

Smart Healthcare System Assisted By IoT and Emergency app

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Abstract - This paper presents the design and implementation of smart health care system using the IoT technology and emergency app using the android technology. In this mentoring system, the wearable sensors are connected to patient's body to collect the physical parameters of the patients and stored in a cloud server. If any emergency condition occurs for the patient then the notification is sent to the doctor. This patient monitoring also enable with emergency app. If some emergency condition occurs notification will be sent to the family members of the patient, doctors and nearest hospital. The patient's physiological parameter values are stored in the cloud server can be accessed by the emergency app.

Key Words: IoT, Emergency app, Sensor, Cloud, Smart healthcare system

I. INTRODUCTION

IoT could be a system of reticulated computing devices, mechanical and digital machines, objects, animals or those who are supplied with distinctive symbol and therefore the ability to transfer knowledge over a network while not requiring human to human or human to pc interaction. Associate degree IoT system consists of internet enabled sensible devices that are embedded processors, sensors and communication hardware to gather, send and act on knowledge they acquire from their environments. IoT devices share the detector knowledge they collect by connecting to associate degree IoT entryway or different edge devices wherever knowledge is either sent to the cloud to be analyzed. In care sector sensible systems technology results in higher diagnostic tools to higher treatment and quality of life for patients by at the same time reducing prices of public care system. A detector could be a device that detects and responds to some style of input from the physical surroundings. The particular input can be lightweight, heat, motion, moisture, pressure or anyone of a good range of different environmental phenomena. The output is usually a symptom that's born-again to human legible show at the detector location or transmitted electronically over a network for reading or any process. Sensors are around for numerous type like

LDR, Temperature detector, inaudible detector, humidness detector, vibration detector, gas detector and then on. Emergency app is mobile application that notifies doctor and members of the family regarding the emergency condition of the patient. Cloud computing is that the on demand handiness of resources particularly data storage and computing power while not direct and active management. Giant clouds predominant nowadays typically have functions distributed over multiple locations from central servers it's going to be designed a grip server. Cloud service models are Infrastructure as a Service, Platform as a Service and Software as a Service(SaaS).Some of the cloud service suppliers are Google, Window azure, Amazon internet service ,IBM, HP,Salesforce.com, Appscale and Cloud letter of the alphabet.

II. RELATED WORKS

Archit Sharma ,Ruqaiya Khanam,Akriti Kumari, Subham Singh,With the advancement in technology today IOT makes all objects interconnected and it has been recognized as the next technical revolution. And it is being used in different methodologies like smart home automation, traffic control, vehicle parking, smart environment, agriculture fields and patient health monitoring system etc. Among with these approaches a very useful approach is to monitor the health situation of a patient and screen it to the doctors and other paramedical staff through the IOT. As we know that it is very difficult to screen the patient for 24 hour. So here the status of patient health i.e Pulse rate, Body Temperature, Position of the body, ECG, and Blood pressure and so on.

Sasipriya Saminathan, K.Geetha, The proposed work is to design and develop a Mobile-IoT based healthcare system which is featured with Pattern Matching Algorithm by gathering patient's data from various PHD sensors and timely alert the caretaker as well as doctor by sending messages. It monitors the patient's physiological parameters remotely and diagnoses the diseases as early as possible.

Enrique Dorrnzoro Zubiete, Luis Fernandez Luque, Ana Veronica Medina Rodríguez, Wireless Sensor Networks (WSN) are becoming increasingly important for telemedicine applications, monitoring patients both in the clinical setting and at home. They reduce user discomfort, enhance mobility and reduce costs. WSN are also fundamental in Ambient Assisted Living (AAL) since these smart systems, which are tailored to users needs, collect information about users and their ambient in order to provide personalized feedback.

Maradugu Anil Kumar, Y.Ravi SekharThe health care scheme is focus on the measurement and Monitoring various biological parameters of patient’s body like heart rate, oxygen saturation level in blood and temperature using a web server and android application, where doctor can continuously monitor the patient’s condition on his smart phone using an Android application. And also the patient history will be stored on the web server and doctor can access the information whenever needed from anywhere and need not physically present.

III. SYSTEM DESIGN

A. Smart Healthcare System

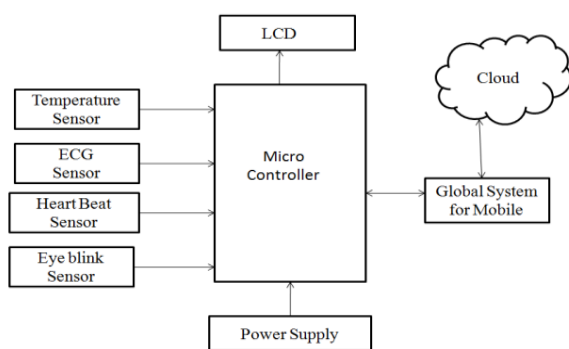


Figure 1. Smart Healthcare System

Figure 1. presents the block diagram of the Smart Healthcare Monitoring system. The wearable sensors are connected to the patient’s body to collect the physiological parameter values of the patients such as Temperature, ECG, and Heart rate. Information is displayed in the LCD with the help Global System for Mobile and stored in the cloud server. Based on the critical physiological parameter values, the decision support system identifies the critical

emergency condition of the patient and notifies the doctor and family members.

