# Iot Based Health Monitoring and Pill Dispenser System

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**ABSTRACT:** — Intoday'slife style most of them don't careabout theirhealth. So many of them suffers from healthissues. There are lot of IOT devices to help the people tomonitortheirhealththroughinternet.Byusinghealthmonitoringsystemdoctorsareeasilymonitorthepatient.Here during this paper we'll build associate IOT based mostly health watching and pill dispenser system that records the patients heart beat and temperature. The detected values are keep within the cloud. thus we will simply monitored from anyplace within the world over web.Based on the sensedvalue the pill dispenser containerwill open the particularboxtotake tablets.

**KEYWORDS:** Internet of Things (IOT), Temperature sensor, heart pulse sensor, Arduino, Nodemcu.

## 1 INTRODUCTION

In day to day life most of them suffered from many diseasesand take more medicines compare to the past years. In thiscorona situation, many of them get worried to go hospital. Inthatsituationbyusinghealthmonitoringsystemwecanrectify the simple diseases like fever, pressure in home itselfwithout the need of to go hospital.And all these data is keep within the cloud. By victimization  this, the doctors analyze the patients condition from anyplace within the world.Sothisprojecthelpsthepatienttochecktheirhealthconditioncontinuouslyinhome itself.

## 2 EXISTINGSYSTEM

Intheexistingsystemwecouldnotsensedthepatientconditions and we cannot monitorthe patient continuouslythathowmanypillsweretakebythemandthehealthcondition. It is difficult to open and close the pill box andthey are confused to take how many pills. It cannot store thepatientsdetails.

## 3 PROPOSEDSYSTEM

As by[1].The Automatedhealth monitoring system helps thepatient to monitor their health without the need tobe present physically in the hospital .The systemconsists of an IOT enabled which gives the timelyinformationaboutthe patient.Thesystemismade withIOTtechnology.The health parameter such as temperature measureandpulserateismonitoredusing differentsensors.The monitored (or) measured value from thesensorsareimmediatelystoredintheclouddusingIOTmoduleanditisatypeoflivemonitoring as shown in fig 5.2.5.Thesenseddataisrelayed onNODEMCU. Based on [6],The values sensed by the sensors based on that itprescribedtotakemedicine manuallywithouttheneed ofanyonebyusingpilldispenser box.Doctors can diagnosisthe patients condition fromanywhere in the world by using Health monitoringsystem.

## 4 WORKING

The propose system of the paper is provide prescription tothe patient based on the symptoms detected by the sensors .Thispaperispreparedinthe platformofembedded.

When the patient suffers from any diseases like fever andpressure we can easily detect because in this project we usetemperature sensor and heart beatsensor. The sensors values are displayed on the LCD (fig 5.2.1 LCD DISPLAY 1-It shows detected value).Its checksthepatients health condition. If the detected value is higher thanthe normal value immediately it displays the message likeHIGHTEMPERATUREDETECTED(OR)HIGH PRESSURE DETECTED (in fig 5.2.2 LCD DISPLAY 2-it shows high temperature detected) and it prescribed to take medicinethroughtheLCD as shown in fig.5.2.3.for ex. If a patient suffers from fevermeansitwillsensedanddetecttheratebasedonthatitwillprescribe to take medicine and it automatically opens the pillcontainer boxtotakeamedicine as shown in fig 5.2.4.The detected values are stored in the cloud by using that wecan monitorthe patientanywhere intheworld as shown fig 5.3.1 and fig 5.3.2.
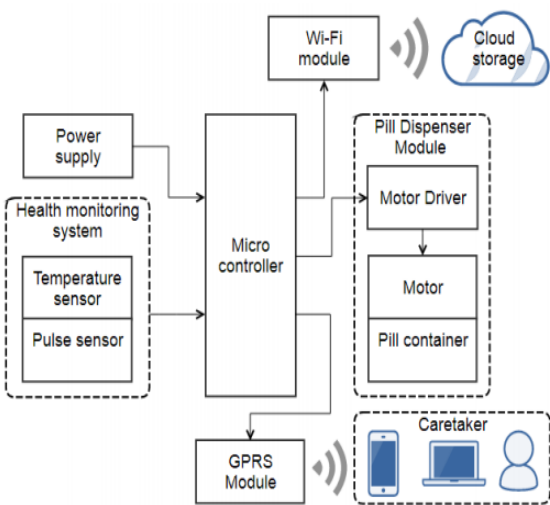
**Block diagram of health monitoring and pill dispenser system**

**MICROCONTROLLERARDUINO328P**:Byusing ArduinoMicrocontrolleranaloginputA0isusedtoreadthesensedvalue.

**LCDDisplay**:In our paper we tend to square measure exploitation liquid crystal {display|LCD|digital display|alphanumeric display} display.

**TEMPERATURESENSOR**:In our paper temperature sensing element is employed to observe patients temperature.

**PULSE SENSOR**: In our paper pulse sensor is usedtodetectpatientheartbeatrate.

**UBIDOTSCLOUD:**Itisusedtostorepatient'sinformation.Whenevertheysensedinthesensorstheinformationgetstored inthecloud as shown in fig 5.3.1.

