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An Analysis of GPS and GSM-Based Car Tracking Systems

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ABSTRACT:

It examines several tracking methods based on GPS and GSM. Vehicle mapping is one of the most crucial elements in the context of travel, which is mainly utilized by many drivers. A car tracking system combines the configuration of a device that is mounted inside or on top of cars with specially designed computer software that enables the owner to follow the whereabouts of the vehicle while gathering information. However, a variety of automated car location technologies are available for application. GPS satellites are now widely used by auto tracking systems to locate the car. Using the Internet or specialized software, a person can view or locate vehicle data via an electronic Google map.

Keywords: GPS (global positioning system), GSM (global services for mobile communication), vehicle tracking, and navigation.

I.INTRODUCTION

Car mapping is one of the most significant applications of travel, mostly utilized by drivers. In this area, the maps that the computer provides the driver with are the most important. When large things, such as cars, spread out across the ground, it was often difficult for the owner firms to keep an eye on what was going on. We required some sort of system to continuously record the object's location and distance travelled. Additionally, since authorities can use tracking information to locate stolen automobiles, consumers should keep an eye on their vehicles to prevent theft of any kind. A GPS and GSM-based tracking device will give consumers precise, real-time vehicle tracking and data that will tell them where the car is, where it has been in the past, and how long it has been there. It gathers geographic and temporal data using the Global Position Satellites. While the vehicle is moving, text messages are sent to report real-time vehicle variables, such as setting [9]. The network uses wireless communication to provide a transport motor and effective leadership.

II.LITERATURE SURVEY

1. A sophisticated GPS and GSM-based car monitoring system on Google Earth

It makes use of a vehicle monitoring and navigation system based on GPS. Setting, distance, and other vehicle data are retrieved using GPS and GSM. These features make it possible to change that data: the customer receives information about the car, including its location and other facts, at each user-specified instant interval. An alert or tracking server then receives this map data on a regular basis. While reflecting the supplied data to the display device, Google Earth displays the car's location on an electronic Google Map.

2. Vehicle tracking and accident warning system using GPS & its implementation in FPGA

A GPS system is employed in the tracking of the vehicle’s position. This information is relayed through a GPS device which is forwarded to the users as a message via GSM technology. Owner of the car receives a reply message from the cellular modem after the user receives this SMS. An inertial sensor is then used to identify any mistakes or events involving the vehicle and, in the event of such disasters, to sound a warning. Additionally, instead of using the Arduino present in many other systems, it employs a Field Programming Graphics Spartan CPU, which controls every component.

3. GSM & GPS based tracking system

For commuter vehicles like buses and taxis, it provides a tele tracking and supervision system for the movement of these vehicles within the town. A "On-Board Unit" is installed in the intended vehicle as part of the procedure described in this article. GPS, a GSM modem, and the ARM processor are all included in this module. The navigation message as it is delivered from the GPS satellite location is received and decoded by the GPS receiver on the car terminals. Using a GSM communication controller, the satellite in question determines the latitude and longitude of the vehicle's supervisors, transforms them into a brief text message, and transmits the information to the monitor office via GSM.

4. **The Google Maps-based monitoring and tracking system using GPS and GSM technology.**

In order to retrieve the longitude and latitude coordinates of a satellite during the crucial information, it uses Global Positioning Devices (GPS). We are all aware of how important tracking structures are in the modern world. This gadget can be used for a variety of purposes, including troop monitoring and auto theft detection. This network includes GPS, GSM, and microcontrollers. This network just requires a single GPS device, and simultaneous communication is made possible via SMS. The GSM modem, which employs the same common communication protocol as a regular phone, comes with a SIM card.

5. GPS and GSM-based car tracking and location System

It makes use of an RF emitter that is fastened to a vehicle with a unique identification number. the data that will be continuously sent via the RF sensor connected to the micro-controller. The GPS will gather location information from the car and transmit it to the microprocessor. In order to determine the signal loss, the receiver unit will send a signal to a microcontroller if the RF. Since the car's owner receives the information by GSM SMS, if it turns out that the vehicle is stolen, it will notify the person and provide a map of the vehicle.

III.COMPARATIVE STUDY

It's evident from earlier car monitoring techniques that each one is appropriate for its intended use; nevertheless, in some situations, we require continuous internet access, and these gadgets may shut off if the internet is unavailable. The first method uses a GPS to pinpoint the precise location of the vehicle and send the data to the controller. Google Maps is then used to display the car's location on the unit's screen. However, without internet access, this technique is worthless because only Google Maps can show the car's location.

Each component in the other system is identified programmatically using FPGA.By take account of all of these factors, the forthcoming roll out ought to remove all of the disadvantages while offering a lot more functionality that will render the system intuitive and efficient.

IV.CONCLUSION

Auto tracking systems are growing more and more popular every day, not just in large cities but even in small towns, since they are now an essential tool for everyone who wish to be sure their car is secure. The user can easily track his car at any time and from any location because of its complete integration. Despite being aware that auto theft is on the rise and that individuals have no ability to stop purchasing cars as a result, people have discovered a successful method to monitor their vehicles by keeping them very close to them. Such devices could successfully prevent theft and keep a close enough eye on them. All of these solutions essentially employ GPS and GSM to track the car. This technique can be used by the user to determine the type of car, its mileage, and its distance travelled .The location of his car is always known to the user. This approach is quite safe and reliable. The setup's effectiveness is further increased by the ease with which it may be modified to meet changing needs without having to start from scratch.

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