B. Emergency App

Figure 2. depicts the screenshot of the Emergency App. In IoT app, the threshold is set to some specific value. The phone number and email id of the guardian or family members must be entered. If the patient is facing an emergency condition, patient can shake the mobile, then the message will be sent to the family members as well as doctor.

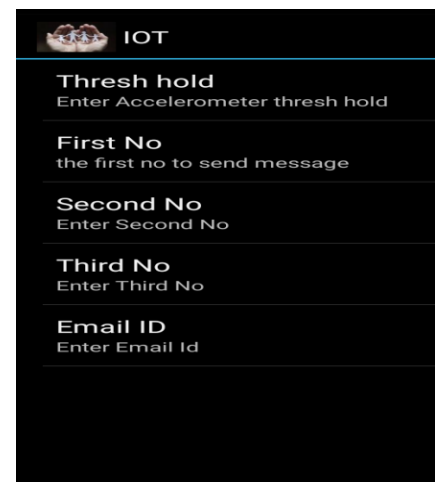


Figure.2 Screenshot of the Emergency App

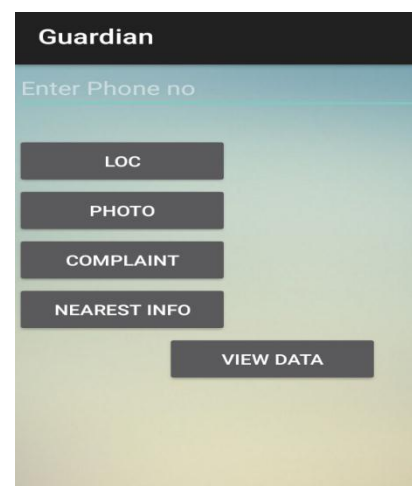


Fig 3. Screenshot of Emergency App in the guardian’s Mobile

Figure. 3 depicts the screenshot of Emergency App in the guardian’s Mobile. In guardian mobile App, phone number of the patient must be

entered. The guardian can get the patient's location, photo and nearest hospital information.

IV. IMPLEMENTATION

The Smart Healthcare system collects the physiological parameter values such as ECG, Temperature and Heart rate of the patient admitted in the hospital. Based on the parameter values, the decision support system will decide the emergency condition of the patient.

The smart healthcare system will provide mobile app notification about the emergency situation of the patient to the doctors. Emergency app will notify the emergency condition of the patient to the family members.

V.RESULTS

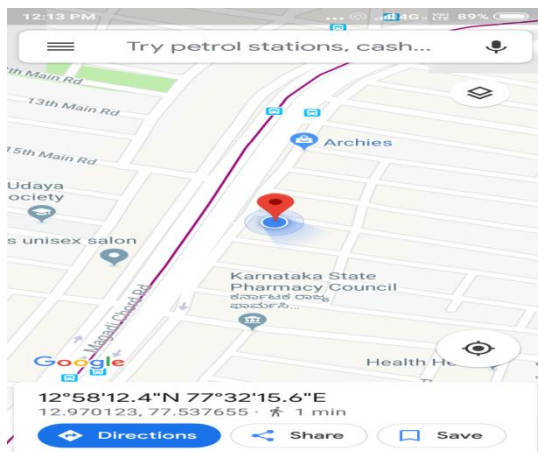


Figure 4 . Location of the patient



Figure 5 . Nearest Location

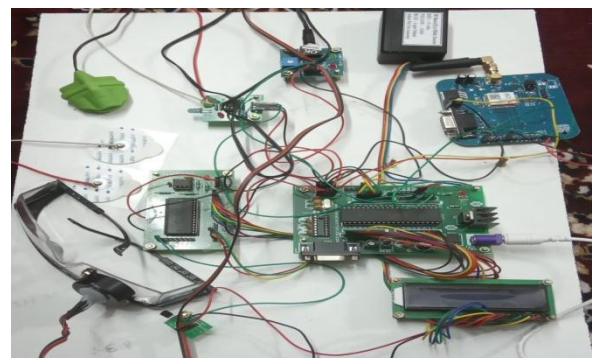


Figure 5 . System Setup



Figure 6. Body Temperature value



Figure 7 .Eye blink Sensor Status

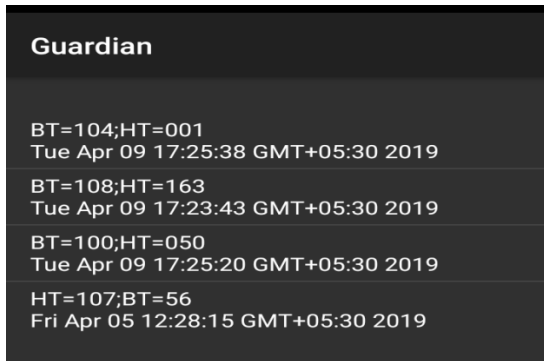


Figure 8 .Cloud data

CONCLUSION

Smart healthcare monitoring system is designed to collect the physiological parameter values of the patients and decide the patient's health condition. Healthcare monitoring is done effectively with minimal cost. Emergency app implemented in the monitoring system is used to notify the emergency condition of the patient to the guardian or family members.

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