

Heart Attack Intimation and Smart Traffic Control System Using IOT

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Abstract: Case1: Nowadays numerous persons are mislaying their life owing to heart attack and shortage of medical attention to patient at correct stage. This project is proposed on implementing heart rate observation and heart attack recognition system using IoT. An android application with built-in sensors was developed for patients. The patient has to carry this hardware with them. The heartbeat sensor will monitor the readings and send out them over the internet. The heartbeat limits can be fixed by the patient. The system will send an alert message if there is any change in the limit level fixed by the patient. Case 2: The second case study is over the years, there has been a sudden increase in the number of vehicles on the road. Traffic congestion is a growing problem that everyone faces in their daily life. Manual control of traffic by traffic police has not proved to be efficient. Also, the predefined set time for the signal at all circumstances (low and high traffic density) has not solved this problem. A model to effectively solve the above-mentioned problems by using Internet of Things (IoT) is proposed. The proposed work use cloud for internet-based computing, where different services such as server, storage and application are delivered for traffic management. A network of sensors is used to track the number of vehicles and the traffic congestion at the intersections on a road and rerouting will be done on the basis of the traffic density on the lanes of a road.

Keywords: Pulse sensor, heartbeat sensor, WIFI module, UART Communication, Arduino, IR sensor.

I. INTRODUCTION

Case Study 1:

Heart attack affects number of people. Heart attack can happen while the stream of blood to heart is blocked. Due to late analysis of heart attack the doctors are insufficient to keep the lives of a lot of humans. In this project work, a system that will detect heart attack by monitoring the heart rate based on IoT (Internet of Things) was suggested. For a healthy adult, ordinary heart rate is 60 to 100 bpm (beats per minute). If a person's heart rate is constantly over 100 beats per minute then the person is said to be having higher heart rate. It can diminution the efficiency of heart by letdown the amount of blood pumped through the body can result in chest pain and light-headedness. It is easy to screen the patient's heart rate even at their place itself using advancement in technology. IoT is dexterity of network mechanism to intellect and gather information from world ubiquitously us then share the information athwart internet anywhere it can be managed for some tenacity

Case Study 2:

One of the important things in the Internet of things in smart cities is the Intelligent Transportation System (ITS). ITS improves Vehicle to vehicle and Vehicle to Infrastructure communication for improving road facilities rather than increasing road capacities or developing new roads. This is possible because of ITS, it utilizes advanced information and communication, and this communication will be helpful for decreasing traffic congestion and to decrease the misfortunes on the road, which is hazardous in the urban areas. Managing traffic signal timing is one if the key thing in the urban areas. Managing to time on the road will decrease the waiting time of the drivers on the road, and that will help to reduce the fuel consumption. This is done with the help of the ITS. This project is done using IR(Infra-Red) Sensors. It has two parts in it, one is the transmitter and another one is a receiver. When this connection is interrupted, the counting process is started, i.e., when the receiver does not receive the light transmitted by the transmitter it is said that the object is there in between transmitter and receiver.

II. EXISTING SYSTEM

Case Study 1:

In the existing work, heart rate is determined by analysing the ECG signal. The ECG signal is taken from the wrist. The sensor fusion algorithm permits the sensors to detect body temperature and water level in the body.

Case Study 2:

The exiting traffic system is generally controlled by the traffic police. The traffic police cannot control the system due to traffic congestion. The traffic police official can either block a road for more amount of time or let the vehicles on another road pass by i.e. the decision making may not be smart enough and it entirely depends on the official’s decision. Moreover, even if traffic lights are used the time interval for which the vehicles will be showed green or red signal is fixed. Therefore, it may not be able to solve the problem of traffic congestion. In India, it has been seen that even after the presence of traffic lights, traffic police officials are on duty, which means that in this system more manpower is required and it is not economical in nature

III. PROPOSED SYSTEM

Case Study 1: In the proposed project the new system with ECG and microcontroller are used to monitor the heart rate. Moreover, the ECG is directly taken from the chest. In the proposed system, the alert system and LCD display will get activated depending on the heart rate and ECG.

