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ACCIDENT DETECTION AND AVOIDANCE SYSTEM IN VEHICLES

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Abstract: To avoid collision we need to calculate distance between obstacle and vehicle and sending alert to user, for this purpose ultrasonic sensor is use. Propose system will be useful for monitoring accident victim's location using Google map and GPS, as the Numbers of road accidents in India are increasing in huge quantity. To prevent this problems, using advance wireless technology of GPS, it is possible to provide medical facility to accident victim within very less period of time to save accident victims life. To save patients life it is very prime to hold out hospital within very short time. After collecting SMS hospital can make ready their staff for proper and fast treatment of particular patient. Accident information is also provide to the near police station and near hospital.

Keywords: *Android app, IOT, Accident Detection, Accident Avoidance.*

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I INTRODUCTION

The main concept behind the proposed system is to provide a smooth own for the accident victims to reach the hospitals in time. Moreover, the situation is gets more difficult to handle when emergency vehicles have to wait for other vehicles to give way at intersections with traffic signals for their destinations. In future it may get even more difficult. For this cause Recovery action while transportation need to be taken immediately to clear the way and give the way.

Mobile app to authenticate emergency and non-emergency conditions of accident victim. The main goal is sharing of information between accident victims and hospital. When the patient or his career has exact idea when the accident victim is arriving, they can take proper action according to feedback received. The sensor is capable of sending accident victims location to a server, from where it can be accessed by the hospital and the patient. This is the core part of the proposed accident victims tracking System which provides real time location updates of accident victims to the hospital. For an accident avoidance system, those sensors are used which are able to detect presence of any object or obstacle in front of the vehicle and can able to measure the distance between two.

Avoid collision ultrasonic sensor is used in this project. This sensor works by emitting sound waves at a frequency too high for humans to hear, then wait for the sound to be comes back, calculating distance based on the time required. This sensor is placed on the front side of the vehicle which measures distance between other vehicles present.

1. **Hybrid GPS-GSM Localization of Automobile Tracking System**, An integrated GPS-GSM system is projected to trace vehicles exploitation Google Earth application. The remote module includes a GPS mounted on the moving vehicle to spot its current position, and to be transferred by GSM with alternative parameters non heritable by the automobile's data port as an SMS to a recipient station. The received GPS coordinates square measure filtered employing a Kalman filter to reinforce the accuracy of measured position. After processing, Google Earth application is employed to look at the present location and standing of every vehicle. This goal of this technique is to manage fleet, police vehicles distribution and automotive stealing cautions.

2. **A survey on wearable sensor-based systems for health monitoring and prognosis**, in this paper, the design and development of wearable biosensor systems for health observance has garnered immeasurable attention within the scientific community and also the trade throughout the last years. Mainly intended by adding attention prices and propelled by current technological advances in miniature bio sensing devices, sensible textiles, electronics, and wireless communications, the continual advance of wearable sensor-based systems will potentially transform the longer term of attention by enabling proactive personal health management and omnipresent observance of a patient's health condition. These systems will comprise numerous styles of little physiological sensors, transmission compartment and process potential, and may so facilitate low-priced wearable unnoticeable solutions for continuous all-day and any-place health, mental and activity standing observance. This paper tries to comprehensively review this analysis and development on wearable biosensor systems for health observance. A variety of system implementations square measure compared in associate approach to spot the technological shortcomings of this state of-the-art in wearable biosensor solutions. An emphasis is given to multi parameter physiological sensing system styles, providing reliable important signs measurements and incorporating period of time call support for early detection of symptoms or context awareness. In order to decide the maturity degree of the very best present day achievements in wearable fitness-monitoring structures, a set of wonderful alternatives, that excellent describe the practicality and additionally the traits of the structures, has been hand-picked to derive an intensive look at.
3. **Health Monitoring and Management Using Internet-of-Things (IoT) Sensing with Cloud-based Processing: Opportunities and Challenges**, In this paper, Among the array of applications enabled by the net of Things (IoT), sensible and connected health care may be a significantly necessary one. Networked sensors, either worn on the body or embedded in our living environments, change the gathering of made info indicative of our physical and psychological state. Captured on a continuous basis, aggregated, and effectively mined, such info will evoke a positive transformative modification within the health care landscape. In explicit, the supply of knowledge at here to fore undreamed scales and temporal longitudes in addition to a brand new generation of intelligent process algorithms can: (a) facilitate an evolution within the practice of medication, from the present post facto diagnose-and treat reactive paradigm, to a proactive framework for diagnosis of diseases at an inchoate stage, in addition to bar, cure, and overall management of health rather than illness, (b) change personalization of treatment and management choices targeted significantly to the precise circumstances and wishes of the individual, and (c) facilitate cut back the cost of health care while simultaneously improving outcomes. In this paper, we highlight the opportunities and challenges for IoT in realizing this vision of the future of health care.
4. **Internet-of-Things Security: Denial of Service Attacks, Internet of Things (IoT) may be a network of sensors,** actuators, mobile and wearable devices, merely things that have process and communication modules and may connect with the web. In a few years time, billions of such things can begin serving in several fields among the conception of IoT. Self configuration, autonomous device addition, Internet connection and resource limitation features of IoT causes it to be highly prone to the attacks. Denial of Service (DoS) attacks which have been targeting the communication networks for years, will be the most dangerous threats to IoT networks. This study aims to research and classify the DoS attacks which will target the IoT environments. In addition to this, the systems that try to detect and mitigate the DoS attacks to IoT will be evaluated
5. **Smart Real-Time Healthcare Monitoring and Tracking System using GSM/GPS Technologies,** Health observation systems have rapidly evolved recently, and good systems are projected to observe patient current health conditions, in our projected and enforced system, we tend to target observation the patient's blood pressure, and his body temperature. Based on last decade statistics of medical records, death rates because of hypertensive heart condition, shows that the vital sign may be a crucial risk issue for hardening of the arteries and ischemic heart diseases; thus, preventive measures should be taken against high blood pressure which provide the ability to track, trace and save patients life at appropriate time is an essential need for mankind. The objective of this work is providing an efficient application for Real Time Health observation and following. The system can track, trace, monitor patients and facilitate taking care of their health; therefore economical medical services may be provided at applicable time.
6. **Design and Evaluation of an IoT enabled Secure Multi-service Ambulance Tracking System**, The Internet of Things (IoT) systems enable the communication of a diverse suite of devices and objects, however it is known that security is one of the major problems in these systems. This is mainly due to the fact that IOT devices work with very limited computational power and energy budget and conventional cryptographic techniques will be too expensive. To this end, we propose a novel hybrid security protocol and demonstrate its suitability through a real time ambulance service tracking application. First, we discuss practical problem that is of lack of information shared during transfer of a patient in ambulance to hospital. We

