International Journal of Industrial Engineering
2020;4(1):23-27.
ISSN: 2456-8449

Real-Time Health Monitoring System Based on Embedded Hardware and Android Application

Saumya L[1*], I. Manimozhi[1], Y. Swathi[2]

[1]*Department of Computer Science and Engineering, East Point College of Engineering and Technology, Bengaluru, Karnataka, India.*
[2]*Department of Information Science and Engineering CMR Institute of Technology Bengaluru, Karnataka, India.*

**Corresponding author: saumyabalajib80@gmail.com*

Abstract. The built-in framework has a wide range of packages for buyers, business, and automotive, modern and scientific markets. In most cases, the workspace of a connected system simply runs a separate utility that helps the system do its job. The framework built into the system with the help of the article can connect to the Internet. In the center of the frame device and its organizer, a frame for monitoring various constants and biometric records of the body is inserted into the correspondence. It simply means that there is no (UI) in the mechanical product. In these cases, an in-circuit emulator (ICE) is quickly provided with an implanted device and an external PC for research or product upgrades. Because implanted systems have limited performance and increased energy requirements, programming for embedded devices is a very specific area that requires knowledge of each element of the device and its programming. This figure shows a blueprint of a flexible scientific architecture that can be applied to display a person's body temperature and heart rate using a fair microcontroller. The structure of the device includes a temperature and heart rate sensor, a character-forming circuit (SCC), a microcontroller with an independent chip, and a GSM modem. Embedded software calculations provide temperature, heart rate and voltage, process, transmit, deliver and store in the microcontroller's onboard EPROM.

Keywords: Biomedical application, Safety, Embedded system, Mobile health care, Security.

INTRODUCTION

There are many digital objects these days that contain mounted wireframes. In the daily use of digital devices such as MP3 players, cameras, interactive media, cell phones, consumer hardware and toys, it is not possible to install more than one device, but these devices are used simultaneously in vehicles, scientific devices and consumer devices. . In general, important knowledge is constructed with the help of ported frameworks. The potential for their use is enormous, as the explosive growth of implanted platforms outweighs the remarkable advances in robotics and record-breaking innovations. The Embedded Systems Technology Platform Steering Committee report, Critical Power, characterizes an embedded system (ES) as a combination of devices and programming that makes a device or outer loop structure work. In an instant, digital chip modules and other devices changed the control of connected devices. Embedded systems were designed to operate without user intervention and had the ability to respond to continuous running situations like Sensors, activators and precise communication channels, various codes and remote exchanges, as well as computers using the surrounding mouse, console, I/O and interaction with the GUI.

With an aging society and an increasing number of elderly and single elderly people in recent years, such medical or emergency care facilities will soon be in demand. There can be a wide range of medical management systems connected to the implanted systems and critical management commands, as well as safe and reliable peripheral systems. Health care is divided into three types: sick patients of irregular weight to manage permanent conditions, implantable medical devices and serious people, scientific treatments and remote process implantation recovery systems beyond surprising interest. Recent advances in medicine in diagnostic and therapeutic fields such as specialized solutions, preventive health screenings, robotic aids and treatments have made the time spent in scientific nursing homes more limited and limited. Over time, the number of people receiving treatment in these medical fields continues to grow. The rest of the time was spent at home in shifts at the emergency hospital. Combined with an intellectual attitude, this plan includes higher recovery rates and the actual ability of patients to

Received: 15.03.2020 Revised: 14.04.2020 Accepted: 22.04.2020

pay and operate, which must be safely adjusted to internal needs. Many of them live alone, and when unmarried, the goal is to accumulate an administrative welfare system that can remotely check habitats and monitor cases that threaten health. Recently, telemedicine frameworks have begun to explode. Many of them have unique inspection methods and shapes of tools. A complex health care structure requires at the same time a rational clinical proposal that has not been identified in nature, an established framework capable of conveying the implications of amnesia for health, and a genuine study of the reputation of patients and medical centers.

LITERATURE SURVEY

The research topic "Remote Inpatient Care Looking at Scaffolding" covers all electrical engineering and scientific topics of interest. This led to the direction of biomedical design research. The remote health check platform for the largest component is based on a wearable sensor on the patient's body, which collects statistics from a distance and converts it into a series of records. Statistics are then obtained remotely from a specialist or inpatient therapist who can display a screen and select a preferred statistic. Past research has referred to remote “health sensing systems” as “mobile health” or “health”. This becomes since they applied cellular telephones earlier than mobile cellular tele cell smartphone period. Around then, a fitness union existed that diagnosed boundaries, holes in scaling and utilization of portable innovation in clinic treatment. Proactive endeavors have seen the obstructions in medical services and bendy correspondence innovation being diminished. As in keeping with the Journal of Neuron Engineering and Rehabilitation, a big a part of harmless strategies carried out in securing easy signs and signs from the human body are of microvolt (μV) nature signal. Signal managing the useful resource of the usage of utilization of microcontrollers is then completed on the identified signs and signs to reap the huge information from the sign information. Blunders, for example, actual body displaying mistakes, deliver demonstrating mistakes and composition (instrumental or organic) are calculated with within the calculation in some unspecified time in the future of signal obtaining and managing.

