IOT based Patient Monitoring System

Abstract

In the recent development of Internet of Things (IoT) technology, it has made all objects interconnected. We can say that IoT has been recognized as the next technical revolution. To quote few of the applications of Internet of Things, smart parking, smart home, smart city, smart environment in the industrial places and in the irrigation and health monitoring process. One among these applications is the healthcare sector in which the patient health parameters are monitored. Internet of Things can make the medical equipments more efficient by allowing the real time monitoring of patient health, where the specific sensors used, acquire data of the patient. Since this technology sense and transmit the patient health data digitally, so it reduces the manual intervention and thus human errors. In Internet of Things patient's parameters get transmitted through medical devices via a gateway, where it is stored and analyzed. The significant challenges in the implementation of Internet of Things for healthcare applications are monitoring all patients from various places. Thus Internet of Things in the medical field brings out the solution for an effective patient monitoring at lower cost and also reduces the trade-off between patient outcome and disease management. In this paper, emphasized on the design of the system for monitoring patient's heart pulse rate, heart sound count and blood pressure using Raspberry Pi.

INTRODUCTION

We are hearing the new technology now from all over the place. It is the "Internet of Things". This technology is changing the lives of everybody in this new era in different sectors and domains like healthcare sector, agriculture, automobile industries, to name a few. This technology is evolutionary. The reason why public and the industries are using this technology is, it is available at the low cost at home. IoT can be used in monitoring patient's health, for making smart home and smart city. The unexpected abnormality in the patient can be monitored using IoT. In this project specialized hardware sensors are used to monitor patient's heart pulse rate, blood pressure and heart sound count? One of the key learning platforms for IoT is Raspberry Pi. The Raspberry Pi is a popular platform because it offers complete Linux server in

a small platform at a lower cost. The Raspberry Pi also allows interfacing the services and actuators through its general purpose input-output pins. The IoT using Raspberry Pi has became a new innovation technology in the healthcare sector. Raspberry Pi acts as a small clinic after connecting the heart pulse, heart sound and blood pressure sensors. Raspberry Pi thus works as a small clinic in many places. Raspberry Pi can collect data from the sensors and then it can transfer the data to an user interface screen using QT Product IDE (Integrated Development Environment) tool framework. It also transfers the health data wirelessly to a Internet web browser for the user (health practitioner), who connects his/her internet to the Raspberry Pi using Raspberry Pi board's inbuilt Wi-Fi. When Raspberry Pi board is connected to the internet network, the Raspberry Pi board's physical MAC address gets registered in the internet. So when the user-health practitioner requests for the E-Health monitoring of the patient using local I.P Address of Raspberry Pi in his/her internet web browser, then the patient's health sensors data output processed by Raspberry Pi is displayed in the internet web browser, in the form of a database report.

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