Ambulance tracking System using GPS and GSM with Health Monitoring System

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Abstract – *The paper is used to describe the model of smart city Ambulance. The aim of the project is time management and also reasonable use of this time. As like this project is also monitors the health of patient and take the response of patient and send it to hospital. So, this system measures blood pressure, heartbeat and temperature of patient. For communication GSM and for location tracking GPS is also provided in it. So, the patient is always in contact with doctor or Hospital. So, this project is useful in critical situation of patient and life saving for all of us.*

Key Words: **health monitor, location tracking, critical situation.**

1.INTRODUCTION

This project mainly performs three functions. First one is health monitoring of the patient, second is tracking the location of the Ambulance and third one is to send the above all details to the Doctor or the Hospital. With the help of this project we can monitor the health parameters of the patient. These parameters are temperature, heart rate and pulse. A text SMS containing location and values of these sensor is sent to Doctor's mobile or Hospital. Then the doctors can intimate about patient health. By using these parameters, doctors can do the necessary preparation for treatment of patient. The ambulance will have the special route for other primary vehicles to reach at the destination. And in the ambulance the details of patients are track time to time as per the condition of the patient's health. In this way the hospital unit will get ready to treat the patient before reach to the hospital. The main advantage of this project is that the time, this system can save time which is life saving for the patient.

1.1 METHOD 2

This method can be used in the smart cities. This system is advance and recommended method of Ambulance tracking. And it is Google map. It is free of cost, simple to sue and useful to view the ambulance location on maps. Hospital person can use the Google map to directly track the Ambulance. So, the Google map is best option and famous website out of all other provider. So, when the hospital authorized person will get SMS then he can track the location easily. Google map also comes with new feature like live location. So, they can track the ambulance without error and continuously. So, the google map is the best and easy option for this system.

2. EXISTING METHOD

There are some upgradations are needed in present system. Currently there are number of health monitoring system available for the ICU patient which can be used only when patient reaches to the hospital.

This system is wired everywhere such system are huge in size. Monitoring particular disease only this are the disadvantages of the system.
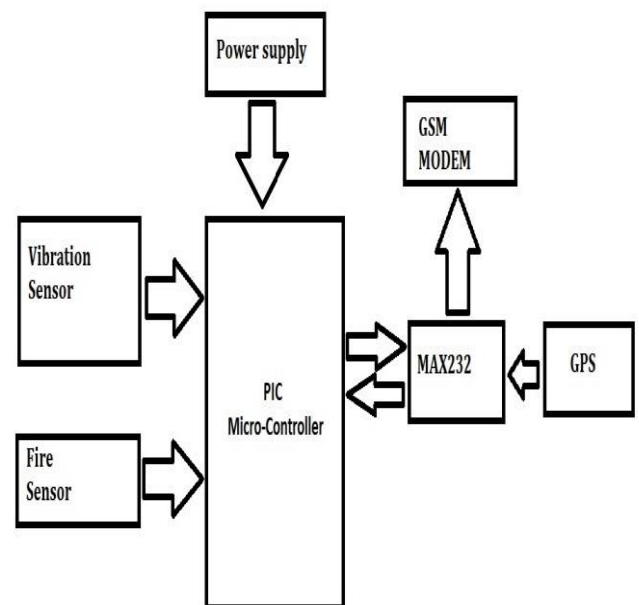

FIG -1: Block diagram

3. PROPOSED METHOD

The main aim of 'Ambulance tracking system with patient health monitoring' project is that with the help of GSM technology, the details of the patient's can be sent to a longer distance through Message. With the help of this information, doctors could have all information that the need before the patient reach to the hospital. With the help of GPS technology, the exact location of the ambulance can be tracked. Thus, we can get exact time for ambulance to reach to hospital. As this system is fully automatic it doesn't need any human

interaction. This system receives the health parameters values, location and sends SMS automatically after a manually set period. And it works continuously.