To keep people strong, you need modern hospital care facilities that are attractive and open. A modernized hospital care structure should provide a higher level of health care to people anytime, anywhere in an economical and convenient way for patients. This method uses advances in modern biometric tools, computers and communications. A good casualty monitoring system must acquire, record, display, and voice physiological statistics in the far-field frame of the injured person each time. For more effective, opportune and catastrophe clinical consideration, the affected individual checking framework should likewise be fused with a caution framework. To caution the affected individual sincerely due to the fact the hospital treatment expert co-ops, the affected individual looking at framework ought now not sincerely show display screen and break down the easy affected individual`s information, however it wants to likewise deliver annoying messages with within the event that the checked information passes out of doors their normal reaches. The principle drop in this framework is the affected individual very last additives conceded with within the emergency clinic, careworn to bedside biomedical gadgets for a while.

PROPOSED SYSTEM

Plan and implement a flexible medical system that can be used to display a person's body temperature, heart rate, and circulatory stress (BP) using a fair microcontroller. The frame device layout includes temperature and voltage sensors, a character-forming circuit (SCC), a microcontroller with a single chip, and a GSM modem. Embedded software calculations receive temperature, heart rate, and voltage data and process, transmit, serve, and store it in the microcontroller's main EPROM.

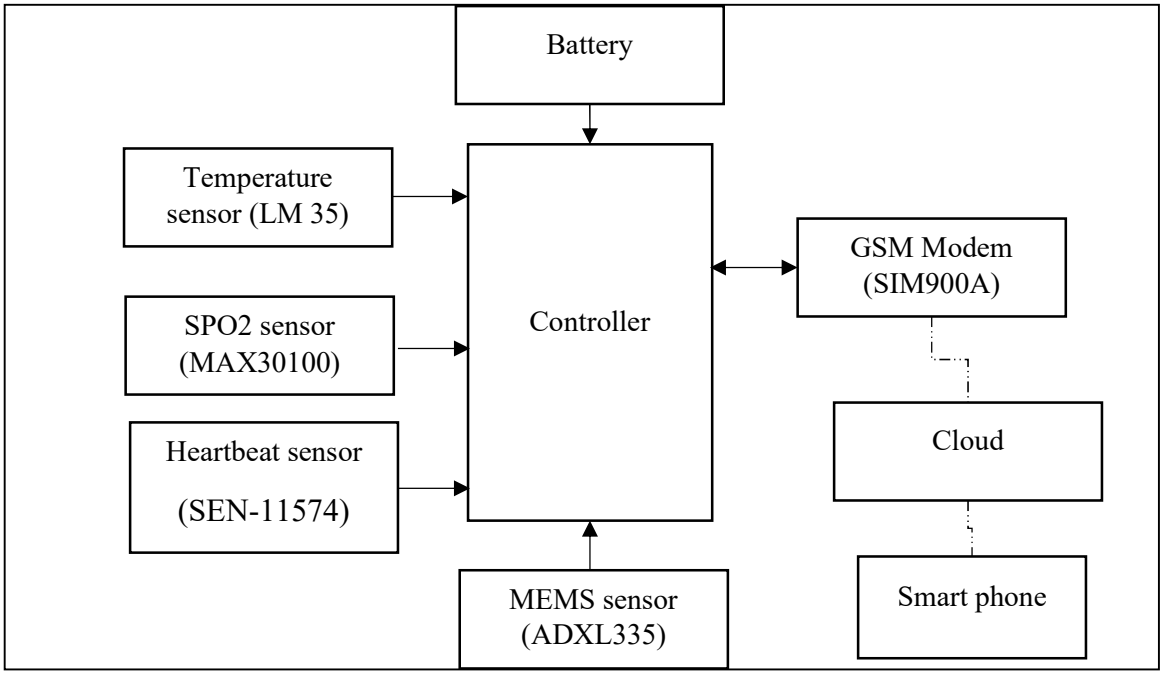

Figure 1: Design of the system

In addition to the set temperature step, the PSU is placed in the microcontroller's EEPROM. When the appropriate user signal level of the signal is reached, the microcontroller downloads the current temperature value and BP to the GSM modem. Then, at this point, GSM dials the pre-sorted cell phone number and sends the two restrictions in the form of a generic flexible message to doctors, maintenance personnel and emergency personnel. A set of generic MYSQL facts containing these constraints are collected and placed in a question table. This statistical base can be used to record the victim's body temperature, coronary heart rate, and BP, if necessary.

RESULTS

The purpose of this mission was to create a system that could receive information about a victim's various serious symptoms and symptoms, verify it in the cloud, and in this case inform experts or related parties about the disease. Figure 2 shows the hardware setup.

