Team Name: Dream Team

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Abstract: **Patient health monitoring system through mobile application using IoT .**
Internet of Things (IoT) is an ecosystem of connected physical objects that are accessible through the internet. The IoT devices are used to collect temperature, blood pressure, and sugar level etc., which are used to evaluate the health condition of the patient. Communicating the collected information to the doctor, making accurate decision on the data collected and notifying the patient is the challenging task in the IOT. In this project, An IoT based Patient Health Monitoring System (PHMS) using Arduino is proposed to collect the required parameters and evaluate the data obtained from the sensor devices. PHMS with arduino also gives the notifications to patient with possible precautionary measures to be practiced by them.The combination of IoT with arduino is the new way of introducing Internet of Things in Health care Monitoring system of patients. Arduino Uno board collects data from the sensors and transfer wirelessly to IoT website. The Proposed PHMS system is evaluated for certain parameters like heartbeat, body temperature, blood pressure etc.

Introduction:

1. Humans are facing a problem of unexpected death due to lack of medical care at right time.Therefore,there is a need to develop body health monitoring system.
2. In the proposed system,a patient will be carrying hardware having sensors and android phone application.

3. The sensors will sense the body temperature and heart rate of patient and these data are transferred to mobile application.
4. System has the cloud database which stores all information about patients health and the doctors diagnose the symptoms based on this data and will prescribe medicine.
5. The proposed system is flexible since it allows patient to move freely and yet be monitored continuosly.
6. In the current proposed system the patient health is continuously monitored using different sensors which is connected to the Raspberry pi board.
7. If any of the parameter values goes beyond threshold value an alert is given to the doctor using an android application installed in the doctors smart phone.

Methodology:
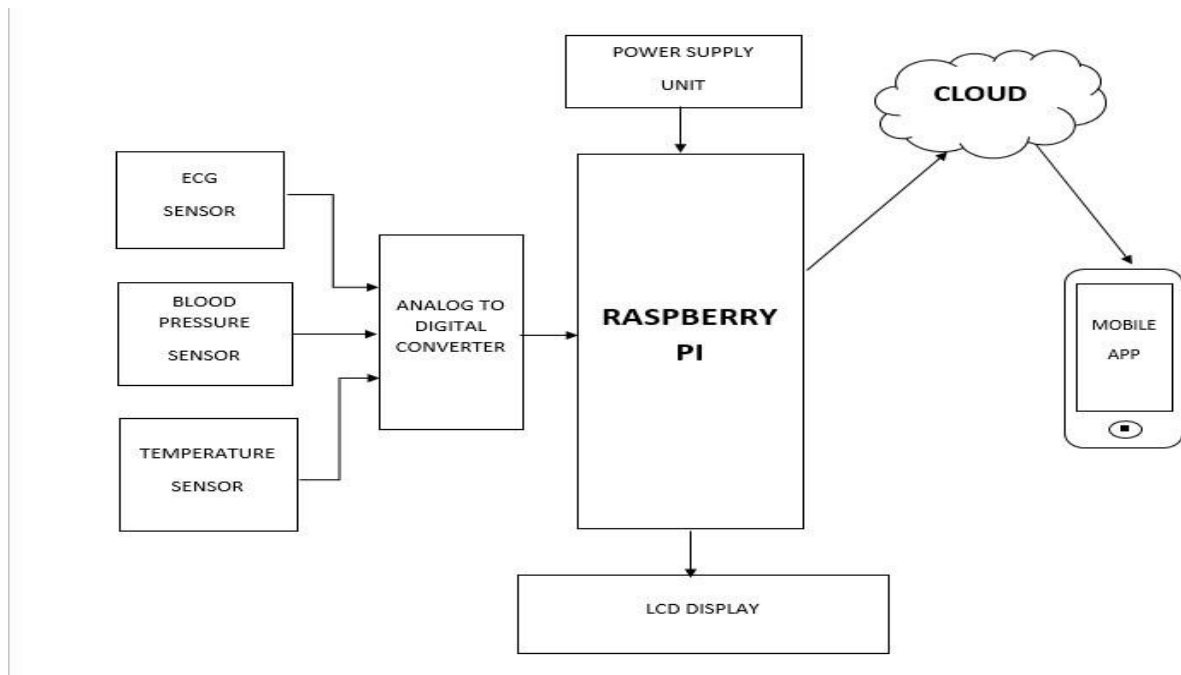
BLOCK DIAGRAM OF THE SYSTEM

Application will be developed using HTML.Application include user and adminportal.Ragistation of user will be mandatory . Application can updates the realtime output from the sensors . Heartbeat, ECG sensors will devloped to the patient body . Sensors will collect the data from the patient body in analog form . Raspberry pi is used to interface mobile application and sensors.sensors were connected to raspberry Pi through analog to digital converter which gives digital data to the Raspberry pi. Raspberry Pi is interfaced with mobile application using cloud.