FIG 2 – Circuit for Ambulance tracking with health monitoring system.
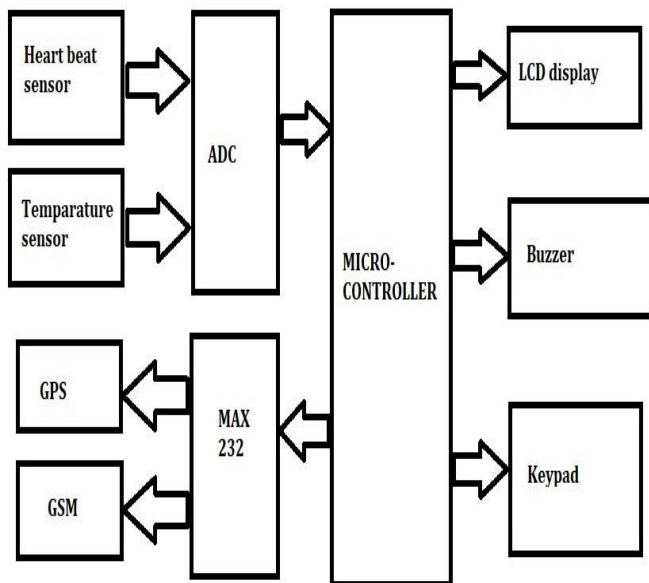
4. BLOCK DIAGRAM

FIG 3 - Block Diagram

A. GPS MODEM (Global Positioning System)

Main work of GPS modem is to provide the location of the ambulance. The GPS modem receives data from satellite. And then it gives input which contains data to Micro controller 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 Micro controller.

B. GSM Modem (Global System for Mobile

Main feature of GSM modem is to send all parameters to Doctor or Hospital through a text SMS. For sending SMS. Micro controller needs to give various AT commands to GSM modem using a serial communication port.

FIG 4 – GSM Circuit and GPS

C. Heart beat sensor

Heart beats are the most important for the health of patient. Heartbeat sensor works on a principle that blood in human body pumps with every heartbeat. Patient needs to place his finger between these two components. Red light will be reflected from patients finger to LDR. And blood will pump with every heartbeat. This will cause fluctuation in the light intensity. Heartbeat sensor gives out high pulses with every heartbeat. It works on pure 5 V DC.

FIG 5 – Heart beat sensor

D. TEMPERATURE SENSOR

We have used temperature sensor to measure the body temperature of the patient. This is an analog type of temperature sensor. It gives variable output voltages as per the variations in temperature sensed. This will help to monitor the variations happening in the temperature of patient's body.
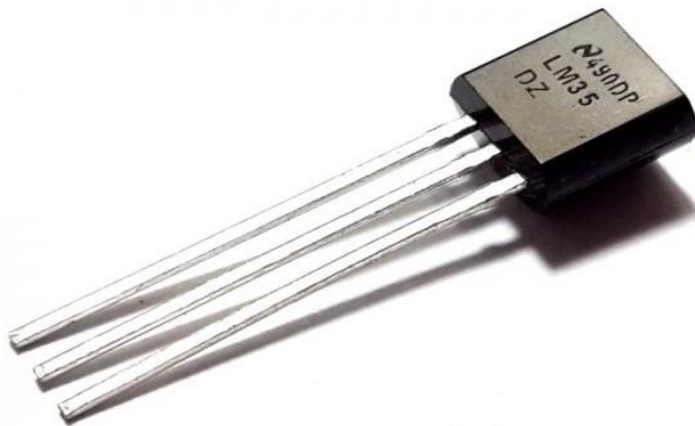
FIG 6 – temperature sensor

E. Analog to Digital Converter

The micro micro controller is unable to read the analog signal or analog voltage, so we need to use ADC in between the micro controller and sensors. The working of ADC is to give digital output data corresponding to the input voltage into the respective digital data. This data varies from a value of 00-Hex to FF-Hex. Thus, it is compatible to the micro controller.

F. Buzzer

Buzzer is used to give indication about the uncertain condition of patient health. This is helpful so that the person near the patient in ambulance can be informed about the unwanted situation or about variation in the health parameter.

FIG 7= Buzzer

H. Amplifier

The output of temperature sensor is always in milli volts. So, we need to use amplifier to amplify this voltage. Output of amplifier will be given to Analog to Digital Converter.

