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E- HEALTH MONITORING SYSTEM FOR REMOTE PATIENTS

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ABSTRACT-- *This paper discusses, with great success, the creation of a wireless heartbeat and a microcontroller-based temperature monitoring device at reasonable expense. Technological advances in the area of medicinal research have been influential in the treatment and detection of diseases. One such development is a device for tracking heart rhythm. Heart rate is a significant safety feature related to the cardiovascular function of humans. The amount of heart beat per minutes is called heart rate, representing specific physiological factors such as hormone pressure, occupational stress and job engagement, somnolence and autonomic nervous system control. Most individuals are still risking their lives due to heart disease and neglect of health treatment at the right time. Hence, in this project we are implementing e- health monitoring system for remote patients.*

Keywords-- *e- health monitoring system for remote patients*

I INTRODUCTION

Cardiovascular disorder is one of the major causes of Slaughter in several countries, accounting for more than 15 million deaths across the globe [1-5].The advancement of medical testing technology has rendered it much easier to test basic patient parameters using an automatic device, such as heart rate, temperature, etc. The World Health Organization (WHO) predicts a steady rise in the prevalence of cardiovascular disease to 23.3 per cent globally by 2030[6-8].Heart attack may happen by blocking blood flow to the heart. Due Owing to a late diagnosis with a heart attack, we can't spare other people's lives [9].A healthy adult's heart rate is 72 beats, child heart rate 120 bpm and older children heart rate 90 bpm [10-12].

Remote Patient Tracking (RPM) is a device that lets you manage patients without seeing a nurse in the clinic or hospital [13]. It can improve access to health services and facilities while at the same time lowering costs. Remote patient tracking saves both patient and provider resources, thereby growing the quality and effectiveness of health care services [14].Heartbeat and body temperature are the main indicators that doctors regularly assess when a patient arrives[15]. So we are proposed the e- health monitoring system for remote patients. In this experimental process, patients ' heart rate and temperature we are calculated using sensors and transmitted using an RF transmitter to the server[16].Micro controller unit is used for temporary storing of the transmission data. Fig 1 displays the machine flowcharts.

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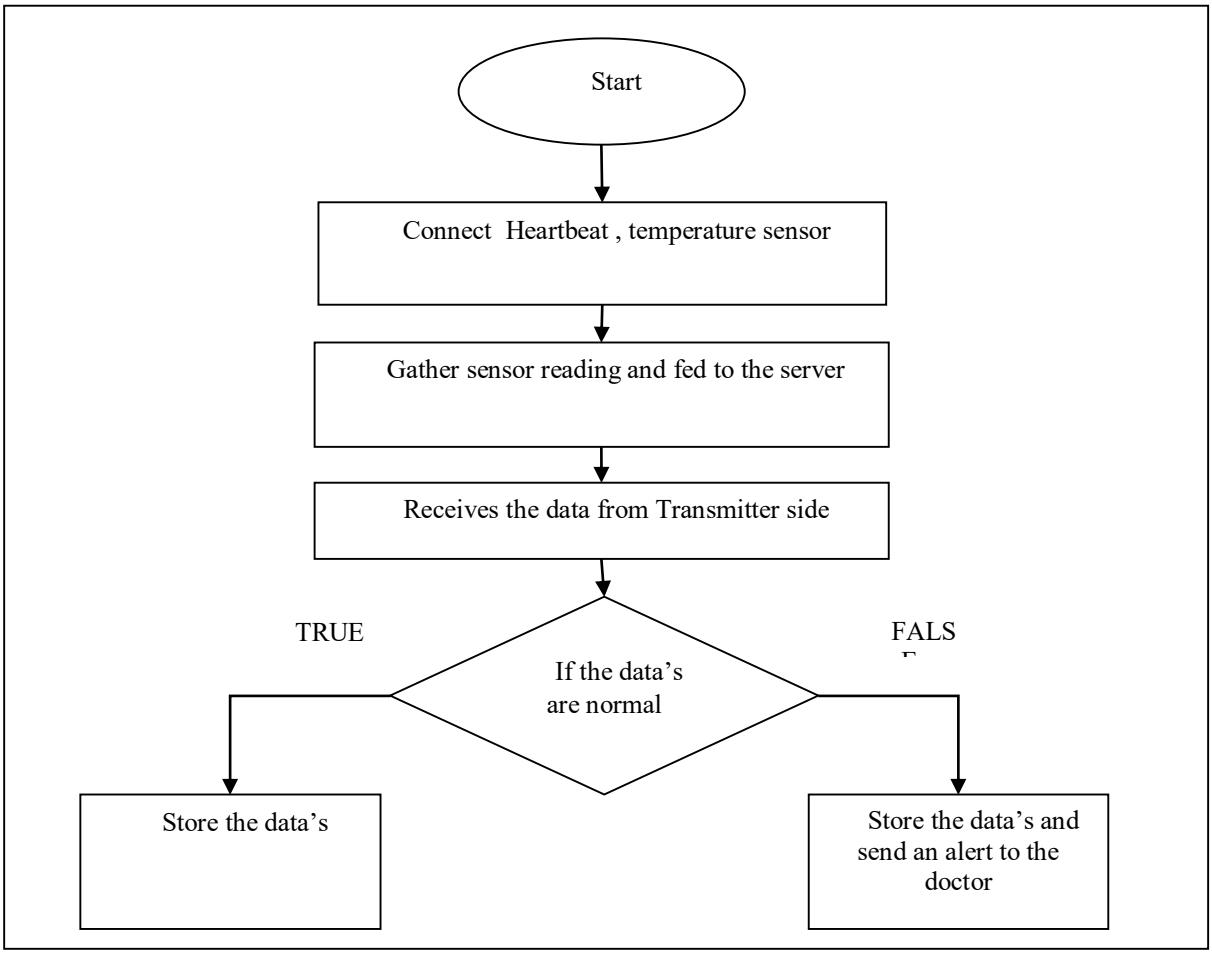

