International Journal of Interdisciplinary Innovative Research &Development (IJIIRD)
ISSN: 2456-236X
Vol. **06** Special Issue **01** | **2021**

IoT Based COVID-19 Patient Health Monitor In Quarantine

Prof. Arvind S Hirole[1], Sagar N Ingle [2] Saurabh A Zanke[3], Aniket A Wankhede [4], Nikita M Fegade [5]

[1] *Professor, Electrical Engineering Department, Padm Dr. VBKCOE Malkapur Maharashtra India*
[2,3,4,5]*bachlore of Electrical Engineering Student, department, Padm Dr. VBKCOE Malkapur Maharashtra India*

ABSTRACT

Now a days on the platform of COVID we require special Covid 19 Quarantine centers setup in order to treat covid patients. Because of covid is highly infectious it is very important to quarantine these patients but at the same time doctors need to monitor health of covid patients too. With the increasing number of cases, it is becoming difficult to keep a track on the health conditions of many quarantined patients. Some problems are arises like 1] Doctors need to regularly monitor patient health. 2] There are increasing number of patients for the doctors to monitor.3] the doctors are at risk of infection just for monitoring purpose. To solve this issue we here design a remote IOT based health monitor system that allows for remotely monitoring of multiple covid patients over the internet. The system monitors patient heartbeat, temperature and blood pressure using a heartbeat sensor, temperature sensor and BP Sensor respectively. The system then transmits this data over the internet using wifi transmission by connecting to wifi internet connection. The data is transmitted and received over IOT by IOT Gecko platform to display data of patient remotely. The entire system is run by a microcontroller based circuitry. If any anomaly is detected in patient health, if the patient presses the emergency help button on IOT device, an alert is sent over IOT remotely.contain at least 250 words.

Keyword : - IOT web server, Blood Pressure sensor, Temp Sensor, PIC Microcontroller, GSM

1. INTRODUCTION

The Internet of Things is considered now as one of the feasible solutions for any remote value tracking especially in the field of health monitoring. Internet of Things (IoT) development brings new opportunities in many applications, including smart cities and smart healthcare. Currently, the primary usage of the IoT in healthcare can be categorized as remote monitoring and real-time health systems. Controlling and managing dire situations, such as the one in 2020 when the coronavirus dis-ease (COVID-19) took over the world, can be achieved with the help of IoT systems, without imposing severe restrictions on people and industries. COVID-19 causes respiratory symptoms and appears to be more contagious in comparison to SARS in 2003. Health is always a major concern in every growth the human race is advancing in terms of technology. Like the recent corona virus attack that has ruined the economy of China to an extent is an example how health care has become of major importance

2.PROPOSED SYSTEM

The core objective of this project is the design and implementation of a smart patient health tracking system. Fig.1 shows block diagram of our system. All sensors interface with microcontroller. Blood pressure sensor sense pulse rate as well as BP of patient. Temp sense patient body temperature Ultrasonic sensor is place at home to sense the saline level of patient. Different sensors sense different parameter of patient health and send to controller, controller process on it and display on LCD display. As well as upload data over IOT. Here GSM module is use to access internet.

