ISSN: 2454-9940

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

E-Mail :
editor.ijasem@gmail.com
editor@ijasem.org

www.ijasem.org

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

ISSN2454-9940

www.ijasem.org

Vol 18, Issue 1, 2024

ECG BIOMETRIC RECOGNITION: REVIEW SYSTEM PROPOSAL AND BENCHMARK EVALUATION

Proff. K. Ashok Babu, Professor,Department Of ECE, SICET, Hyderabad
B. Sriya, Bommireddy Vanisri, Thotapally Navya, Uday Bhaskar Doudu
Department Of ECE, SICET, Hyderabad

Abstract

This article describes the development of a microcontrollerbased system for wireless heart rat e and temperature measurement using a WiFi module. This way we can easily present inform ation in real time to many users and alert them to an important situation on the network. Man y patients in India die due to heart disease and this is because they do not get adequate help d uring this time. We want to regularly monitor the health status of our patients in order to prov ide them with timely and appropriate service in the first place. Intensive care can only be use d while the patient is in bed, and these machines are quite large and are only found in hospital intensive care units. The system is designed to be used at home by patients who are not serio usly ill but need immediate care from a doctor or family member. In all important cases, a lett er is sent to the doctor or a family member. This way, we can save many lives by providing th em with prompt service.

Index Terms - Heartbeat, Fever, Patient Health Tracking, Wifi Module.

I. Introduction

Health problems increase during the winter months. This is a serious problem worldwide, wit h 55.3 million people dying every year, 151,600 people dying every day, and 6316 people dyi ng every hour. Therefore, it will take time to solve these problems. Therefore, by modifying t he wireless sensor technology, we want to create a system with different wireless sensors that will receive the human body temperature, blood pressure, salinity, heart rate and other infor mation. Users can access the internet. Create valid records of patients' health history that doct ors can further evaluate and analyze when necessary. Archived data can be stored permanentl y on the server or reset by software. This article introduces a health monitoring system that ca n control many aspects of our body, such as body temperature and heart rate. In addition, in e mergency situations, if abnormal reactions are detected in or near the patient, the system auto matically sends an alert to doctors and family members.

DETAILED DESCRIPTION

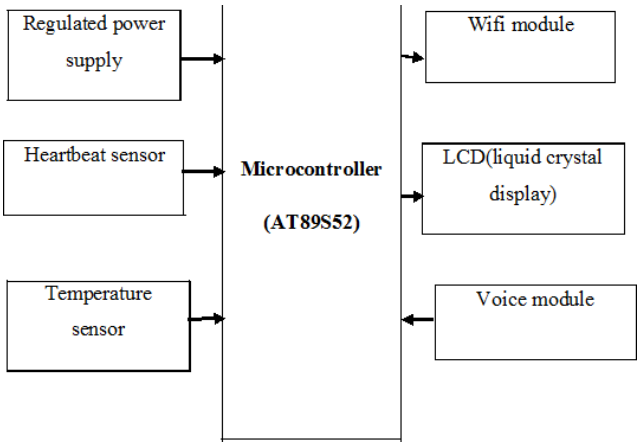
The implementation of the system has been described below

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

ISSN2454-9940

www.ijasem.org

Vol 18, Issue 1, 2024



I. BLOCK DIAGRAM

The system consists of a microcontroller, heart rate sensor, WIFI modem and temperature sen sor.

