A RESEARCH ON AMBULANCE TRACKING &PATIENT HEALTH MONITORING SYSTEM USEING GPS &GSM

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ABSTRACT

The system will be useful for monitoring the ambulance location through Google map. Number of road accidents in India are the highest across the world. Using advance wireless technology of GPS and GSM modems, it is possible to provide medical facility for accident victim within short period of time. For the same purpose the ambulances are specially designed to carry the emergency drugs and instruments. Continuous monitoring of ambulance location and status of patient during the critical time of patient transportation helps to improve medical care. One of the mostly occuring issue during transportation of patient is traffic related problems. All developed nations have a well developed transportation system with efficient traffic control. Therefore it is necessary to have a fast, economical and efficient traffic control. This project also include sensors to monitor heart bit rate and temperature of patient through SMS.

Keywords-GPS,GSM,Heartbeat,Tempreture,ADC,Amplifier,MicroController,Patient,Ambulance.Sensor,

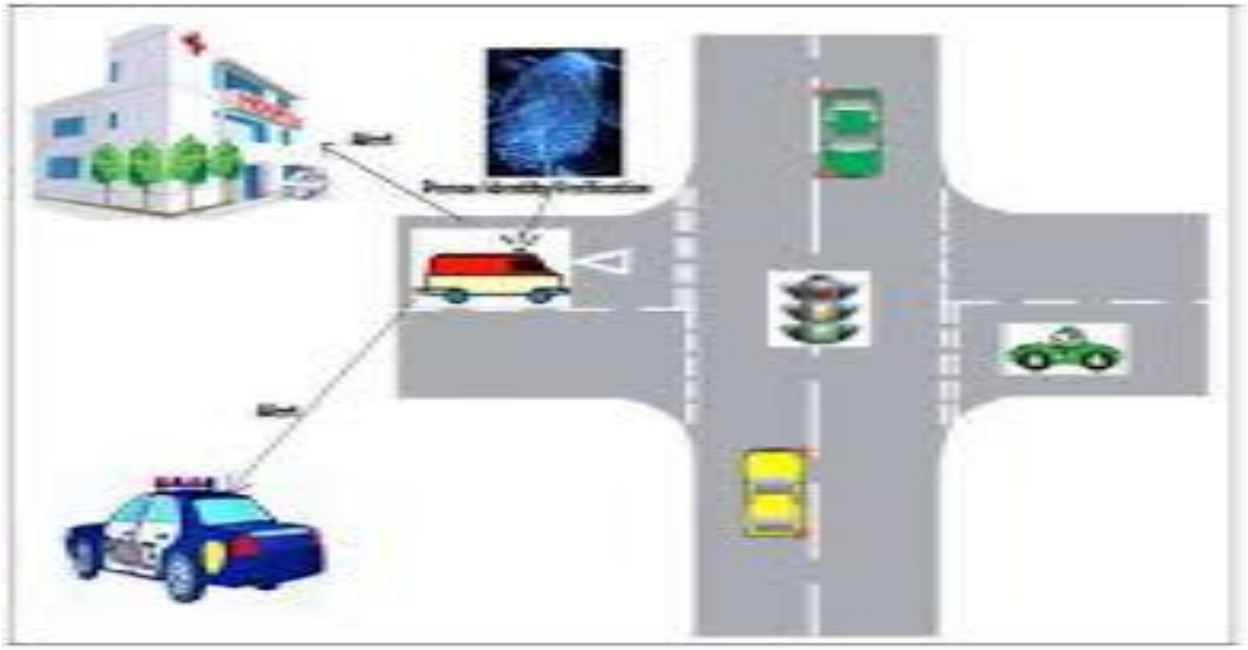
INTRODUCTION

Immediate medical attention to critically patients and accident victims requires a system to transmit vehicle location information. A centralise monitoring system required in hospital which have information of accident victim vehicle and ambulance location. The doctor needs to understand the physical and physiological condition of the patient so that the right decision regarding administration of drugs and transport destination can be appropriately taken. Hence there is a need for communication between the staff of the ambulance and the monitoring station. The requirement can be achieved by using system in ambulance which uniquely transmits location information and status of patient through parameters i.e. heart bit rate and temperature etc. The system needs to include biomedical sensors to transmit status of patient. All systems are connected to each other through wireless communication which transmit information and data .Use of GPS and GSM modems for higher communication links will make system more effective and fast response Even with this there is also need of traffic control during transportation of emergency patient so valuable time of response can be saved. System will be interfaced with wireless RF module to transmit low signal. Including all these requirements system will found to be very useful for emergency treatment of patient during transportation. Proposed project achieves all requirements by including four units called as Ambulance unit, Monitoring Unit, Vehicle unit and Signal Unit. Ambulance became intelligent due to interfacing biomedical sensors.

