LIFE SAVER – AN INTELLIGENT HEALTH CARE MONITORING

Mrs.M.Archana [1],
Associate Professor,
Department of Computer Science
and Engineering,
Adhiyamaan College of Engineering,
Hosur, Tamilnadu.Hosur, Tamilnadu.

S.Archana [2],A.Aruljothi[3],J.Bhavana[4]
UG Student,
Department of Computer Science
Adhiyamaan College of Engineering,
Hosur, Tamilnadu.Hosur, Tamilnadu

Abstract:Predictable observing of essential wellbeing boundaries is a significant issue in the clinical business. Most people carry on with a bustling life wherein going to a specialist for week after week or even month to month check up is an outlandish task.This problem leads to the design of a system which monitors health every day without going to a doctor.The system establishes connection between a patient having a sensor kit what's more, an advanced cell running Android and perform nonstop information assortment . In this system, the patient will be given with a kit which consists of temperature sensor, heart beat sensor, SPO2 sensor and axis sensor.The vital parameters like temperature, heart   beat and SPO2 of the patient will be sensed and sent to the wireless device HC-05 which is then stored in back end database, where the patient's health data can be monitored. By using axis sensor, detects the condition of patient like they fell down or not. Fall down detection is helpful in saving patients in such kind of situations when the patient are being helpless. Also, by determining the strength of the received signal (RSSI), the RSSI module predicts the distance at which the patient is located. Also, the RSSI module is useful for Alzheimer patients because there is a chance of losing track of their path due to their condition. Thus the system helps in looking after the elderly People and patients affected by Alzheimer disease in an effective manner.

Keywords: Heartbeat sensor, Temperature Sensor, SPO2, HC-05, RSSI Module

I.INTRODUCTION

Alzheimer's disease (AD), in any case called Alzheimer's, it is an incessant neuro degenerative sickness that usually starts progressively and disintegrates after some time. It is of 60% to 70% of cases of dementia. The essential early result is inconvenience in recalling late events that is (at this very moment memory loss). As a man's condition diminishes, they often pull back a long way from family and society. Consistently, body limits are lost, finally inciting to death.

Regardless of the way that the speed of development can move, the typical future after examination is three to nine years. Of clear advantage is the fitting therapy of ailments like diabetes, elevated cholesterol and hypertension levels.The short range memory may lead them to wander away and prompts to danger. Thusly, the Alzheimer's patients are used to be noticed almost to ensure their security.
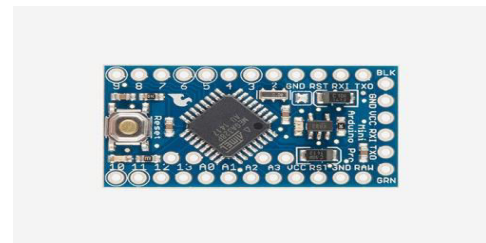
II.METHODOLOGY

1. PROMINI MICROCONTROLLER

FIGURE 1:PROMINI MICRO CONTROLLER

PRO MINI microcontroller fused inside the board. This board accompanies 14 advanced I/O out of which 6 pins are utilized for giving PWM yield. It is little when contrasted with PRO MINI for example 1/6 of the all out size of the PRO MINI. There is just a single voltage controller fused on the board (i.e) 3.3V or 5V dependent on the rendition of the board.

2. LIPO BATTERY

MCP73831 is an exceptionally progressed straight charge the executives regulator for use in space-restricted, cost-touchy applications. This IC utilizes a steady current/consistent voltage accuse calculation of selectable preconditioning and charge end.
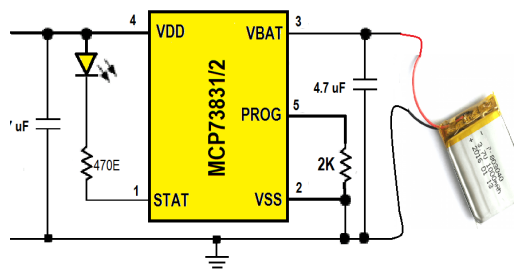
FIGURE 2: LIPO CHARGING DEVICE

3. DC BOOSTER

A boost converter is perhaps the least difficult sort of switch mode converter. As the name proposes, it takes an information voltage and lifts or expands it. Additionally required is a wellspring of an intermittent square wave. This can be something as straightforward as a 555 clock or even a committed SMPS IC like the acclaimed MC34063A IC.

