetched by GPS system intended with following attribute are transformed, like after every specified period time instance the information of the school vehicle circumscribed by user. This transmissible substance is displayed on the display social unit by using the search engine google earth to showing vehicle locating in the electronic google maps. The disadvantage of this proposed technique is the information to update in google map depends on user defined is not effective.

BaburaoKodavati,V.K.Raju [6] proposed a paper which is the study of effect on GSM and GPS supported tracking system of rules with Google map settled observation where RF transmitter is exploited which is attached with vehicle that has its own recognition. The assemblage which transmits incessantly to RF receiving system which is conterminous with microcontroller. GPS will acquire the emplacement of vehicle and transmits information to the controller. If RF signal is not acquire then receiving unit triggers a signal where theft can be identified. It will automatically send SMS through GSM modem. The drawback of this system isthe region near RF cellular positioned towers have been ascertained with more descent comparability to other areas.

III. METHODOLOGY

When doing comparison with other proposed method where here Blynk which is mobile IoT is installed. To interface GPS in Arduino library must be downloaded and linked which helps in tracking.

The live tracking of moving school vehicle is done by using GSM modem (Modulator and demodulator) that interfaces with ATmega328p microcontroller. Extensive coverage can be made using this proposed module which is distributed use passim all over the world-wide. Though GSM has a harmonious spectrum, which agency that justified though operating on contrasting absolute frequency bands, users can conveyance data between net and keeps the corresponding routine. Using this method which establish easy communication between users and devices. AT (Attention) commands are used to do this which are the instructions used to control a modem. Many of the commands are used for multiple uses here particularly for location co-ordinates, which are also supported by GPRS. Using same login id and password of BlynkIoT parents of concerned children can track their updates of the moving school vehicle which is displayed on the mobile app. Using of EEPROM which works even when power is turned off that helps in giving continuous of tracking data of live vehicle.

The overall various steps to be followed for tracking live vehicle moving is as follows,

1. The vehicle is fixed with GSM module which is mounted with microcontroller and GPS.
2. The GPS satellite utilizes GPS signal for giving out location position information through co-ordinates.
3. The GSM module which has sim slot makes use of valid sim in order to communicate data to the users through GSM network using AT commands.
4. Then the GPRS updates the location co-ordinates using GPS to the blynk server where it helps in tracking.
5. The Arduino microcontroller is communicated with GSM module

through its UART connection having transmitting and receiving functions.

6. Microcontroller which has inbuilt EEPROM memory which is used for storing data continuously even when power goes off, which gets restarts until reset is pressed on the board.
7. Display of moving live vehicle is done on blynk.
8. Collecting of travelling data of the vehicle of anytime on any date can be seen.
9. Finally the different parameters are found and compared with the existing method.

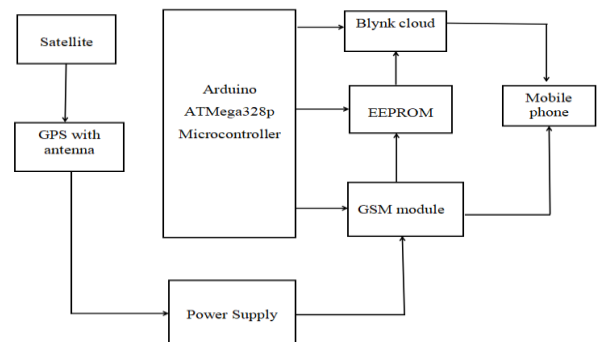


Fig 1: Block diagram of the proposed methodology

IV. EXPERIMENTAL RESULTS

Various parameters can be used to define the performance of this technique. The results of this method can be compared with other methods by using few parameters like

1. Location of the vehicle – The GPS keep tracking location updates by logging in into Blynk platform with credentials the location information of moving vehicle can be viewed using appropriate menus on the website.

2. Speed of the vehicle – Coverage of speed of the moving vehicle is measurable factor in fetching the information through GPS based live vehicle tracking system, as maximum number of satellites support which provide information regarding the signals which gives effective information.