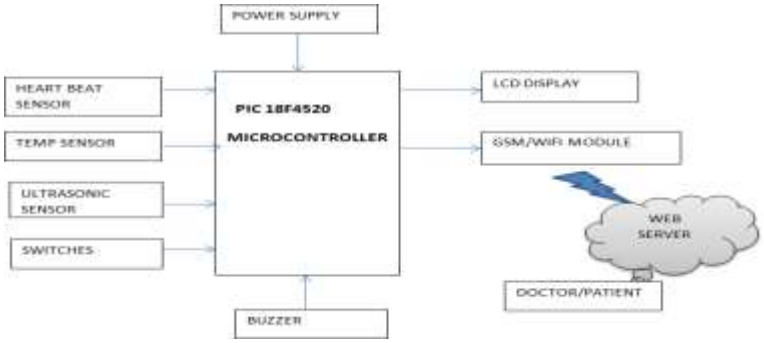

Fig 1: Block Diagram of System

3. PIC 18f4520 microcontroller

PIC18F4520 is a low-cost, low-power, high-speed 8-bit, fully- static Microcontroller unit with 40 pins, 36 of which can be used as I / O pins. It has power-on-reset (POR) and the WDT circuitry (Extended Watchdog Timer), which can be programmed for 4 ms to 131 s. It is an 8-bit enhanced flash PIC microcontroller that comes with Nano Watt technolog

PIC18f4520 incorporates 2 Comparators, 10-bit Analog to digital (A/D) converter with 13 channels, and houses decent memory endurance around 1,000,000 for EEPROM and 100,000 for program memory. The Enhanced Universal Asynchronous Receiver Transmitter (EUSART) feature is useful for developing the serial communication with other

Fig -2: PIC18f4520

4. Heart bit/Blood Pressure Sensor

Blood Pressure & Pulse reading are shown on display with serial out for external projects of embedded circuit processing and display. This sensor gives Systolic, Diastolic

and Pulse Readings. It has Compact design fitted on your wrist like a watch. Blood pressure is the pressure of the blood in the arteries as it is pumped around the body by the heart. When your heart beats, it contracts and pushes blood through the arteries to the rest of your body. This force creates pressure on the arteries. Blood pressure is recorded as two numbers— the systolic pressure (as the heart beats) over the diastolic pressure (as the heart relaxes between beats). The unit which measures this is called Sphygmomanometer

Fig -3 Heart bit/Blood Pressure Sensor

5.GSM module

This module has SIM800A chip and RS232 interface while enables too easy connection with the computer or laptop by using the USB to Serial connector it also connected to the microcontroller using the RS232 to TTL converter. The baud rate is configurable from 9600-115200 through AT command. Once you connect the SIM800 modem using the USB to RS232 connector, we need to find the respective COM port from the Device Manger of the USB to Serial Adapter. Then you can open Putty or any other terminal software and
open a connection to that COM port at 9600 baud rate, which is the default baud rate of this modem. The GSM/GPRS Modem is having internal TCP/IP stack to enable you to connect with internet via GPRS. It is suitable for SMS, Voice as well as DATA transfer application in M2M interface.

Fig-4**:** GMS Module

6.CONCLUSIONS

- Doctors to monitor patients remotely without risk of infection
- A single doctor over 500 patients at a time.
- DoctorDoctor gets instant alert in case of health fluctuations of emergency.

The system is mounted at patient bedside and constantly transmits patient health data over the internet so that doctors can monitor multiple patients remotely and attend the desired patient urgently when needed
This project fulfills the aims to significantly reduce the risk of exposure in healthcare workers. It is also expected to reduce the increasing demand of PPE (personnel protection equipment) and logistics.

7.REFERENCES

[1]. Abdullah A, Ismael A, Rashid A, Abou-ElNour A, Tarique M (2015) Real time wireless health monitoring application using mobile devices. Int J Comput Net w Commun (IJCNC) 7(3):13,May 2015.

[2] Shelar M, Singh J, Tiwari M (2013) Wireless patient health monitoring system. Int J ComputAppl (0975–8887) 62(6):1, Jan 2013

[3] Hossain SM. Patient status monitoring for smart home healthcare. In: IEEE international conference on multimedia and expo workshop. Seattle: ICMEN); 2016

[4] A. Imran, I. Posokhova, H. N. Qureshi, U. Masood, M. S. Riaz,K. Ali, C. N. John, M. I. Hussain, and M. Nabeel, ‘‘AI4COVID-19:AI enabled preliminary diagnosis for COVID- 19 from cough samplesvia an app,’’Informat. Med. Unlocked, vol. 20, 2020, Art. no. 100378,doi: 10.1016/j.imu.2020.1