Measurement of heart rate, ideas taken from the human body. The heart rate sensor will gener ate a digital pulse corresponding to each heartbeat. This pulse is counted by connecting the he art rate sensor to the pin number of the microcontroller. 15 (T1CKL) and works in counter m ode for the microcontroller. After one minute of pulse counting, the heart rate value will be di splayed on the LCD and the alarm will sound if the value is outside the normal range. Patient information will be sent to the recipient using the WIFI module. The collector unit is responsi ble for the tight collection of all sensor data that makes up the body. We use the AT89S52 mi crocontroller as the collector in our design. Computers in hospitals work for our healthcare sy stems. Data received from the acquisition unit is processed in the computing unit (e.g. compu ter). This information can be used to draw graphs and charts. The sensor connects to the micr ocontroller via the WIFI module and we can send the data to the IoT server. If something unu sual happens to the patient, the sound module will be activated and the alarm will soundFour. Hardware usag1. Power supply (7805): This power supply is supposed to convert the AC sign al to DC signal and reduce the amplitude of the signal. The electrical signal available from th e mains is 230V / 50Hz, this is AC voltage, but for many applications DC voltages with ampl itudes +5V and +12V (no frequency) are requiredIn this section, there are +5V and +12V volt age regulators (7805 and 7812) connected in parallel via transformer, serially connected bridg e rectifier, shunt capacitor (1000µF) as seen in the picture below. Each output voltage regulat or is connected to a voltage regulator (100µF, 10µF, 1µF, 0.1µF) taken from the supply (+ 5V or +12V). Microcontrollers (AT89S52)AT89S52 is a low-power, high-performance CMOS 8bit microcontroller with 8k bytes of insystem programmable flash mem ory. The device is manufactured by Atmel. Compatible with higdensity nonvolatile memory t echnology and industry standard 80C51 instruction set and pinout. Ochip flash memory allow s memory to be reprogrammed by the system or normally without a memory programmer. At mel's AT89S52 combines a versatile 8bit CPU and programmable flash memory system on a single chip, making it a powerful microcontroller that offers excellent and cost-effective solutions for managing many applications. Solution

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

ISSN2454-9940

www.ijasem.org

Vol 18, Issue 1, 2024

3. Heart Rate Sensor

Because light is scattered or absorbed throughout the blood when heart rate changes, heart rat e can be measured as a change in optical energy.The heart rate sensor is based on the photopl ethysmography principle. It measures changes in the volume of blood passing through an org an in the body, resulting in changes in the amount of light passing through the body (vascular space). Timing of pulses is more important in applications where heart rate needs to be monit ored. Blood flow is determined by the heart's heartbeat, and as light is absorbed by the blood, the signal beats are equal to the heartbeat.
BPM (beats per minute) = 60 * f where f is the pulse frequency

Practical heartbeat sensorAn example of a heart rate sensor is the heart rate sensor (product n umber PC

TEMPERATURE SENSOR(LM-35)

The LM35 series are precision integrated circuit temperature sensors whos e output voltage is linearly proportional to the temperature in degrees Celsius (Celsius). The LM35 therefore has an advantage over conventional thermometers that measure in Kelvin because the user does not need to subtract a constant voltage from its output to o btain a simple measurement in Celsius. The LM35 requires no external calibration or cor rection and provides accuracy of ±1/4°C at room temperature and ±3/4°C over the entire range of 55 to +150°C. Low cost is achieved with water modification and calibration. T he LM35's low output impedance, output voltage and high measurement accuracy make it particularly easy to deal with readings or check voltages. It can operate on a single ele ctrical source or on both positive and negative sources

WIFI module

The device is connected to a WiFi network called a station (STA). WiFi connectivity is

provided by an access point (AP) that acts as a hub for one or more locations. The acces s point at the other end connects to the wired network. Access points are often combined with routers to provide access to the Internet from a WiFi network. All access points are identified by their SSID (Service Set Identifier), which is essentially the network name you choose when connecting your device (station) to WiFi.Each ESP8266 module can w ork as a station, so we can connect it to a WiFi network. It can also work as a software a ccess point (softAP) to create its own WiFi network. Therefore, we can connect another station to the modes. Third, ESP8266 can also work in station mode and software access mode simultaneously. This provides a way to create

instances. Knitting network.

