Smart Health Status Monitoring for Soldier's Using IOT

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Abstract: Nowadays, the security system of the state relying upon the warfare and troopers have necessary role in it. There area unit several considerations relating to the safety of troopers, therefore for his or her security purpose, several instruments area unit mounted on them to appear at their health standing. Bio-sensor systems comprise varied types of tiny sensors, transmission modules and process capabilities, and will therefore facilitate inexpensive wearable unnoticeable solutions for health observance. IOT in tending is that the key player in providing higher medical facilities to the soldier's and facilitates the doctors and hospitals also. The projected system here consists of assorted medical devices like sensors and net primarily {based} or mobile based applications that communicate via network connected devices and helps to observe and record soldier's health information and medical data. The projected outcome of the paper is to make a system to produce best medical care to the troopers even within the remotest areas with no hospitals within their areas by connecting over the web and grasping data through regarding their health standing via the wearable devices provided in the kit employing a Arduino UNO microcontroller which might be able to record the soldier's temperature, vital sign and force per unit area. The collected data area unit typically used to analyze and predict chronic disorders or alternative diseases like heart attacks in preliminary stage itself victimization the information mining techniques that may additionally offer the approach advantageous for deciding.

Keywords: Internet Of Things, WIFI Module, Sensors, Arduino UNO.

I. INTRODUCTION

In this project, we have a tendency to square measure observation varied parameters of the soldier victimization the web of things. within the soldier observation system supported the web of things project, the period of time parameters of a soldier health square measure sent to the cloud victimization web property. These parameters square measure sent to a far off web location so user will read these details from anyplace within the world. The interconnected objects collect the knowledge at regular intervals, analyze and accustomed initiate required action. The conception of IOT stands on sensors, entree and wireless network that modify users to speak and access the application/information the aim of this work is to boost health observation victimization humanoid application in mobile phones. The soldier will read the history of his health knowledge on his phone and therefore the doctor will read the health info relating to all the troopers United Nations agency square measure being monitored by him. necessary body functions square measure measured victimization the web of medical things. IOT medical devices record blood heat, rate (heart rate), pressure and alternative measurements looking on diagnostic needs and expected illness. The scope of this work in the main lies within the health sector and to the those that want continuous observation of health knowledge. The system can even bridge the gap between doctors and troopers by permitting doctors to look at the soldier's knowledge anytime they require to

II. LITERATURE SURVEY

Jasvinder Singh, et al., [1] projected international Positioning net of Things (IoT) based mostly soldier positioning and health signal system in 2019 around safety and security for soldiers.

Niket Patil et, al.,[2] projected a health observation and following system in 2018. This paper turn-up associate IoT based mostly health observance system for troopers. This instructed module are often horseback on the troopers body to search out their health. These knowledge are going to be sent to base station via IoT. The bestowed module it's potential to execute a coffee price circuit to safeguard the precious soldier life on the battle field.

William Walker A L, et al., [3] planned a mobile health observation in 2018. The authors had mentioned on totally different wearable, portably low weight and little size biosensors that are developed for observance of the soldier health standing. The BSN consists of sensors like heart beat, temperature and gas sensors which might be placed on a soldier

body for health condition observance in real time. during this paper counsel a way to develop a system for real time health observance of troopers, consisting of interconnected BSNs.

Akshay Gondalic, et al., [4] designed IoT primarily based attention observance System for War troopers mistreatment Machine Learning in 2018

Afef Mdhaffar, et al., [5] planned a piece on IoT primarily based Health observance via LoRaWAN in 2017 during which collected bio device knowledge is distributed to analysis module through low price, low power employing a LoRaWAN network framework. Heart beat, temperature and aldohexose area unit} measure in rural areas wherever cellular network coverage is either does not enable knowledge transmission or absent. the common space lined by LoRaWAN is around 33km once the LoRaWAN entranceway is place in out of doors on a twelve meter altitude power consumption of this observance module is claimed to be at 10 times but alternative long vary cellular solutions.

