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Ambulance System with Signaling and Health-Care System

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ABSTRACT: In the Proposed system presents design of a monitoring system for emergency patient transportation. The system will be useful for monitoring ambulance location using Google map and GPS as the Numbers of road accidents in India are the highest across the world. To prevent this, Using advance wireless technology of GPS, it is possible to provide medical facility to accident victim within short period of time. Continuous monitoring of ambulance location and status of patient during the critical hour of patient transportation helps to improve medical care. One of the issues during transportation of patient is traffic related problems. It is therefore necessary to have a fast, economical and efficient traffic control. It can display location of ambulance and status of heart beat rate and temperature of patient. After receiving SMS hospital can prepare their staff for proper treatment of coming patient. Proposed system track the way of ambulance coming and it makes all the signals green on the same track after sensing the ambulance. Proposed system also stores the patient's previous prescription information that will help to get better treatment. Patient's data can be fetched by using bio-metric device which will be available in ambulance vehicles.

KEYWORDS: Energy efficient algorithm; Manets; total transmission energy; maximum number of hops; network lifetime

I. INTRODUCTION

The main concept behind the proposed system is to provide a smooth own for the ambulance to reach the hospitals in time and thereby minimizing the delay caused by traffic congestion. The ARDIUNO system is used to alter the traffic lights upon its arrival at traffic light junction which would save a lives at critical time. To avoid unnecessary traffic signal changes. In the current situation itself, transportation of a patient to hospital in emergency conditions seems quite simple but in actual it is very difficult during peak hours. Moreover, the situation is gets worse when emergency vehicles have to wait for other vehicles to give way at intersections with traffic signals. As the survey aye 95% of the heart attack cases can be treated, if the ambulance can reach the hospital at current time without stucking into the traffic. In future it may get even worse. In this cause Recovery action need to be taken immediately. So, for our over populated environment, there is a real need for this paper for the society to make easier day to day transportations. This paper will help to reduce blockage of emergency vehicles in traffic and helps to provide immediate recovery. Mobile app to authenticate emergency and non-emergency conditions of ambulance. GPS to track the nearest traffic signal post to the ambulance and to send the app data to that particular signal post. The main goal is sharing of information between patient and hospital. This information involves patient's medical data, current condition and the most important thing location of ambulance. When the patient or his career has exact idea when the ambulance is arriving, they can take proper action according to feedback received. Similarly if the hospital knows when the patient is arriving, they can prepare for it efficiently. The sensor is capable of sending ambulances location to a server, from where it can be accessed by the hospital and the patient. This is the core part of the proposed Ambulance Tracking System (ATS), which provides real time location updates of ambulance to the hospital and to the patient who has requested the ambulance. In addition to this, the system also provides the functionality of sharing patient's medical data with hospital, so they can take proper measures beforehand.

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II. RELATED WORK

1. eEmergency System to Support Emergency call Evaluation and Ambulance dispatch Procedures Efthyvoulos Kyriacou ; Riana Constantinou ; Chris Kronis ; George Hadjichristofi ; Constantinos Pattichis Published in: 2020 IEEE

The main purpose of this study was to create an electronic system (eEmergency system) in order to support, improve and help the procedure of handling emergency calls. The main features are the support for ambulance fleet handling, the support for emergency call evaluation and triage procedure and the improvement of communication between the call center and the ambulance vehicles.

2. The Effect of Ambulance Response Time on Survival Following Out-of-Hospital Cardiac Arrest

Rapid ambulance response is associated with a higher rate of survival from OHCA with good neurological outcome. The response time,independently of whether bystander resuscitation measures are provided, has a significant independent effect on the survival rate. In drawing conclusions from these findings, one should bear in mind that this was a retrospective registry study, with the corresponding limitations.

3. Requirement Analysis and Implementation of Smart Emergency Medical Services

Ji Hoon Kim ; Hyo Suk Nam ; Hyuk-Jae Chang Based on requirement analysis, we designed and implemented SEMS using health information standards to provide interoperability between devices and systems. As an application of SEMS, an example service is introduced: lifelogconnected EMS for stroke patients with a real-time location service for managing timeline of treatment.

4. Prehospital Electronic Record with Use of Mobile Devices in the SAMU's Ambulances in Ribeiro Preto-Brazil

This paper presents the development of an electronic record system for tablets with a focus on pre-hospital patient care. With the popularization of mobile and wireless technologies, the motivation and encouragement for the use of these technologies increases in support of the reliability and quality of data. An usability evaluation was conducted to identify problems and deficiencies presented in the mobile application. The combination of these two contexts creates a new term called mobile health, which has motivated much discussion of how greater access to mobile phone technology can be leveraged to mitigate the numerous pressures faced in the medical care of health systems

III. PROPOSED METHODOLOGY

The system consists of an end-to-end smart health application that can be building up from two functional building blocks. Main function of the first building block is to gather all sensory data that are related to the person's information by using the thumb impression, whereas the second block functions are to store, when the ambulance is going if in case the traffic is present than automatically signal goes blue so the ambulance can easily go to the hospital. In the proposed system it saves the patient's time and in some accident person body not identified in this situation by using thumb impression we can find out person information. The function working is illustrated as, when the patient's heartbeat rate changes badly, the Arduino which recorded all the patient's information, GSM shield to send an SMS message containing this information, patient ID and the location of the patient which has been taken via GPS shield, to his doctor's mobile phone, who -by his turn send an ambulance to the patient's location.

