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Vehicle Tracking System Using GPS Tracking Method

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Abstract:

A vehicle tracking system is an electronic device installed in a vehicle to enable the owner or a third party to track the vehicle's location.Multi-tracking system is a real time tracking platform which uses integration of technologies such as GPS.The device installed in the vehicle continuously moves and other related information at each position and then transmit to tracking server, thus storing it in the database. Currently almost of the public having an own vehicle, theft is happening on parking and sometimes driving insecurity places. The safe of vehicles is extremely essential for public vehicles. As more devices become GPS enabled, accuracy will increase and the system's scale and global reach will benefit everyone. Wireless technology promises to be a key element in any long-term solution. This design will continuously monitor a moving Vehicle and report the status of the Vehicle on demand

Keywords — **GPS Tracking System, Vehicle Tracker , Security System .**

I. Introduction:

Vehicle tracking systems were first implemented for the shipping industry because people wanted to know where each vehicle was at any given time. To resolve such problems, a system is developed using GPS technologies and an application is introduced in this research work. The vehicle tracking device is classified as active and passive where passive devices store GPS data and later this device is removed and downloaded to a computer for evaluation whereas, active devices collect the data and transmit it in real time over server. Generally, this transport is arranged through the local transport vendors on a yearly contract basis, recently happen mishaps such as burglary, rape cases etc. This vehicle tracking system found in clients vehicles as a theft prevention and rescue device. Vehicle owner or Police follow the signal emitted by the tracking system to locate a robbed vehicle in parallel the stolen vehicle engine speed going to decreased and pushed to off. After switch of the engine, motor cannot restart without permission of password. This system installed for the four wheelers, Vehicle tracking usually used in navy operators for navy management functions, routing, send off, on board information and security.

II. System Architecture:

GPS tracking device: The device fits into the vehicle and captures the GPS location information apart from other vehicle information at regular intervals to a central server. The other vehicle information can include fuel amount, engine temperature, altitude, reverse encoding, door open/close, tire pressure, cut off fuel, turn off ignition, turn on headlight, turn on taillight, battery status, GSM area code/cell code decoded, number of GPS satellites in view, glass open/close, fuel amount, emergency button status, cumulative idling, computed odometer, engine RPM, throttle position.GPRS status and a lot more. Capability of these devices actually decide the final capability of the whole tracking system.GPS tracking server: The tracking server has three responsibilities: receiving data from the GPS tracking unit, securely storing it, and serving this information on demand to the user.User interface: The UI determines how

one will be able to access information, view vehicle data, and elicit important details from it. When a vehicle collision occurs ,dual axis accelerometer detects the level of collision and then small range accelerationsensor automatically detects the vehicle roll angle is greater than the set value given using GSM Technology to senda accident information to the owner family and rescue units.

Fig1.GPS System Architecture

III. GPS Location Module

The Global Positioning System in vehicle tracking systems is commonly used to provide users with information such as the location coordinates, speed, time, and so on, anywhere on Earth. In this work, a GPS module and a GPS receiver available from the Spark fun website, is adopted to implement the in-vehicle device. The GPS module has the GPS receiver with antenna. There are two slide switches and one push button switch.New improved GPS Module with built-in antenna and memory back-up for OEM and hobbyists projects. This unit features low power consumption, high sensitivity. The unit is ideal for navigation systems, distance measurements, vehicle monitoring and recording, boating direction and location, together with hiking and cross country exploring.

This module includes high precision surface mount technology to provide both high accuracy and very compact size. The module can be easily installed on a main board, with all inputs using standard TTL signal levels. A series of standard NMEA format messages are provided to give position, satellite information, time, etc. The module can be easily connected directly to a microcontroller to display and record this information. Develop your own GPS navigation system or connect to a pocket pc for a low cost navigation system. Use in the car or boat for trip recording and distance to destination information. The possibilities are endless with this easy to use GPS module.