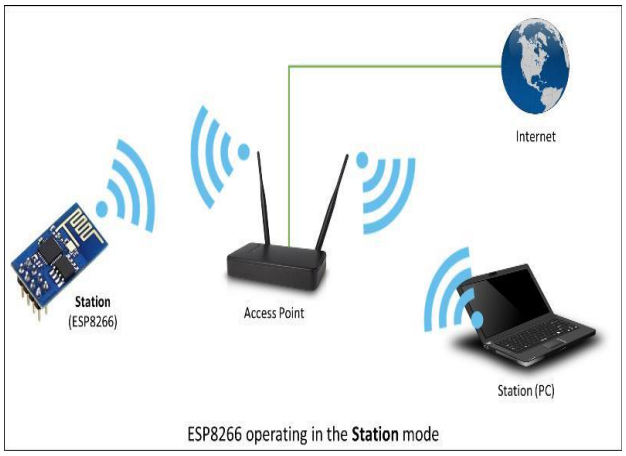


Fig.2: wifi module operating system

LCD (Liquid Crystal Display) good visibility. Each pixel has an array of liquid crystal molec ules suspended between two transparent electrodes and two polarizing filters whose polar axe s are perpendicular to each other. When there is no liquid crystal between them, the light pass ing through one will be blocked by the other. Liquid filters disrupt the polarization of light en tering one filter so that it can pass through another filter.

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

ISSN2454-9940

www.ijasem.org

Vol 18, Issue 1, 2024

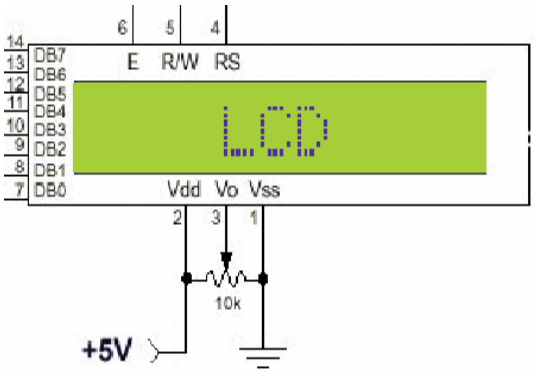


Fig.3:1x16 lines

LCD VOICE MODULE

It is based on ISD1820 which has a lot of writes/writes. It provides true single rec ording, no lag and 8 to 20 seconds playback. The sample is 3.2k and the recorder i s 20 seconds in total. You can control it directly from the buttons on the board or f rom the microcontroller (Arduino, STM32, chip kit, etc.). From here you can easil y control recording, playback, repeat and more.

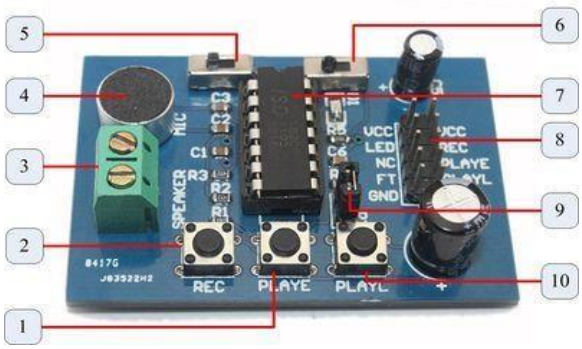


Fig.4: voice module

II. SOFTWARE IMPLEMENTED KEIL SOFTWARE:

This is an IDE (Integrated Development Environment) that helps you write, compi

le and debug embedded programs. It includes the following components:

· Project Manager

· Production Tools

· Tool Configuration

· Editor

™ Available Power debugging Here are some sample programs to help you get st

arted. Create applications in MicroVision2

To create (compile, compile and link) applications in uVision2 you need to:

→ Select Project → Open Project

To create a new project in uVision2 you must:

ï Select Project - Targets, Groups and Files. Select New / File, group 1 and add the

file to the project.

· Select a Project - Options and settings for selected tools. Please note that all cust

omoptions are taken into account when you select a target device from the device

database. You only need to configure the memory map of the target hardware. The

memory model setting is fine for most people.

Debugging Applications in MicroVision2

To debug an application built with uVision2, you need to:

ï Select Debug - Start/Stop Debug Session. < br> ï¤ Use the step toolbar buttons t

o skip a program. You can make the C key work by typing the key G in the output

window.