FIGURE 3:DC BOOSTER

4. WIFI DEVICE

ESP32 is Wi-Fi empowered framework on chip (SoC) module created by Espress if framework. It is generally utilized for advancement of IoT (Internet of Things) inserted applications.
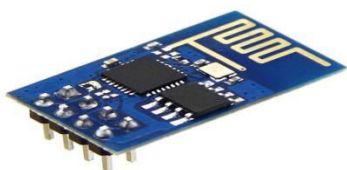

FIGURE 4: WIFI DEVICE.

5. PULSE SENSOR

Heart beat sensor is intended to give computerized yield of warmth thump when a finger is set on it. At the point when the heart beat identifier is working, the thump LED streaks as one with every heart beat. This advanced yield can be associated with microcontroller straightforwardly to gauge the Beats Per Minute (BPM) rate. It deals with the guideline of light regulation by blood course through finger at each heartbeat.
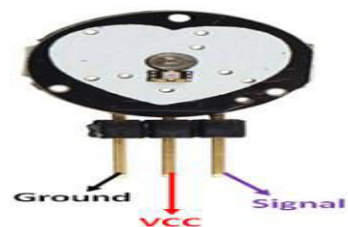

FIGURE 5: PULSE SENSOR

6. AXIS SENSOR

Pivot sensors are gadgets that produce an electrical sign that changes with a rakish development. These sensors are utilized to gauge slant and slant inside a restricted scope of movement.

FIGURE 6: AXIS SENSOR

7. TEMPERATURE SENSOR

LM35 shows high voltage esteems than thermocouples and may not need that the yield voltage is amplified.The yield voltage of LM35 is relative to the Celsius temperature. The scale factor is .01 V/°C.

FIGURE 7: TEMPERATURE SENSOR

8. LCD DISPLAY

LCD have materials which join the properties of the two fluids and gems. Maybe than having a softening point, they have an indoor regulator range inside which the particles are nearly just about as portable as they would be in a fluid, yet are gathered in an arranged structure
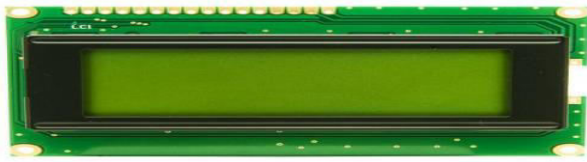
comparable.

FIGURE 8: LCD DISPLAY

9.   HC-05 BLUETOOTH MODULE

HC-05 is a Bluetooth module which is planned for far off correspondence. This module can be utilized in an expert or slave setup..It has range up to <100m.

.

FIGURE 9: HC-05 MODULE

10. SP02 SENSOR

SPO2 Sensor reliably gives results inside a 2-percent distinction whichever way of what it really is. In the event that the perusing was 82%, for instance, genuine oxygen immersion level might be somewhere in the range of 80 to 84 percent.

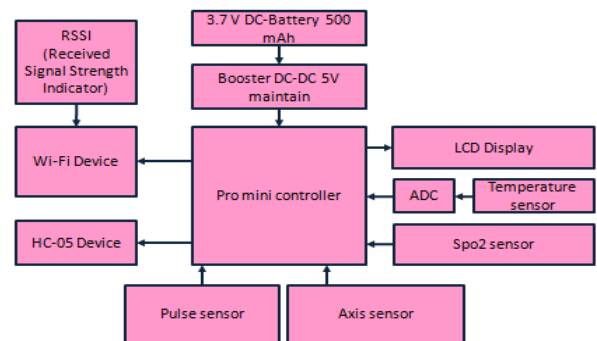FIGURE 10: SP02 SENSOR

III.ARCHITECTURE OF HEALTH MONITORING KIT

FIGURE 12:ARCHITECTURE DIAGRAM
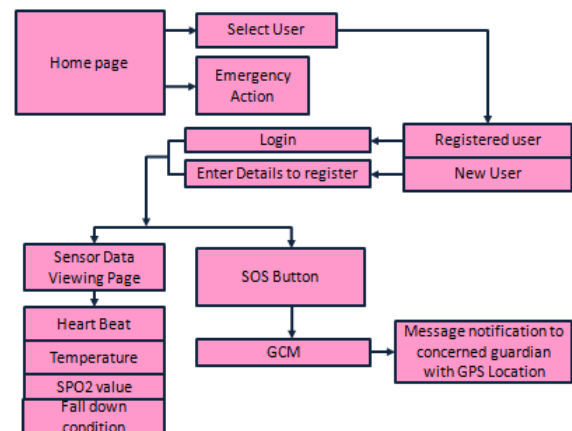
IV.ANDROID APPLICATION DESIGN OF HEALTH CARE MONITORING

