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LOCUS TRACKER USING GSM/GPS MODULE

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Abstract

Location based services has enabled people to locate and track the location of other people, objects, machine, vehicles, and resources, from the comfort of their home as long as they have the required gadgets such as a smart phone. Most applications today use Global Positioning System (GPS) to provide location information; for example, social networking sites like Facebook which allows users to share their location with friends and family. Another common example is applications that allow users to retrieve weather forecast data based on their current location. The purpose of this project is to develop a tracking / monitoring device for vehicles using GPS and GSM devices. This project is useful in many situations, like in case of car theft detection. Car tracking using GPS project will be useful when our car is stolen. Also, if somebody wants to track the location of children if lost, at that time it will be very helpful. This device is very useful for women's safety as well.

Keywords: GPS, GSM, configure, coordinates, SAMD controller, LCD

1. INTRODUCTION

In the present-day, vehicle tracking is becoming essential for the purpose of improving our life condition. Vehicle tracking offers a way in which an individual gets to control his vehicle using a smart phone, from tracking a vehicle /detecting accidental place of a vehicle; it also offers an efficient use of technology. But to get or acquire such system installed will cost a lot of money and that is the major reason of why vehicle tracking has not received much demand and attention. Thus, it is essential to make it cost-effective and easy to configure. If this is granted to people, then they will be willing to acquire it in their personal vehicles, school buses and taxes/cabs etc. Also, this tracking project can be used to purpose of women safety as well as parents can be used to take care of their child/kid for the safety or missing purpose or to track their activities for their future.

2. RELATED WORK

Advanced Vehicle Tracking System on Google Earth Using GPS and GSM: In this

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paper, GPS based vehicle tracking/navigation system is implemented. This is done by fetching the information of the vehicle like location, distance, etc. by using GPS and GSM. The information can be transformed using the location of the vehicle obtained after every specified time interval defined by the user. Then this periodic information of location is transmitted to monitoring or tracking server. This transmitted information is displayed on the display unit by using the google earth to display vehicle location in the electronic google maps.

Vehicle tracking and accident warning System using GPS and its implementation in FPGA: In this paper, the location of the vehicle is determined by using GPS. The information from the GPS receiver is sent in the form of SMS to the user with the help of GSM. Once this SMS is received from the user, a response type of message is sent to the owner of the vehicle through the GSM modem. A sensor which is named as accelerometer sensor is then used to detect any kind of accidents that may happen with the vehicle. Unlike the microcontroller used in many systems, this system also uses a FPGA Spartan processor which manages all the parts responsible in system as according to the program done.

3. IMPLEMENTATION

"Design a vehicle tracking device with multiple purposes such that it is of low cost and easy to use. It should be able to track down the location of the vehicle and give the map coordinates (latitude and longitude)in the form of an SMS which can later be viewed in the Google Maps. It should be portable and should work even if the vehicle is in a remote area.**"**

The project seeks to follow the following steps:

- Cost-effective.
- Low maintenance.
- Easy to use.
- Portable
- Multi-purposed

Methodology

We are using an A9G GPS+GSM+GPRS module operated with the help of a simple 3.9V lithium-ion battery. The board has a 32-bit SAMD controller from Atmel which can be programmed using Arduino IDE. A SIM card will be inserted into a specific slot. After programming the board using Arduino IDE, the board will take some time for tracking the location by fixing the GPS coordinates. You can then request the location by sending any message like "LOCATION" to the phone number of the inserted SIM card.Within a while, you will receive an SMS along with the Google

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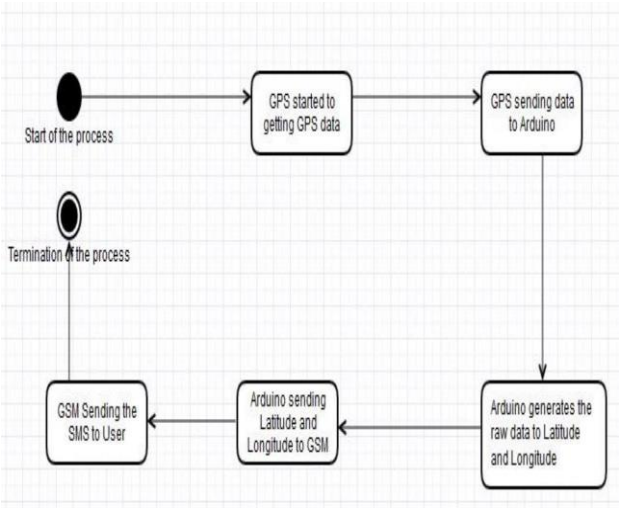
Maps coordinates.By pressing on the coordinates, we will be directed to the Google Maps which will show us the exact location.

4. EXPERIMENTAL RESULTS

Tracking is the surveillance of location through use of Global Positioning System (GPS) to track the location of an object. The technology can pinpoint longitude and latitude of the target. The GPS consists of 24 satellites on the orbit of the Earth which makes it possible to pinpoint their geographic location. The location accuracy ranges anywhere between 10 to 100 meters for most equipment. Accuracy can be pinpointed up to one meter.A tracking unit is a navigation device normally on a vehicle, asset, person, or animal that uses the Global Positioning System (GPS) to determine its movement and its actual location. GPS tracking devices send special satellite signals that are processed by a receiver. Locations are stored in the tracking unit using the cellular network. Locus Tracker works on cellular signal. It doesn't require any mobile data and it works everywhere. It directly sends the signal to GSM module and from that to SIM, we can get access to the location easily.



Proposed System Design

Schematic Diagram

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Prototype

5. CONCLUSION

The prime objective of this project is to track location of stolen vehicles. This project gives a basic idea of how to track the vehicle whenever it is misplaced and subjected to theft. This project is based on software platform very popularly known as Arduino, which is Free Open-Source Software. The total implementation cost of the project is very cheap and is affordable by a common man. We have introduced the design and implementation of a low-cost vehicle tracking system. This system can be easily manufactured on a large scale for mass production because of its simplicity and ease of design. With improvements in technology of Arduino software, which is open source, cheap IoT based components can be controlled in our project, making the total system cost affordable for mass production.

6. REFERENCE

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