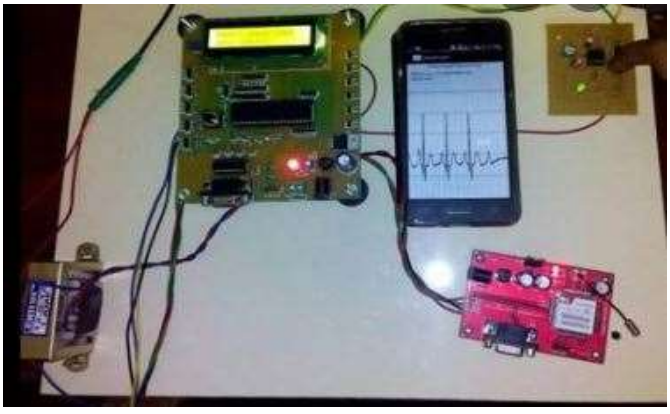

FIGURE 2. Hardware Setup

This has been a challenge in the AWS IOT phase, creating an embedded sensor-based platform to analyze the critical symptoms and symptoms of cloud companies. These views can be obtained either through purely interactive elements that are captured and provide a graphical representation of the information, or through the Information Exploration module to determine the severity of an affected individual.

FIGURE 3. Fall Alert

The Figure3 shows the stop result of the records examination finished on the accelerometer and whirligig records for rest state discovery. The sensor readings are implemented for checking any adjustment of state and if there needs to be a prevalence of an adjustment of the express, the contemporary state is shipped off AWS IOT using MQTT.

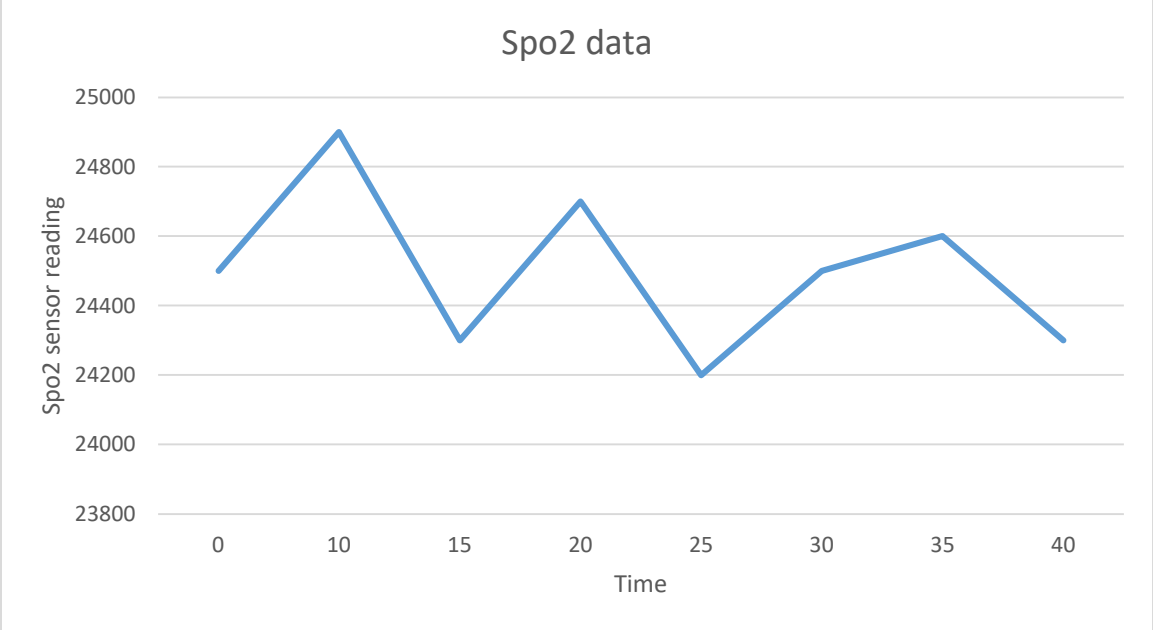

FIGURE 4. SPO_2 Sensor Data

Figure 4 shows the SPO2 sensor readings. As the system accumulates, it sees a wide range of symptoms and symptoms of a sick person, analyzes the cloud, and then informs experts or related parties about the disease.

CONCULSION

Current and growing results show that mounted frame packs will gradually apply to biomedical packs just as they apply to all elements used. Assumptions about the usefulness of mounted scaffolds in biomedical scaffolds, like others; Modern terminal devices equipped with special sensors are open, self-regulating platforms that induce relaxation in the arena, generate large amounts of information and can cycle while it is important to expect choice. Take a continuous, digitally sensible approach. It is inevitable that more companies want to implement the framework and the market develops. A new and higher class of Plan Playing cards is expected to be shipped. The minimal cost of the extension of programming libraries and established frameworks in clinical delivery will be more in demand due to their convenience. Additionally, artificial intelligence health programs are expected to continue to grow with systems that are aligned with existing structures and new programming.

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