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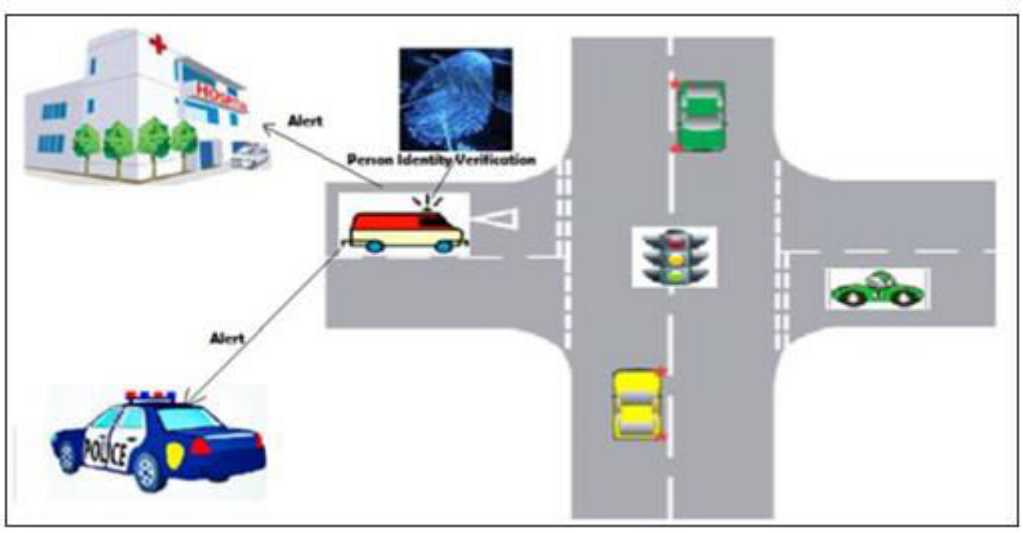

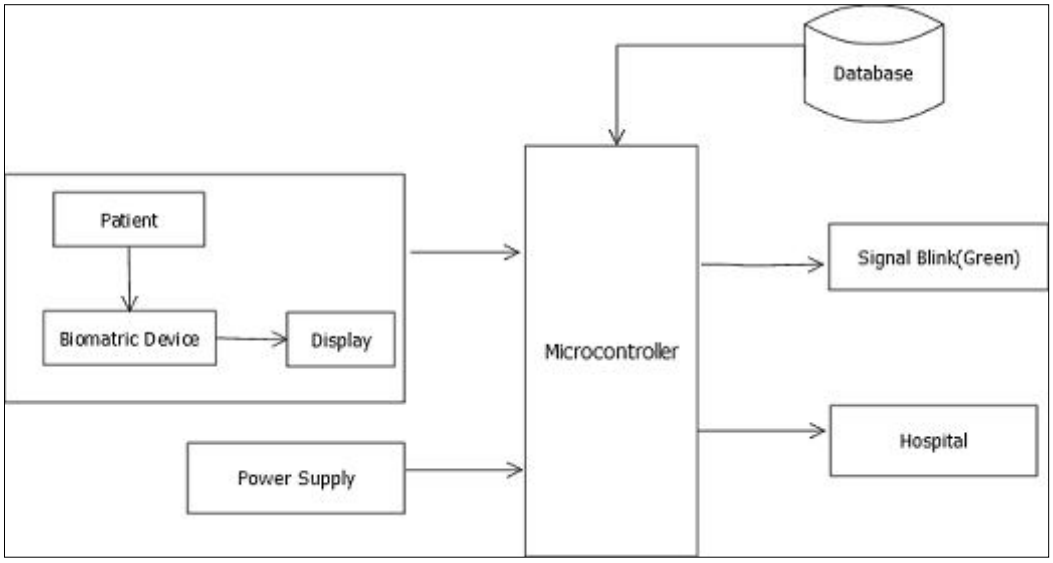

IV. MODULES

Module 1:

Hospital

The time between contacting hospital and when the ambulance delivers patient to hospital is very crucial. In many cases the doctors don't know what is wrong with patient till he reaches the hospital or sometimes it happens that when the patient reaches' hospital it is found that some required medicine or tools are not present which are required for treatment. This is very much the scenario in developing countries. This gap in information sharing can sometimes prove to be fatal. In such situations it is better to utilize the time of transportation of patient to gather information about him/her so that the hospital can prepare beforehand for any emergency. The doctors can know exactly what is wrong with the patient while he is being transported and procure any required tools or medicine in that time. Utilizing this gap in exchange of information to do useful tasks can impact lives of many, who might have suffered in case there was delay in communication. In the proposed system we can easily monitor the patient.

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Module 2:
Fingerprint A fingerprint in its narrow sense is an impression left by the friction ridges of a human finger. In our system we can use fingerprint for getting person information like name, blood group, previous medical history etc. By using thumb impression we can get patients information easily.

Module 3:
Registration
In the registration first all doctors, people and patient register to the system.

V. CONCLUSION AND FUTURE WORK

This system will reduce accidents which often happen at the traffic signal intersections because other vehicles have to huddle to give way to the ambulance services. The proposed system is useful for critical patient information easily find out. It provides transportation unit information and as well as patient health information, which is useful in further emergency treatment for doctors. The Ambulance 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 and status information to the doctor. Based on same technology different Hospital's monitoring unit will remain connected to each other using GPS.

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