III. PROPOSED METHODOLOGY

In this paper, we propose an automatic system to monitor soldier's body temperature, heart rate, body movements and blood pressure. Further we extend the existing system topredict if the soldier is suffering from any chronic disorder or disease using the various health parameter and various other symptoms that are obtained by the system.
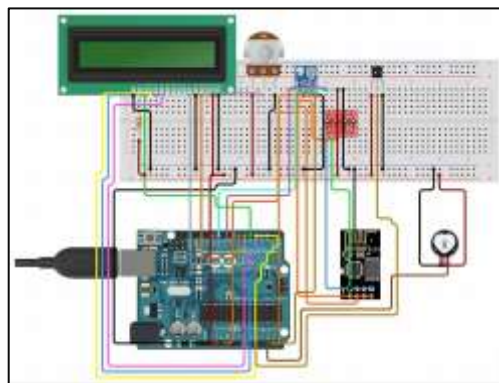
IV. CIRCUIT DESIGN

Fig.4.1 Circuit Diagram of Soldier's Health Status Monitoring System Based Using Arduino (IOT BASED)

V. EQUIPMENT'S

1)   Arduino

The Arduino Uno is a microcontroller board based on the Atmel's ATmega 328. It has 14 digital input output pins of which 6 can be used as PWM outputs and 6 analog inputs. The Arduino Uno can be powered via USB connection or with an external power supply. The Arduino Uno original contains everything needed to support the microcontroller, simply connect it to a computer with a USB cable. The analog output from the Sensors is sent to Arduino board to convert it into digital data. The most common programming approach is to use the Arduino IDE, which utilizes the C programming language.

2)   BMP SENSOR

The BMP180 is that the next-generation of sensors from Bosch, and replaces the BMP085. The sensor is soldered onto a PCB with a 3.3V regulator, I2C level shifter and pull-up resistors on the I2C pins. The good news is that it's completely similar to the BMP085 in terms of firmware/software/interfacing – you'll can use our BMP085 tutorial and any example code/libraries as a drop-in replacement.This board is 5V compliant - a 3.3V regulator and a i2c level shifter circuit is included so you'll use this sensor safely with 5V logic and power
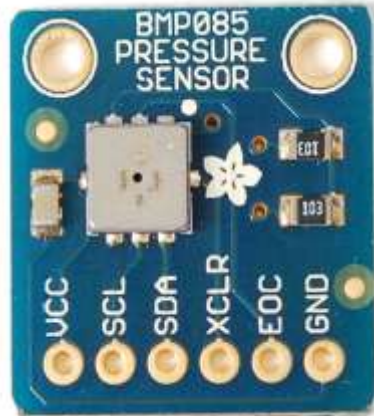
3)   Temperature Sensor (LM35)

The Temperature are often detected with the assistance of a temperature sensor LM35. The LM series are precision computer circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade).The LM35 series are precision integrated-circuit temperature devices with an output voltage linearly-proportional to the Centigrade temperature. TheLM35 device has an advantage over linear temperature sensors calibrated in Kelvin, because the user isn't required to subtract an outsized constant voltage from the output to get convenient Centigrade scaling. This function performs the task of measuring the body temperature of the soldier and display message in terms of degree (tempo c) Celsius here we use LM35 semiconductor Sensor that measures temperature in between - 55oC to 150oC.


4)   LCD Display Module

A 2x16 LCD display is incredibly basic module and is extremely commonly employed in various devices and circuits. A 2x16 LCD means it can display 16 characters per line and there are 2 such lines. This LCD has two registers, namely, Command and Data. This module mainly displays the resulting BPM (Beat per Minute) on a LCD screen, since it is the foremost flexible way of displaying the output.