Mobile application shows the output from the sensors. Doctors can observe the health condition of patient using these data from the sensors.Doctors can interact with patients in application
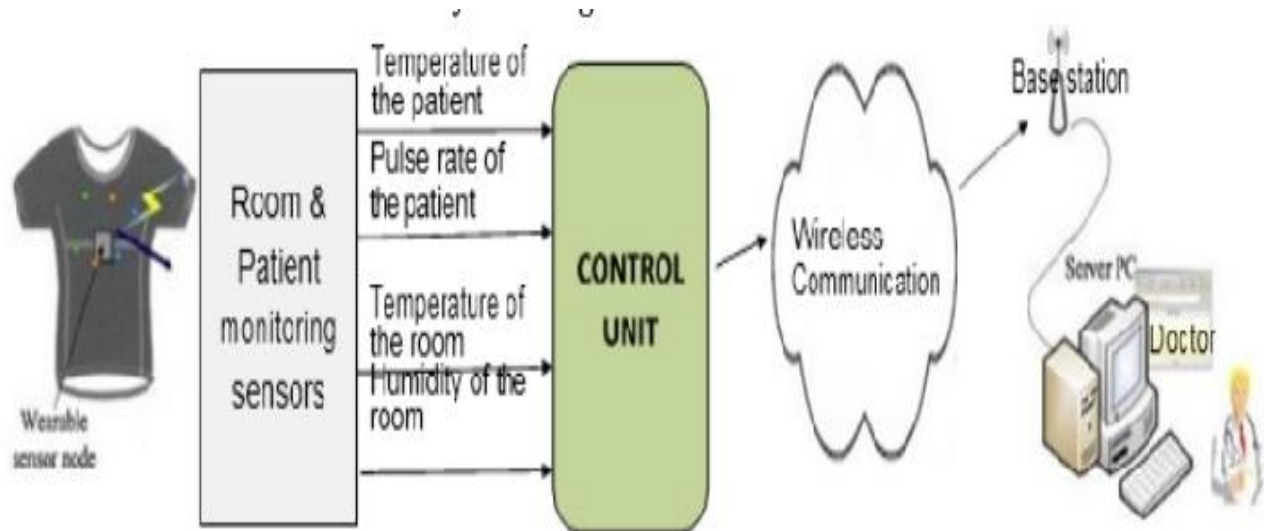
MOTIVATION:

The health monitoring system provides multiple options to change the traditional management of patients. Moreover, this solution reduces the cost of health care and helps the hospital to improve the treatment process, and provides a remote health monitoring system. Read this article to find out 5 benefits you can get from building your own health monitoring system.

1. Real-time health monitoring systems using IoT can help doctors prioritize patients, and provide urgent care to those who are in the most danger thereby saving lives.
2. More competent patient management can help utilize the resources of the hospital more wisely and save money.
3. It is easy to use the system for patients and medical professionals.
4. The remote health monitoring system is especially useful to monitor patients with chronic diseases. Most chronic diseases are incurable, so it is necessary to monitor the state of the patient while at home, and quickly respond if health indicators worsen.
5. The HMS is convenient and portable so it is very convenient for doctors to manage patients from one app, and it is also very easy for patients to monitor their own health by wearing a lightweight device like a bracelet.

Social Impact:

1. To develop an user friendly application for monitoring the patients.
2. Both doctors and guardians of patients can use the application for monitoring.
3. Application collects the data from the sensors which shows the health of the patient.
4. More competent patient management can help utilize the resources of the hospital more wisely and save money.
5. It is easy to use the system for the patients and medical professionals.
6. The PHMS is convenient and portable so it is very convenient for doctors to manage patients from one app ,and it is also very easy for patients to monitor their own health by wearing a lightweight device like a bracelet.

Market Survey: Continuous glucose monitoring, temperature monitoring, blood pressure monitoring, and pulse oximetry are a few applications of wearable patient monitoring devices, biosensors, and smart implants. New-generation wearable devices are equipped with the Internet of Things technology. Vital signs such as blood pressure, weight, blood sugar, and electrocardiography (ECG) are measured using wearable biosensors and transmitted over mobile wireless networks to a central server. Listed below are regulatory approval in recent years:

1. In July 2020, Medtronic received 510(k) clearances from the FDA and CE for its LINQ II Insertable Cardiac Monitor (ICM). LINQ II is a small wireless ICM for patients with abnormal heart rhythms and for those who require long-term monitoring. It enables remote patient monitoring and data transfer through the MyCareLink Heart mobile app or MyCareLink Relay home communicator by using BlueSync technology
2. In June 2020, Abbott received FDA clearance for the FreeStyle Libre 2 Integrated Continuous Glucose Monitoring (iCGM) system for patients suffering from diabetes. This device measures glucose levels every minute and has an optional real-time alarm. It has a self-applied iCGM sensor that eliminates the need for blood removal through finger pricks. Its Bluetooth technology automatically alerts users when their blood glucose levels drop or increase.