ï Use the Serial #1 button on the toolbar to open the Serial window

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

ISSN2454-9940

www.ijasem.org

Vol 18, Issue 1, 2024

Embedded C

All embedded C programs are embedded C programs that we encounter in our dail y lives. the soul of processors in the body, such as mobile phones, washing machi nes and digital cameras.Each processor is associated with embedded software. Th e first and most important of these is the embedded software, which determines th e functionality of the embedded system. Embedded C is mostly used to program microcontrollers.

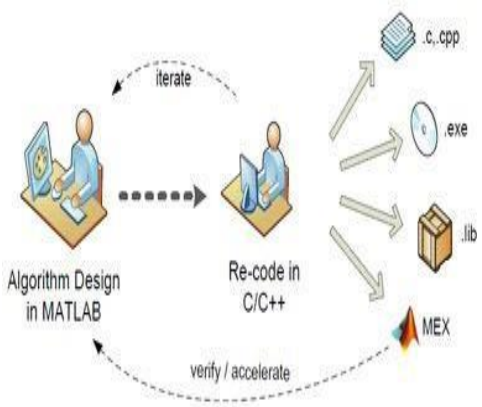


Fig.5.embedded c programming

Advantages

III Generally suitable for use in rural areas.

III Reduce the gap between doctors and patients.

III Since it is multi-purpose, everything can be measured easily.

Disadvantages

™ This system is not portable.

™ Patients may not understand analog signals.

• The system is complex and difficult to operate.

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

ISSN2454-9940

www.ijasem.org

Vol 18, Issue 1, 2024

I. RESULT AND CONCLUSION

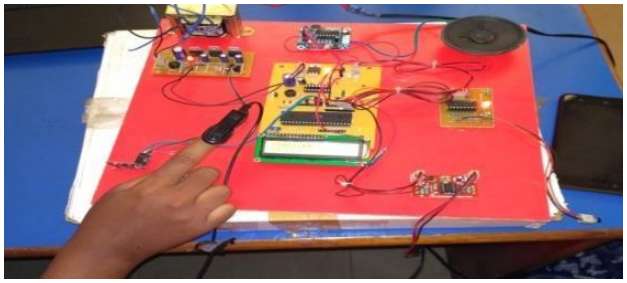


Fig.6 working model

Here is an Android application designed to take treatment parameters, display the m on Android phones with the help of a wifi module and simultaneously upload th em to the Android web server. After you openAndroid app on your mobile phone, it will show the list of wifi modules and then connect the wifi module which needs to be connected to the system hardware. It shows that the Android application rec eives data from the system after connecting the required wifi module. When the d ata received from the Android phone is sent to the Android server, the doctor can easily access the patient's data, we can create another application to display text from the server.

Fig.7 shows the graph analysis of temperature and heartbeat.

INTERNATIONAL JOURNAL OF APPLIED SCIENCE ENGINEERING AND MANAGEMENT

ISSN2454-9940

www.ijasem.org

Vol 18, Issue 1, 2024

The research and development of embedded heart rate monitor overcomes the shortcomings o f traditional heart rate diagnostic systems. The device has simple structure, stable and reliable operation, high precision, low power consumption, good portability, complete operation and many applications. Realtime monitoring of the physical status of cardiac patients based on wi reless transceiver module technology. Since it is miniature and portable, it can be carried by t he patient and provides immediate calmness to the patient. The system helps doctors make an accurate diagnosis by instantly monitoring and recording the patient's body and parameters. By sending and receiving smart samples, symptoms of serious diseases of patients can be det ected early, and patients can save time and prevent premature death. Wireless transceiver mo dule technology can be suitable for shortdistance communication, transmission is limited to 1 0 meters, making it suitable for patient care. It is very important to use this system in nursing.

VII. Future Scope

Can also monitor parameters such as electroencephalogram and electrocardiogram.

- Continuous monitoring and future diagnosis can be done by the same system.

- Further use of a system can monitor a patient from different locations.