SYSTEM ARCHITECTURE:

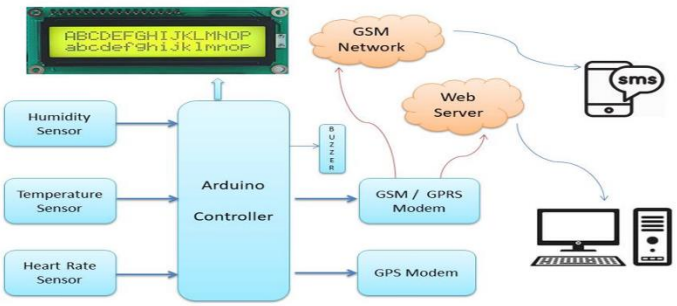
The system consists of an end-to-end smart health application that can be building up from two functional building blocks. Main function of the first building block is to gather all sensory data that are related to the person's information by using the thumb impression, whereas the second block functions 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.



PROPOSED SYSTEM:

Block diagram:



Proposed system mainly consist of six modules

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 gaping 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 foray 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.

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.

3: Police

Police get information related to the patient like patient name, I'd and location using this information police easily investigates patient.

4: Registration

In the registration first all doctors, people and patient register to the system.

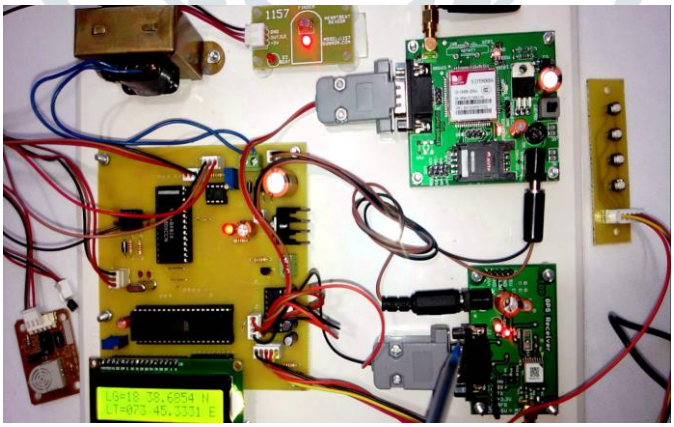
5: Patient

The Real Time Health Monitoring and Tracking system will help people for critical condition when the personas unconsciousness or any major accident time. The system will track, trace, monitor patients and facilitate taking care of their health; so efficient medical services could be provided at appropriate time.

6: Admin

A registered customer wants to change their account details (email, password, address, update new medical reports, etc.). After first being authenticated by the system, the customer will be presented with a prefilled form with all of their existing information. The customer will make whatever changes he/she wishes to make and submit. The system will validate the information and save it in the database. Admin also control both modules system administrator wants to manage the garage remotely. After being authenticated by the system, The administrator will give all the information to the doctor as well as police.

CONSTURCTION



The construction mainly consist of following parts:

1.GPS Modem

Main function of GPS – Global Positioning System modem is to provide longitude and latitude of the ambulance. The GPS modem receives data from satellite. And then it gives this bunch of data to Microcontroller through serial communication. As ambulance moves along the way from patient's home to hospital, the co- ordinates of ambulance location will change and these variations are given to Microcontroller.

2.GSM Modem

Main function of GSM modem is to send all parameters to user or Doctor through a text SMS. For sending SMS, Microcontroller needs to give various AT commands to GSM modem using a serial communication port.

3. Heartbeat sensor

Heart beats are important for the health of patient. Heartbeat sensor works on a principle that blood in human body pumps with every heartbeat. We have used a Red LED and LDR. Patient needs to place his/her finger between these two components.

4. Temperature sensor

We have used temperature sensor to measure the body temperature of the patient.

5. Analog to Digital Converter

As Microcontroller is not able to read the analog signal or analog voltage, so we have to use ADC in between the Microcontroller and sensors. Function of ADC is to give digital output data corresponding to the input voltage received.

6. Amplifier

Since the output of temperature sensor is in millivolts. So we need amplifier to amplify this voltage. Output of amplifier will be given to Analog to digital converter.

7.Humidity sensor

This sensor helps to measure the humidity. This is also an analog type of sensor. It gives variable output voltage as per the variation in the humidity. The output of humidity sensor is directly given to ADC.

8. Microcontroller

Microcontroller is main heart of the system as it communicates with all input and output devices and it controls whole operation of the system of complete flow of the system. We have used 89s51 Microcontroller which is 8051 series Microcontroller.

RESULT

The proposed system is useful for critical patient issues and it monitors status of the patient health care in terms of temperature and heart bit. The system is found very useful for emergency treatment of patient during transportation as expert doctors are connected to the system. It provides transportation unit information as well as patient health information, which is most useful in further emergency treatment for doctors

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