

Automated Emergency Call

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Abstract— Emergency medical response in India is lagging behind other countries in so much factors. This is partially because of lack of technology implementation in the country. To address the issue, we are introducing smart ambulance system. By the advanced technology we can get accurate information about the victim who met with an accident. This project combines hardware design and sophisticated electronic control technology into a compact, reliable package. The platforms that are used, capable of molding into various services that are implemented and it is believed that these technologies can make a revolutionary work in public GPS work if utilized properly.

Index Terms— Hospital, Sensors, Emergency call, Signal Transmission, GPS, MAX-232.

I. INTRODUCTION

In today's era, there are many cities which are working on transforming themselves into Smart Cities. If the city is going to be called as Smart City, then it should have all possible advancements in the sector of smart technology. Improving efficiency in health care sector is one of the difficult and most challenging jobs. That includes various aspects such as getting ambulance within minimum amount of time, providing proper treatment to the patient so that the chances of surviving increases in critical condition. The road accidents in the city have been increased and to bar the loss of life due to the accidents is even more crucial.

II. GOALS AND OBJECTIVES

To calculate the impact of accident to the vehicle. To call for an emergency ambulance nearby using GSM signals. This project has a goal to create a smart environment at the hospital and the ICU unit is the main aim. The Importance of communication during the disaster times is understood well by this project. Google has developed API for user's ease. Google Maps gives information about hospitals nearby, with its distance from user's current location. The drawback of Google Maps is that it only pins the hospitals but does not provide their brief information. Hence user may need to access information about the hospital manually by going to particular hospital's website.

Smart ambulance system application overcomes this drawback and gives hospital information related to user's medical emergency. It receives inputs from the ambient sensor devices. It correctly infers the patient's condition. This project

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can be made more sophisticated by the use of pervasive computing devices, sensor, and wireless communication technologies. The Importance of communication during the disaster times is understood well by this project. The system is tested using various GPS enabled android Phone.

III. PROPOSED WORK

In proposed system if a vehicle has met accidents, immediately an alert message with the location coordinates is sent to the Control center with appropriate information, from the control center, a message is sent to the nearby ambulance. Also signal is transmitted to all the signals in between ambulance and vehicle location to provide RF communication between ambulance and traffic section with no wastage of time. The vehicle accident observed using vibration sensor and in the control section it is received by the micro-controller and then the nearby ambulance is received from the PC and controller sends the message to the ambulance. This project combines hardware design and sophisticated electronic control technology into a compact, reliable package. In this project a vibration sensor is used as an accident detector.



Fig. 1. Representation of connected devices

When the vehicle meets an accident, the vibrating sensors generate the signal, this signal is being compared with the threshold values. If the generated value exceeds the threshold it is recognized as accident. The location of the person tracked through GPS Tracking Device. An ambulance is called for. In this system vibration sensors are used for detecting range of collision. Sensor data will be in analog form so it need to be converted to digital which is done by AD Converter and this digital data is being sent to micro-controller. There it is compared with values, if it exceeds the threshold value then only the location of the victim is captured by the GPS tracker.

This system designs is based on the scene of the accident alarm system on ARM and GPS. When the accident occurred, the manual and automatic alarm works. Vehicles state and user information as well as alarm locations will be transmitted to the treatment center. After receiving related alarming information, a treatment call-for ambulance display occurs on the victim's phone with a time limit of a minute.

IV. SYSTEM ARCHITECTURE

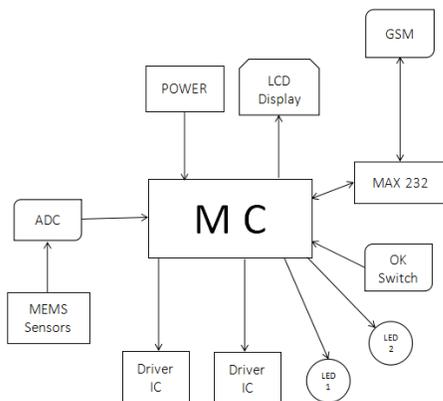


Fig. 2. System Architecture

With the MEMS sensor which is actually the accident detecting sensor used in this project. If the range of collision is larger than the expected value, the signal is further transmitted. Then the exact location of the accident spot is tracked by the GPS system. If the collision exceeds the threshold value it is considered as an accident. Hence, a pop-up message is sent to the victim's mobile number with expiring time limit. The signal output from the GPS system is converted into GSM signals using MAX-232. This signal is responsible for calling an emergency ambulance to the spot.

A. Advantages

It's beneficial for the users in case of emergencies as it saves time which gets consumed in searching for the ambulance by other means. Information about the hospitals provided helps in getting the appropriate hospital which is suitable for the patient's treatment.

V. FUTURE SCOPE

The proposed system is Hospital Management System. We can enhance this system by including more facilities like pharmacy system for the stock details of medicines in the pharmacy. Providing such features enable the users to include more comments into the system. This application offers a lot of scope, in the future by integrating more number of sensors. And also other system like intrusion detection or object finding can be integrated with this system.

VI. CONCLUSION

In this paper, an idea is proposed for saving a patient's life in a faster way possible. It is beneficial for users in case of emergencies as it saves time. With this Application, the ambulance can reach the patients as location is given through the app. Hence it reduces the time complexity and helps to provide faster medical services. The key idea of developing this system is to provide timely help to the patient and elderly people in critical situation and to develop an intelligent ambulance which will reach the hospitals without any problem in heavy traffics.

REFERENCES

- [1] S. Jagadeeshwaran, N. Dinesh, Chembur, "Automatic Ambulance Rescue System", Computer Technology Department, Veermata Jijabai Technological Institute, Matunga, Mumbai, INDIA April 2012.
- [2] Siva Kumar Avula, Cheng Siong Lim, Shubhangi C Deshmukh, IEEE, "Impact of AmbulanceDispatch Policies on Performance of Emergency Medical Services", December 2011.
- [3] Sara Nazari, M. Reza Meybodi, M. Ali Salehigh, Sara taghipour, "An Advanced Algorithm for Finding Shortest Path in Car Navigation System", Proceedings of 1st International Conference on Intelligent Network and Intelligent Systems, 2008.
- [4] Katsunori Tawara, Naoto Mukai "Traffic Signal Control by using Traffic Congestion Prediction based on Pheromone Model", Proceedings of 22nd International Conference on Tools with Artificial Intelligence, 2010.
- [5] Cheng Siong Lim, Rosbi Mamat and Thomas Brunl Senior Member IEEE "Impact of AmbulanceDispatch Policies on Performance of Emergency Medical Services", 2011.
- [6] Y. Sudhindra.F, Annarao.S.J, Vani.R.M, P.V. Hunagund, "A GSM Enabled Real Time Simulated Heart Rate Monitoring Control System", International Journal of Research in Engineering and Technology, Page No. 6-10 Volume: 03, May 2014.
- [7] Ch. Sandeep Kumar Subudhi, S. Sivanandam "Intelligent Wireless Patient Monitoring and Tracking System (Using Sensor Network and Wireless Communication", International Journal of Interdisciplinary.