provide a solution to this with an IOT enabled ambulance tracking system. Second, we provide a secure protocol for IoT devices specific to the tracking system. The protocol uses implementation of AES-CCM optimized for IoT devices. It provides the basic communication requirements such as confidentiality, authentication and data integrity. The system work in a Server-Client model and we use dual channel to communicate with the IoT module. One secure channel (SMS), through which key exchange occurs, and one insecure (Internet), through which encrypted data is transferred. Finally, we present the evaluation metric of the proposed system including memory footprint and energy consumption.

7. **Distant Auscultation System for Detecting Lung Sounds of Patients on Ambulances,** The sound of the siren of the ambulance is for the safety of the road transportation, but interferes the auscultation of the lung and heart sounds. The system implementation is included by (1) ACER Aspire 17 notebook as a server in right side; (2) Huawei Amazing A6 smart mobile as a hot point in the middle; and (3) ACER Aspire 5 notebook as a client which the settings include IP address of host computer, and client, read and, write privileges of the data sockets, and running of NI data socket manager, and data socket server. Therefore, the parameters in the real-time DAS are verified as the better ones to prepare for the services on the ambulance.

III PROPOSED SYSTEM

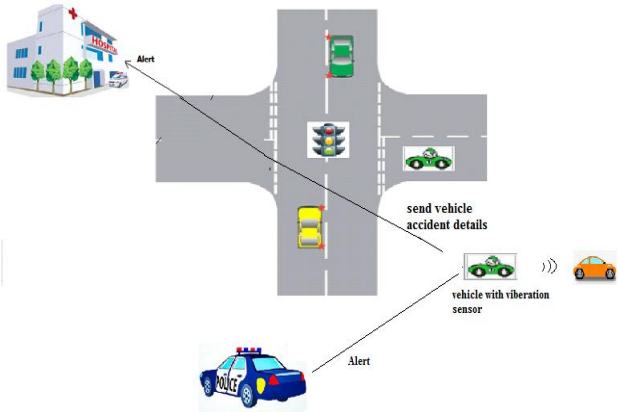

Figure 1 : System Architecture

For an accident avoidance system, those sensors are used which are able to detect presence of any object or obstacle in front of the vehicle and can able to measure the distance between two. Avoid collision ultrasonic sensor is used in this project. This sensor works by emitting sound waves at a frequency too high for humans to hear, then wait for the sound to be comes back, calculating distance based on the time required. This sensor is placed on the front side of the vehicle which measures distance between other vehicles present in the front. If detects that the distance is less than the threshold distance the vehicle will stop automatically. System will help in getting the current location of vehicle in an effective way. This will ensure that vehicle can't be transported to somewhere else. This system is developed using a GPS device. It is attached to the vehicle it continuously send location data to the controller and alerts the user about location through an android app.

IV ALGORITHM

K-Means:
Algorithm for clustering
Input : K- the number of clusters
D: a data set containing n objects
Output: A set of k clusters
Steps:
1) Randomly select k data objects from dataset D as initial cluster centers.
2) Repeat.
3) Calculate the distance between each data object di (1 ¡= i¡=n) and all k cluster
centers cj(1¡=j¡=k) and assign data object di to the nearest cluster.
4) For each cluster j (1¡=j¡=k), recalculate the cluster center.
5) until no changing in the center of clusters.
The computational complexity of the algorithm is O(nkt)
n: the total number of objects
k: the number of clusters
t: the number of iterations

V CONCLUSION

The proposed system continuously send location of accident victim to nearest police station and hospital .The accident victim tracking system can help in saving many lives. It can also send current location using GPS system to the server database. The server in turn sends location.

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