Figure 1: System Flow diagram

II PROPOSED APPROACH

This systems prime objective is to implement an E-health monitoring system using a Heart beat sensor. We are monitoring live health of the patient and also by using temperature sensor we can measure the human body temperature at the same instant so that can still regulate a person's heart rhythm. From both sensors input if a person gets abnormality neither in temperature nor in heart rate, message alert will send to the Server with the help of a transmitter. A Use the finger on the heart beat monitor that detects the heart beat and transmits the data to the controller when the heart beat is first detected. Simultaneously, temperature sensor senses the temperature. If both the data's are abnormal then the controller send the warning alert to the server with the help of transmitter. On the other side receiver receives the data's from transmitter and stores it in the server. If any abnormal data's receives alert will be triggered to authority person.

III SYSTEM ARCHITECTURE

The entire sensor like heartbeat sensor, temperature sensor and transmitter connected to the controller. Fig 2 shows the system architecture.

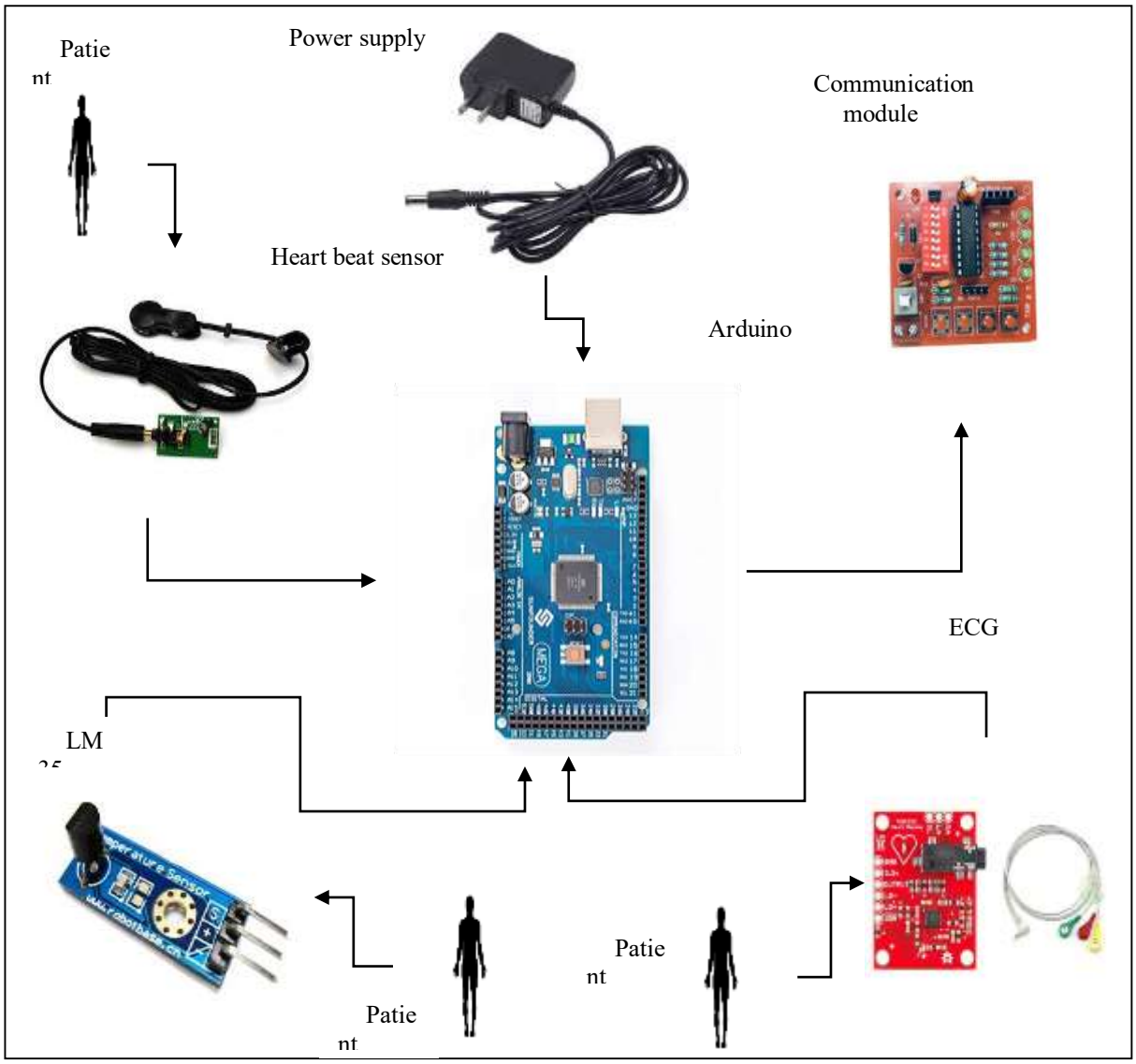

Figure 2: System architecture

a) ARDUINO MEGA:

The machine's centre is Arduino Mega because it controls all the other devices. Controller (i.e.) Arduino mega gets the data's from the sensing modules and sent it to the user using Wi-Fi Module. The operating voltage range is 5V.

b) TEMPERATURE SENSOR:

This system includes Temperature Sensor LM35. It measures the temperature. If the temperature range is 0 Celsius, output voltage is 0V. There will be rise of 0.01V for every degree Celsius rise in temperature.

c) HEART BEAT SENSOR:

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It's built with a finger to provide visual evidence of the thermal pulses. The pulse LED will flash in tandem with each heart beat when the heart rate detector is operating. It operates on the theory of light amplification by injecting blood at each pulse through the finger.

d) RF TRANSMITTER:

It gathers a data sequence and sends it through air as a channel for communication, with the help of antenna. The receiver which works on the same frequency as the transmitter receives the transmitted data.

e) RF RECEIVER:

The wireless receiver is in contrast to a radio transmitter. This uses an antenna to collect radio waves, allows certain waves to extract only the vibrating waves at the desired frequency, extract the audio signals found in the waves, amplify the audio signals and eventually run them on a speaker.