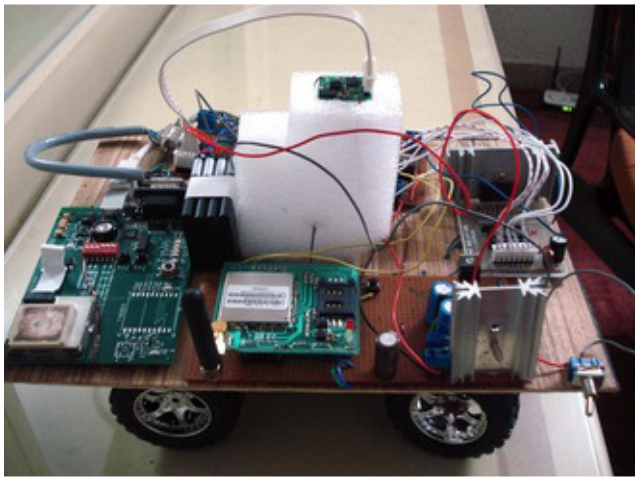


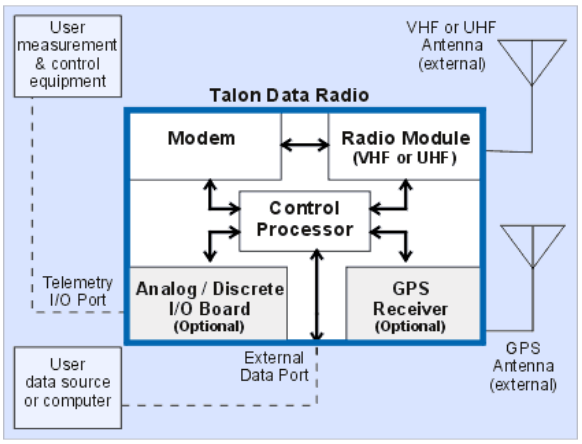
Fig1.GPS Locater System.

IV. Debugging and Testing Process:

Microsoft Open Database Connectivity is a standard programming interface for application developers and database systems providers. Before ODBC became a de facto standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database to

which they wanted to connect. The choice of the database system is made almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change.

In vehicle unit is also responsible for transmitting this information to Tracking Server located anywhere in the world. To achieve all these functionalities In Vehicle unit uses modules like GPS receiver, GPRS module and LPC2148. In Vehicle unit uses GPS receiver to capture the current location and vehicle speed. Location and speed data provided by GPS is not in human understandable format. This raw data needs to be processed to convert it into useful information that can be displayed by a beacon on the map. CPU is required to process this raw data. GPS receiver can also provide information of altitude, time of GPS fix, status of GPS fix, and number of satellite used to compute current location information along with location and speed. GPS fix means last reported location. For tracking purpose only location and speed data is required for transmission. Other data provided by GPS receiver is used to determine the validity of location information.A software simulator is a computer program running on an independent hardware and it simulates the CPU, the instruction set and the I/O of the target microcontroller.



V. System Software Design:

The Device user should be included in the software programming in order to receive the location values from the GPS device to server.The development environment for the system software is Code C program language been used. It is shows that the system includes the features as motorcycle accident information detection, GPS satellite positioning and alarm information sending. After the system initialized by powered-on, it runs the sensor calibration program and system self-test program. Sending alarm information when the system is abnormal. It is to determine to send "false alarm", “Emergency for help "and "reported safety" information by scanning keyboard signal. It is confirmed that the motorcycle accident occurred when data abnormal detected by information detection module. Position information searched by the GPS.

VI. Conclusion:

In this paper, we have proposed a novel method of vehicle tracking and locking systems used to track the theft vehicle by using GPS technology. It is having wide scope of applications such as live tracking or personal tracking. You can determine your location, whether you are travelling locally or in a foreign land, having a GPS is truly an advantage and many more similar applications thus, this system can prove

to be very helpful in future, providing more security.

VII. References

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