**PILL DISPENSER:**Pilldispenserboxisusedtostore thevarioussetoftablets.
**MOTORDRIVER:**Itisusedtoopenthepilldispenserbox.Itopenstheparticularbox whichpatientisneeded.

## 4 .FLOW CHART
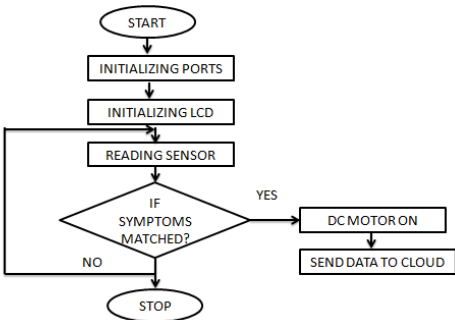


## 5 RESULT

Health monitoring system perform several functions and it isa alternatesolutionfor existingsystem. Withthe helpofsensorsdiagnosisbecomeseasierforbothpatientanddoctors.Basedonthediagnosisisitprescribedtotakemedicines. The diagnosed values are stored in the cloud for future monitoring purpose
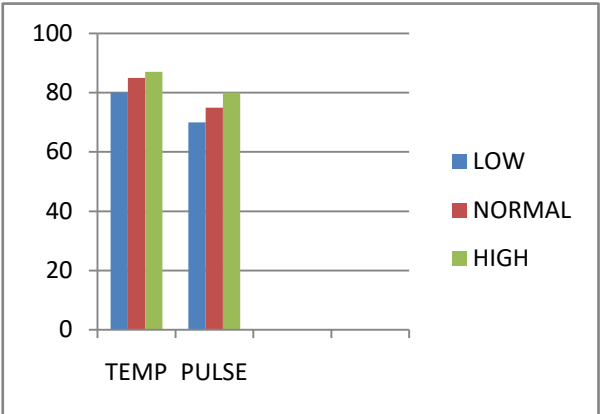
Table I. Body temperature and pulse rate.

| BODY TEMPERATURE | PULSE RATE | STATE |
|---|---|---|
| 80 – 86 F | 75-80 | NORMAL |
| >87 F | >80 | HIGH |
| <80 F | <75 | LOW |

As mentioned in the table 1.If the temperature is between 80-86 F means it shows normal and the pulse rate is between 75-80 means normal. If temperature is greater than 87 and the pulse rate is greater than 80 means it shows high. If temperature is less than 80 and pulse rate is less than 75 means it shows low.

This is the code which helped us to execute our work.

```
Void loop()
{
   int pulserate=analogRead(Ao);
   if((t>87)&&(temp==true)
{
   lcd.setCursor(0,0);
   lcd.print("HIGH TEMPERATURE");
   lcd.setCursor(0,1);
   lcd.print("DETECTED");
   delay(2000);,
   lcd.clear();
   lcd.print("PRESCRIBED TO TAKE MEDICINE");
}
}
```

Health observance ones health is vital in today's life. Automating these reduce the burden of the patient additionally because the doctor. Health observance system is of maximum use. The patient will check their health standing anytime from the comfort of their homes and visit hospitals only they really want to. The temperature device and vital sign device values square measure graduated victimization the microcontroller. These device values square measure then sent to the cloud and also the information is accessed from cloud by the licensed users victimisation the IOT application platform



Graph 1.Temperature and pulse rate data's

In the above graph we measured that if the temperature is between 80-86 F means it shows normal and the pulse rate is between 75-80 means normal and views like brown color. If temperature is greater than 87 and the pulse rate is greater than 80 means it shows highviews like green color . If temperature is less than 80 and pulse rate is less than 75 means it shows low views like blue color.
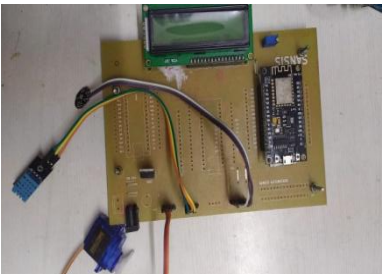
**5.1.HARDWARE CONNECTION**



Fig.5.1 Hardware implementation

In this paper we use temperature sensor and pulse sensor and Stepper motor, Arduino microcontroller, LCD. Temperature sensor is used to detect patients temperature and Pulse sensor is used to detect patients pulse, LCD is

used to display message, we use stepper motor to open the pill dispenser box. we use voltage regulator to convert to 5V because everything in here needs only 5V so we use voltage regulator. If a patient suffers from fever, by using this temperature sensor we can sense it, if the temperature is greater than normal body temperature the value will be displayed in LCD and it will prescribe to take medication and the stepper motor rotates in particular angle and opens the pill dispenser box to take the medication.