IV RESULTS

After setting up the system, check all connections. Once the system is ready, upload the source code. After uploading the code, place the index finger on the module. The module will begin to monitor the pulse rate. Temperature is calculated by temperature sensor and automatically keeps on updating in the controller. Finally controller transmits the received data and send to server with the help of transmitter. In server side receiver receives the data and stores the data in the server.Fig 3 and Fig 4 shows the ECG Signal and Heart beat level.

Figure 3: Output image of ECG in server side

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Figure 4: Output image of Heart beat in server side

V CONCLUSION

Biomedical innovation is the adaptation of the concepts and technologies of manufacturing to the medical field. To enhance patient health and customer quality of life, it combines engineering infrastructure and problem-solving skills with natural and biological sciences. A diagnostic system is used to detect or manage, avoid or alleviate sickness. Heart sickness is one of the world's noted causes of premature casualty, and tests of heart rhythm remain the only effective screening method supporting early diagnosis of cardiovascular events.

Wireless and smart phone devices are important factors for supporting individuals residing in their own homes with severe cardiac problems and maintaining their regular lives while being tracked for every Cardiac case. It would not only raise the pressure on the finances of the health center but will also boost the efficiency of the healthcare system. Not only these wireless communications secure for us and reliable monitoring but they are also free to run. With an individual already infected with a serious cardiac condition, the pulse rhythm will be constantly tracked.

This research suggests and reflects on the cardiac control and warning device, which can track the heart rhythm of the patient. It would warn doctors to find the patient easily. This system is cost-effective and user oriented, such that the application is not constrained or confined to any user class. It is a highly effective and simple to operate device and thus has greater reliability and efficiency than most traditional control and warning systems.

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