IoT based Vehicle Accident Detection & Rescue Information System

Dr.C. Nalini, N. Swapna Raaga

Abstract: In this project, an IoT based vehicle accident detection and rescue information system is developed in order to detect vehicle accident and send the location information of the accident place to vehicle owner, nearest hospital and police station via a web service. The communication between the web server and hardware device is established via GSM/GPRS shield, and the location is traced by using the GPS shield. The accident is detected through vibration sensors, keypad and buzzer. The project is developed for real time data fetching form the hardware device using through web application, android mobile application or SMS. This project approximately provides the accurate detection of the location of accident occurred, and send notification to the nearest police station and hospital.

Keywords: Accidents, Sensors, Automobiles, Global Positioning System, Smart Phones, Roads Vehicular Ad hoc Networks.

INTRODUCTION

The Internet of Things (IoT) is an arrangement of interrelated computing gadgets, mechanical and digital machines, objects, animals or individuals that are given one kind of an identifiers and the capacity to exchange information over a system without requiring human-to-human or human-to-PC communication.

IoT is a new concept that has evolved from the convergence of wireless technologies. Wireless communication is the transfer of information or signal between two or more points that are not connected by an electrical conductor. In IoT devices equipped with Wi-Fi allow the machine-to-machine communication.

1978. In the early years, the technology was not yet operational, due to an insufficient number of satellites orbiting the earth. On Jan. 17, 1994, after years of gradual growth, the final of the first 24 satellites was launched, and the GPS system was considered fully operational. Early GPS was designed primarily only for military but in 1996, President Bill Clinton determined that the system would be an asset to civilians as well as the military.

This policy change made GPS technology available to the average individual, including fleet managers, who could see the benefit of using the technology to keep tabs on their vehicles. In the early days of fleet tracking, in order to properly track a fleet, each vehicle had to be enabled with a costly GPS

Architecture of IoT

To do any project or research about IoT having knowledge of architecture of IoT is required. There are four layers of IoT architecture. They are Interface layer, Service layer, Networking layer, Service layer.

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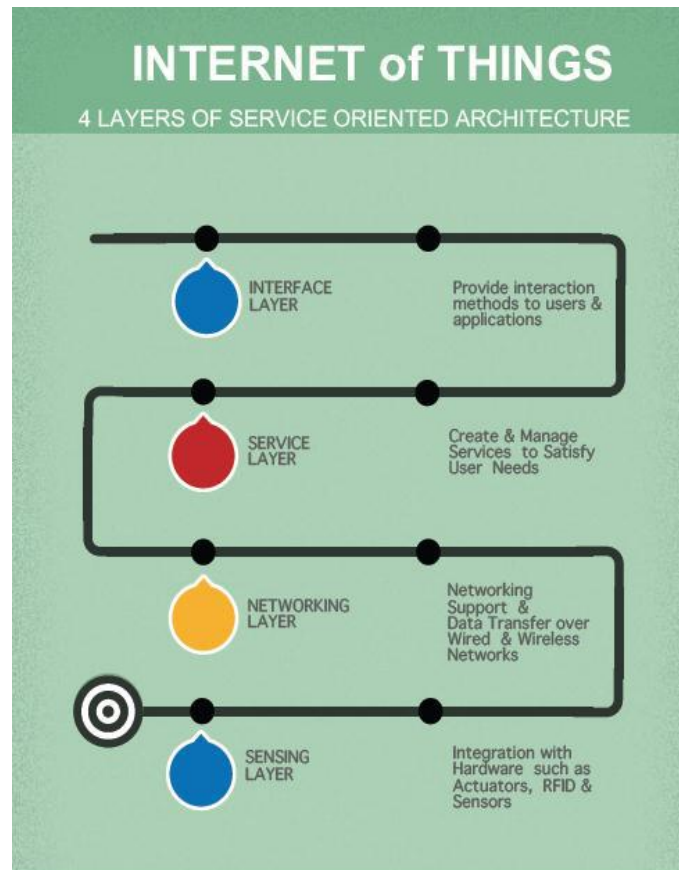
IoT Platforms and Security

Even with the recent attention given to security for IoT devices, it can be easy to overlook the need for end-to-end security for an IoT platform. Every part of a platform should be analysed for security prospects. From internet connections to the applications and devices to the transmitted and stored data, there is a potential for an attack vector. Without question, the single most important non-functional requirement of an IoT platform is that it offers robust security.

EXISTING SYSTEM

The existing system only use the information about the distance between the two vehicles provided by the ultrasonic system and does not need to explicitly knows the speed. The advent of technology has also increased the traffic hazards and the road accident take place frequently which causes huge loss of life and property because of the poor emergency facilities. This drawback can be overcome by proposed system.