5)   Hear Rate Sensor

The Heart Rate Ear clip kit contains a ear clip and a receiver module. The pulse rate measure kit is accustomed monitor heart rate of soldier and athlete. The result can be displayed on a screen via the serial port and can be saved for analysis. This function used to determine pulse timing instant moment of the heartbeat, and display number of pulse rate per sec/minute. Measured at fingertip blood circulation i.e. proportional to heart rate.
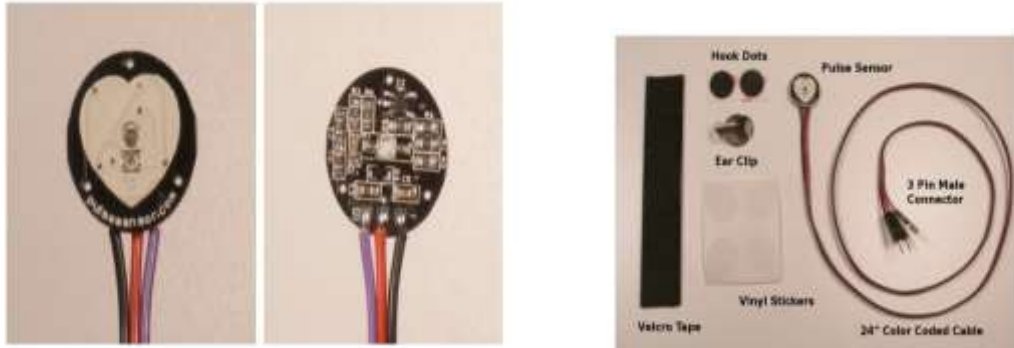
6)   WiFi Module (ESP266)

The ESP8266 WIFI Module is a self contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WIFI network. The ESP8266 is capable of either hosting an application or offloading all WIFI networking functions from another application processor.

VI. OVERVIEW OF THE PROJECT

In this project, we are monitoring various parameters of the soldier's using the internet of things. In the soldier's health monitoring system based on the internet of things project, the real-time parameters of a soldier's health are sent to the cloud using internet connectivity. This parameters are set to a remote internet location so that user can view these details from anywhere in the world

VII. WORKING

An IOT soldier monitoring has three sensors. the primary one may be a temperature detector, the second is that the Heart rate measuring device, and therefore the third one may be a force per unit area device. This project is extremely helpful since the doctor will monitor soldier health parameters simply by visiting an internet site or universal resource locator. And these days several IOT apps are being developed. therefore currently the doctor or relations will monitor or track the soldier's health through the phone apps.

To operate an IOT primarily based health watching system project, you wish a WIFI connection. The microcontroller or the Arduino board connects to the Wi-Fi network employing a Wi-Fi module. This project will not work while not a operating WLAN network. you'll be able to produce a WLAN zone using a WLAN moduleo therwise you'll be able to even produce a WLAN zone victimization Hotspot on your smartphone. The Arduino UNO board continuously reads input from these three sensors. Then it sends this information to the cloud by causation this information to a selected

URL/IP address. Then this action of causation information to science is continual when a particular interval of it slows. for instance, throughout this project, we have sent information when every thirty seconds.
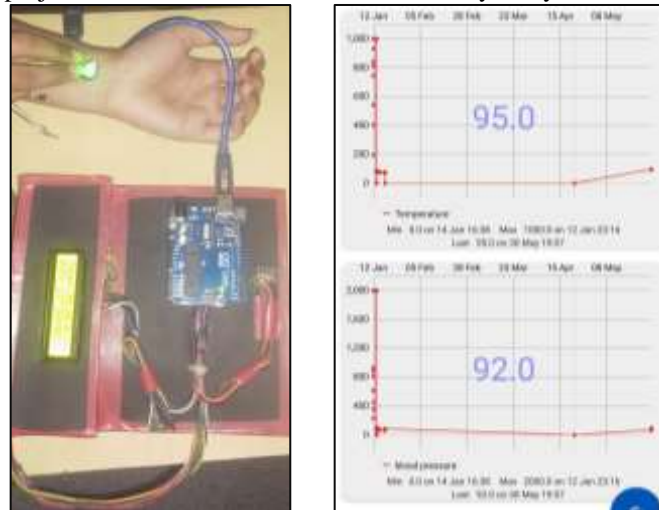

Fig. Temperature and Blood Pressure versus time graph

Fig. Heart rate versus time graph

VIII. CONCLUSION

Above system once completed would facilitate in determining health status of soldier's with measures of pulse rate, pressure level and temperature. Arduino UNO was found to be additional compact user friendly and fewer advanced, that may without delay be utilized in order to perform many tedious and repetitive tasks. This technique helps to safeguard soldier life on the war and also in day today life, the data is stored in cloud so, we can treat them anywhere from the world.

IX. ACKNOWLEDGMENT

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