I. Micro controller.

Micro controller is main part of the system, because all the system is in control of it. it controls whole working of the system. We used 89c51 micro controller which is 8051 series micro controller.
Features of the 89c51 micro controller:
1. it takes exact location information.
2. Displaying the all output on LCD display.
3. Reads all sensors output.
4. Sends the output values to GSM modem so that SMS can be sent to Doctor.
5. To turn on buzzer when any of the sensor values cross threat level.
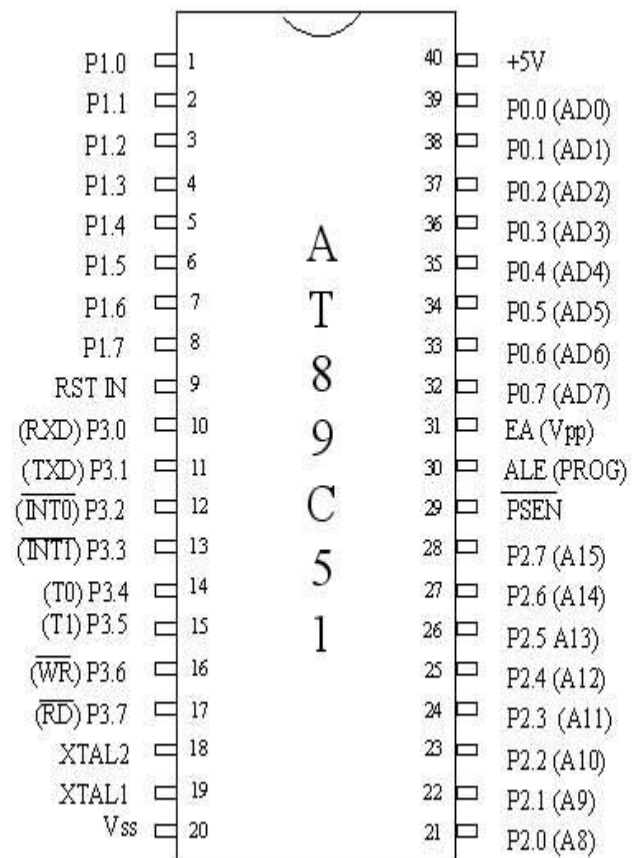
5. PIN CONFIGURATION

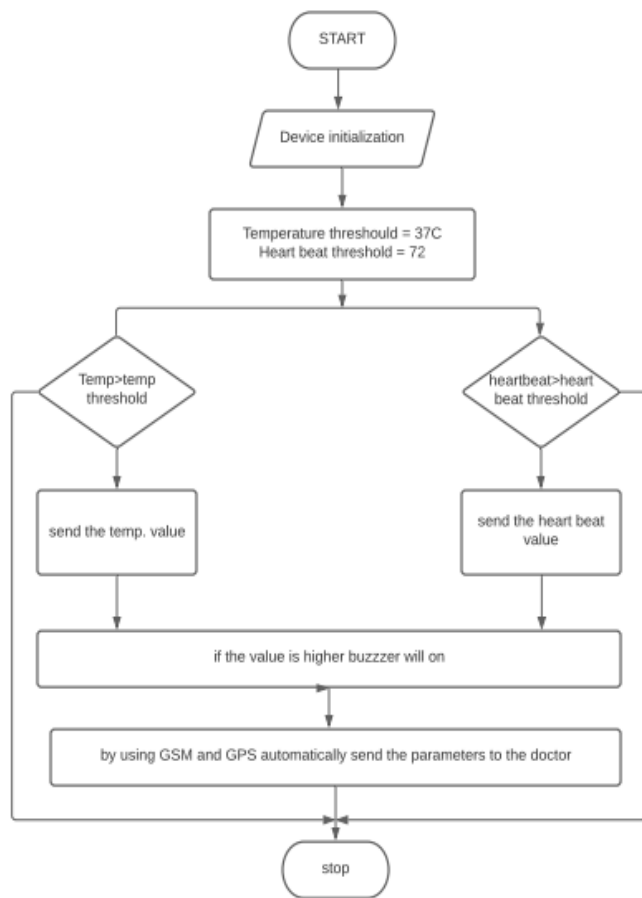**FIG 8-** Pin Diagram of 89c51

6. FLOW CHART

FIG. 9- Flow chart

7. Result

7. CONCLUSIONS

The main aim of this project is to save the human life for few critical minutes which are important at any stage for patient. So, we want to upgrade our health care system. For this we work on it, by tracking the ambulance using GPS to reduce time to reach hospital and also patient's health also monitor in it. now a days many patients lose the life because they don't get treatment in time. And also, when they reach to the hospital, first few minutes goes in basic treatment to patient. Which can be save by using this idea. Before reaches to the hospital the doctor already aware of condition of the patient. Which is helpful.

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