FIGURE 13:ANDROID APPLICATION DESIGN

V.WORKING

FIGURE 14 shows the experimental setup of the system where different sensors are interfaced with Promini microcontroller.. The Vital health parameter sensing module(heart rate, spo2, temperature) will be sensed and sent to the controller and can be viewed through smart phone by pairing self-developed android application via Bluetooth.Data monitoring module,HC-05 device will send those health data back to database. The Axis sensor used in the sensor kit sends the signal to smart phone installed with self-developed android application when the sensor detects the falling condition of the patient.
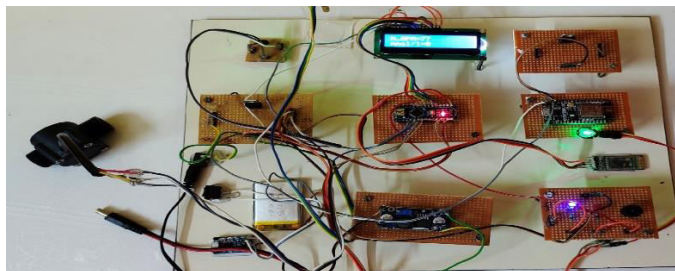
FIGURE 14: EXPERIMENTAL SETUP OF THE SYSTEM

After sensing these health data the message alert will be sent to the concerned guardian through GCM communication from smart phone application along with GPS location when emergency condition of patient is detected. The RSSI module used in the system allows to determine the distance at which the patient is located from homeIncase of any emergency, SOS button is available to save the patient's life at that time.

VI.RESULTS

FIGURE 15: WELCOME PAGE OF HEALTH
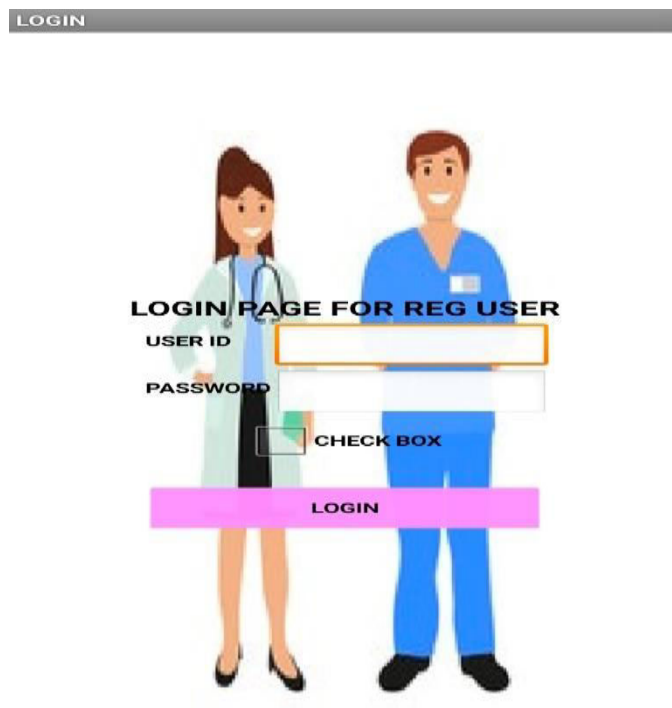MONITORING APPLICATION

FIGURE 16: LOGIN PAGE

FIGURE 17: HEALTH DATA FROM ANDROID APP

VIII.REFERENCES

[1] B. Chowdhury and R. Khosla, "RFID-based Hospital Real-time Patient Management System," in proceeding of 6th IEEE International Conference on Computer and Information Science, Melbourne, Australia, pp. 363 - 368, July, 2017.

[2] Malan, T. Fulford-jones, M. Welsh, and S. Moulton, "CodeBlue: An ad hoc sensor network infrastructure for emergency medical care," in Proceeding of International Workshop on Wearable and Implantable Body Sensor Networks, London, 2018.

[3] J.J. Oresko et al., "A Wearable SmartphoneBased Platform for Real- Time Cardiovascular Disease Detection Via Electrocardiogram Processing," in proceeding of IEEE Transactions on Information Technology in Biomedicine, vol. 14, no. 3, pp. 734 – 740,2018.

[4] P.D. Haghighi, A. Zaslavsky, S. Krishnaswamy, and M.M. Gaber, "Mobile Data Mining for Intelligent Healthcare Support," in proceeding of 42nd Hawaii International Conference on System Sciences pp. 1 - 10, Clayton, 2019.

[5] P. Crilly and V. Muthukkumarasamy,, "Using smart phones and body sensors to deliver pervasive mobile personal healthcare," in proceeding of 6th International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP), Brisbane, pp.291 - 296, Dec. 2018.