3. Technological Circumstances – The most recommended method of technically using GPS which makes communication faster and easier with dedicated device. The government activity stipulate the GPS signaling in space with a orbicular average exploiter extent rate erroneousess (URRE) of ≤ 0.0060 m/sec over any 3.0-second interval, with 95% quantity.

4. User context – A GPS recipient calculate location orientation position by incisively timing the signal in time slots where by the provocation conveyed by GPS satellite broad preceding the Earth. Each artificial satellite ceaselessly conduct content that include the time period message was transmitted at the time of message transmission.

IMAGE-1:

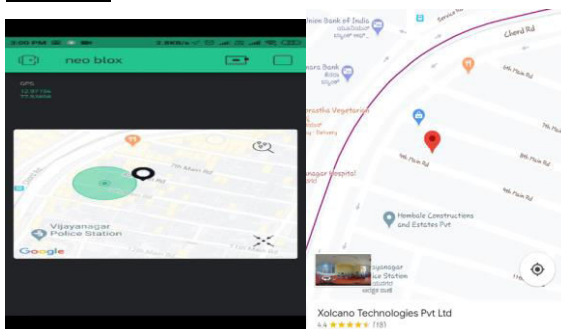


Fig 2: Results of Tracking (Blynk and Google map)

IMAGE-2:



Fig 3: Arduino interfacing with GSM

IMAGE-3:

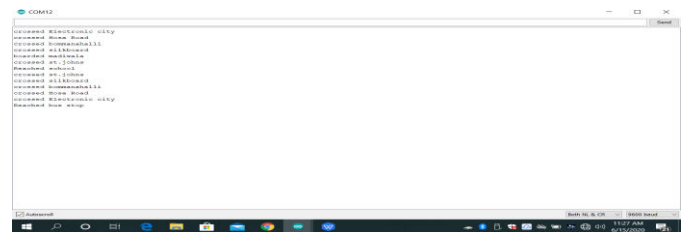


Fig 3: Results of EEPROM (live recording data)

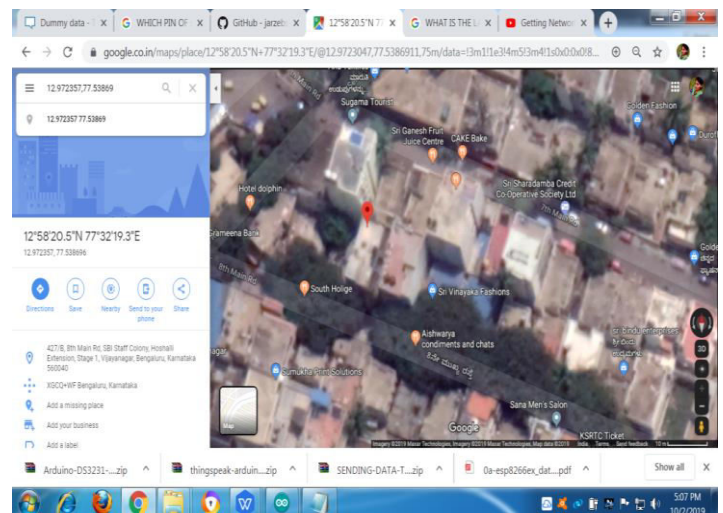


Fig 4: Live location tracking of school vehicle

V. CONCLUSION

This projected method for pursuit tracking moving live school vehicle ensuring safety of school children which uses GSM embedded with GPS interfaced with Arduino. The step by step process is carried out where tracking of location is made much easier compared to all other methods. The co-ordinates which are latitude and longitude are provided with correct degree using GPS positioning satellite. Internet of things which makes every existing role into very simple manner rejecting complication techniques. BlynkIoT is mobile application which is linked that made this proposed technique to monitor easier way, without using any other extra applications. EEPROM which stores the data in byte is made used in internally in AtMega328p where continues data of moving vehicle is updated without any loss of information that acts as backup.

The estimated parameters will have different functioning depending upon the location of the image. That can be seen by calculating the parameters like speed of the vehicle, co-ordinates and technical contexts. In this method proposed here, the use of GSM 2G network for communication which is enabled for limited services mainly to call and SMS later evolved other generations for other applications. So a new method can be implemented which can use extension of uses in existing generation of network with better results than the existing. This is the future scope of this project.

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