Disadvantage

- It has low reliability
- Poor control system

PROPOSED SYSTEM

Our project work on the principle of detection and tracking of accident. The system is on and initialization. If vehicle is normal, no information sends to rescue team. Whenever accident occurred, the vehicle changes it's direction randomly and vibrates with high frequency .The MEMS sensor detects the happening with vehicle. The controller get the input from sensor and send the accident alert information to rescue team and family member and location of the accident place through WIFI and GPS .It can facilitate connectivity to the nearest hospital and provide medical assistance through IOT technology.

Advantages of Proposed System

- Sophisticated security.
- Monitors all hazards and threats.
- Wireless monitoring and user friendly file. A user can view the shared file within the application without downloading it and the same is possible with the edit option.

File Downloading Process

File downloading process is to get the corresponding secret key to the corresponding file to the user mail in and then decrypt the file data. The file downloading process re-encryption key to storage servers such that storage servers perform the re-encryption Operation. The length of forwarded message and the computation of re-encryption is taken care of by storage servers. Proxy re-encryption Schemes significantly reduce the overhead of the data Forwarding function in a secure storage system.

IMPLEMENTATION

The project is developed by using GSM/GPRS/GPS/Bluetooth Shield SIM808 directly connected to all the pins of Arduino. Pin 2 of Arduino is used for RX and pin 3 for TX. 3 vibration sensors are connected with Arduino in pin number 8, 9 and 10. A LCD display is connected at pin number A5, A4. A confirmation switch is connected in pin 6, and a warning buzzer is added in pin.
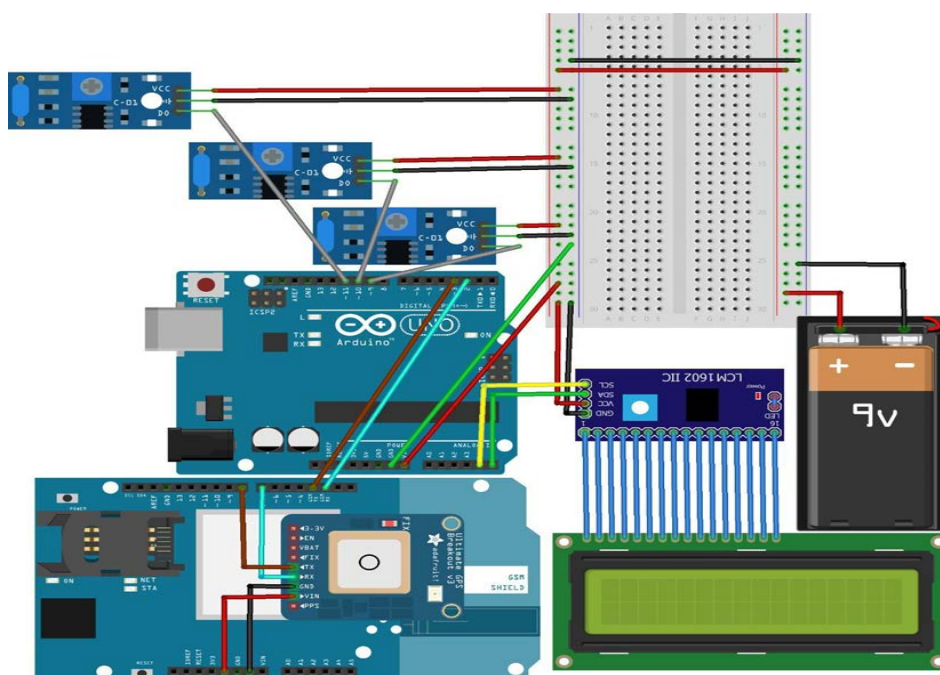
FLOW CHART
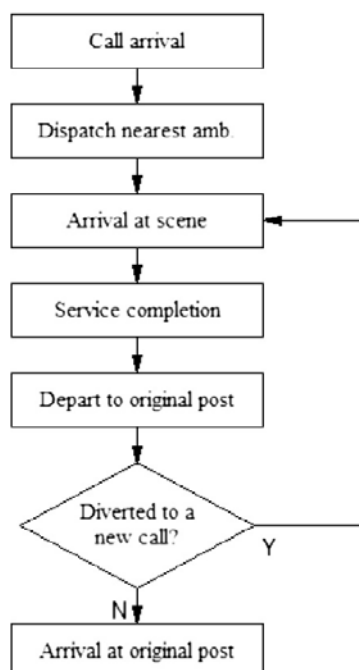
CONCLUSION

A privacy-preserving public auditing system for data storage security in cloud computing. We utilize the homomorphism linear authenticator and random masking to guarantee that the TPA would not learn any knowledge about the data content stored on the cloud server during the efficient auditing process, which not only eliminates the burden of cloud user from the tedious and possibly expensive auditing task, but also alleviates the users' fear of their outsourced data leakage. Considering TPA may concurrently handle multiple audit sessions from different users for their outsourced data files, we further extend our privacy-preserving public auditing protocol into a multiuser setting, where the TPA can perform multiple auditing tasks in a batch manner for better efficiency.

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