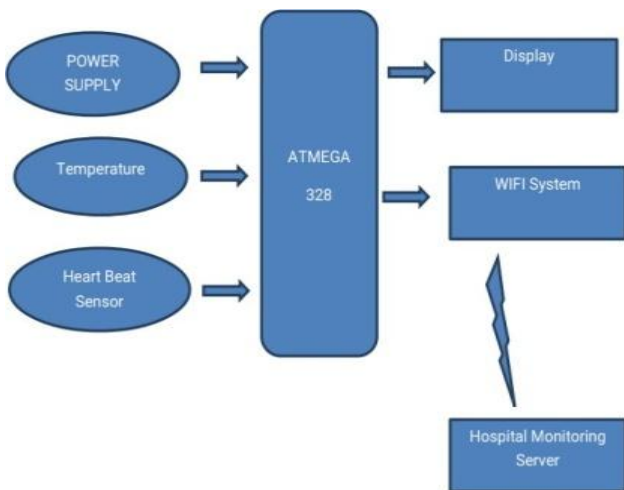


Figure 1. Architecture

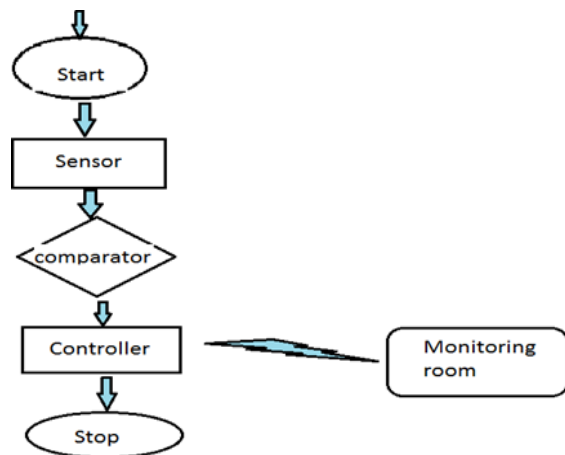


Figure 2 Flow Chat

Case Study 2: The first and primary element of this system is the wireless sensor nodes consisting of sensors. The sensors interact with the physical environment means vehicles presence or absence while the local server sends the sensors data to the central microcontroller. This project signifies four levels of Traffic and two lanes in each way. The sensors are ultrasonic sensors which transmits status based on presence of vehicle near it. The sensor nodes transmit at specified time intervals to the central microcontroller placed at every intersection. The Microcontroller will play the role of receiving the density of Traffic. The computed data from Microcontroller is then transmitted to the local server through Wi-Fi connectivity. The controller makes use of the collected data to perform the Intelligent Traffic routing. In this system, the primary aim is to gather the information of moving vehicles based on WSN to provide them a clear path till their destinations and traffic signals should switch automatically to give a clear way for these vehicles

IV. COMPONENT REQUIRED

Case Study 1:

- Arduino Uno
- Heartbeat Sensor
- Pressure Sensor
- Temperature Sensor
- Wi-Fi Module

Case Study 2:

- IR Sensor
- Arduino Uno
- LCD Display
- Wi-Fi Module
- Jumper Wires

V. BLOCK DIAGRAM

Case Study 1:

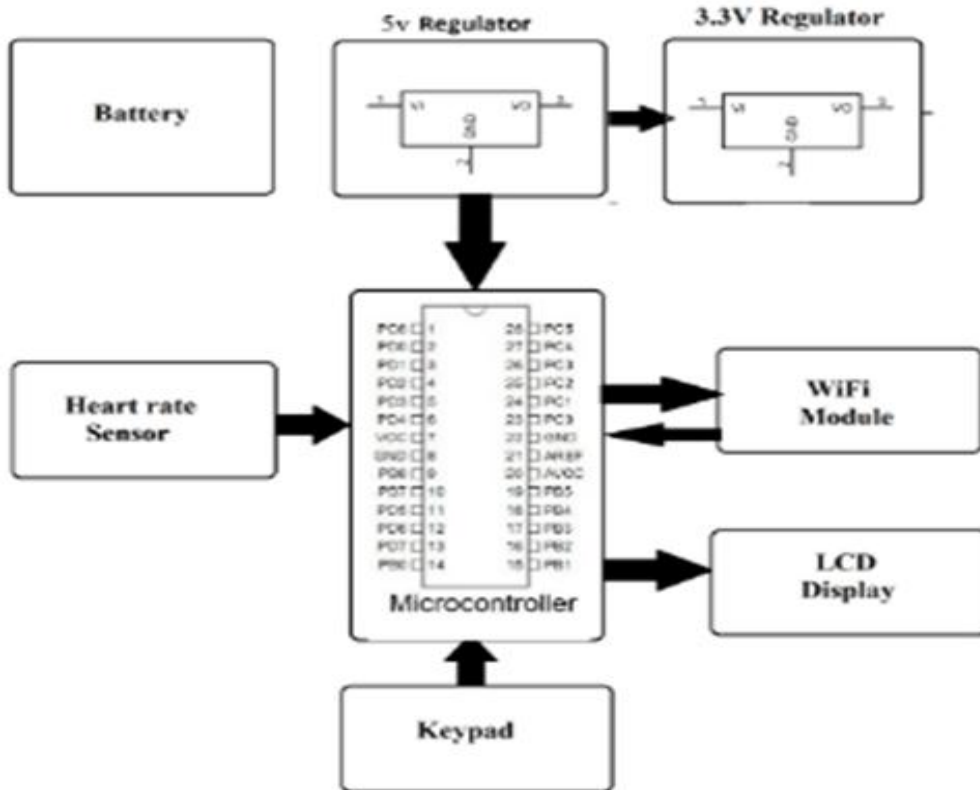


Figure 3

Case Study 2:

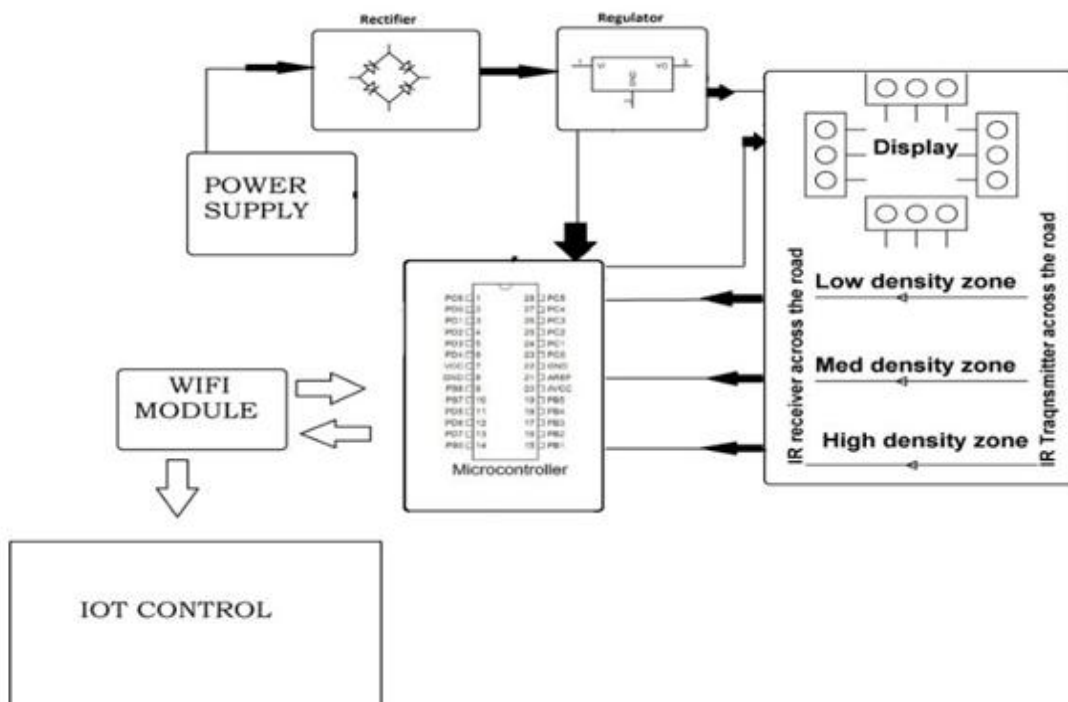


Figure 4

VI. WORK FLOW

Case Study 1:

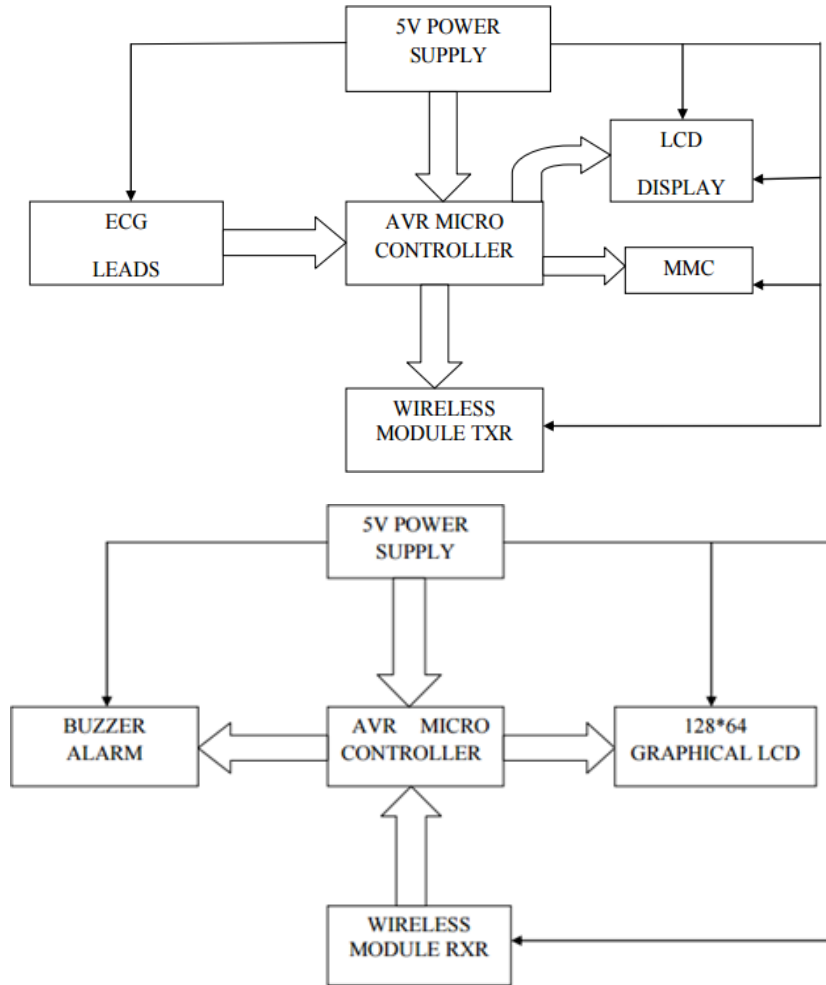


Figure 5

Case Study 2:

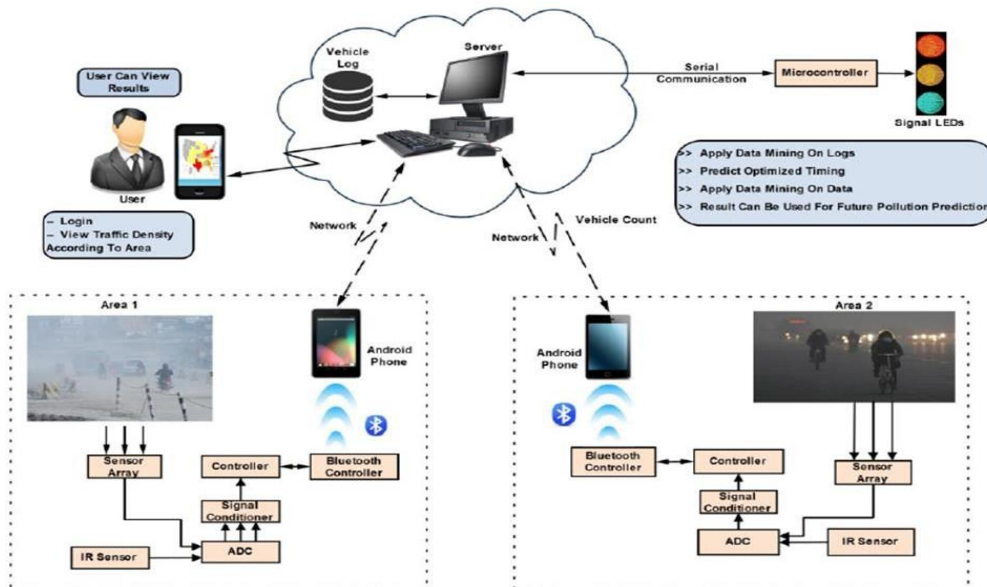


Figure 6

VII. CONCLUSION**Case Study 1:**

Using the proposed system and with the help of IOT, heart attack can be detected and life can be saved. This system helps old age people who are more likely to suffer from heart diseases. Doctors or contiguous public will be notified about the heart attack with the help of alert system.

Case Study 2:

Smart Traffic Management System has been developed by using multiple features of hardware components in IoT. Traffic optimization is achieved using IoT platform for efficient utilizing allocating varying time to all traffic signal according to available vehicles count in road path. Smart Traffic Management System is implemented to deal efficiently with problem of congestion and perform re-routing at intersections on a road. The decentralized approach makes it optimized and effective as the system works even if a local server or centralized server has crashed. The system also provides useful information to higher authorities that can be used in road planning which helps in optimal usage of resources

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