## 5.2.HARDWARE OUTPUTS



Fig.5.2.1 LCD DISPLAY 1



Fig.5.2.2 LCD DISPLAY 2



Fig.5.2.3 LCD DISPLAY 3



Fig.5.2.4  LCD DISPLAY 4

In this paper we use temperature sensor and pulse sensor and Steppermotor,Arduino microcontroller, LCD. Temperature sensor is used to detect patients temperature and Pulse sensor is used to detect patients pulse, LCD is used to display message, we use stepper motor to open the pill dispenser box. We use voltage regulator to convert to 5V because everything in here needs

only 5V so we use voltage regulator. If a patient suffers from fever, by using this temperature sensor we can sense it, if the temperature is greater than normal body temperature the value will be displayed in LCD(fig 5.2.1 LCD DISPLAY 1-it shows detected value).It shows high temperature detected (in fig 5.2.2 LCD DISPLAY 2-it shows high temperature detected). It will prescribe to take medication as shown in fig.5.2.3 and fig.5.2.4 and the stepper motor rotates in particular angle and opens the pill dispenser box to take the medication.
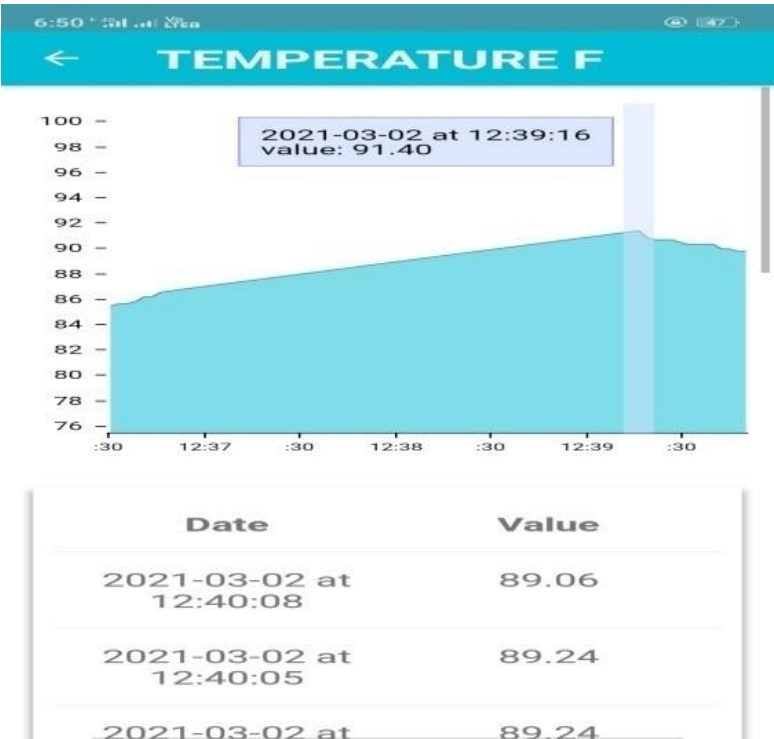
### 5.3.SOFTWARE OUTPUTS



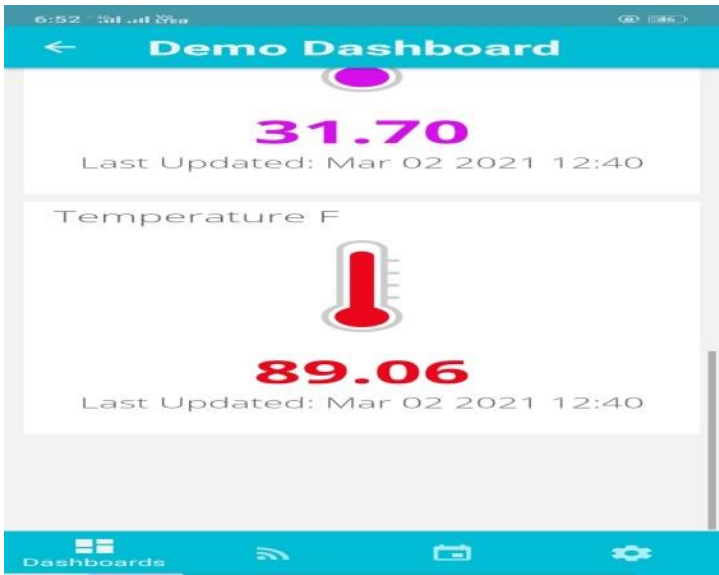Fig.5.3.1 it shows the measured value using sensor.



Fig.5.3.2 it shows the alert for temperature detected.

In this paper we use ubidots cloud software to store the patients detected temperature and pulse rate value. In this software it stores N no of values and it not only stores the values but also it stores the date and time of the usage as shown in fig 5.3.1 and if the temperature is high it shows the alert in red color as shown in fig 5.3.2. We can see the values in the cloud whenever we want. The cloud stored the values in the order so its not difficult to see the records of the usage.

### 6 CONCLUSION

This paper is concentrated to develop a brand new technology,compared to existing system. The only aim of the paper is tosupportthepeopletomonitorselfmanagementofmedication.Thepatientcaneasilydiagnosisandtakemedicines without the suggestions of the doctor for the basicillness.

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