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IOT Based Human Health Monitoring System

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ABSTRACT: The main concept of this project is to create a low-cost affordable health monitoring system for people in remote locations where availability of specialist doctors is not possible. This concept is developed using IOT, so that we can send the data to a remote server from which it can be accessed by doctors and patient relatives. This project is designed using Arduino Uno microcontroller, ECG Sensor, Heart beat sensor, ESP8266 Wi-Fi Module, LCD Display. The parametric readings from above procedure which are stored in various variables along with their respective pin numbers (to identify them) are transmitted to the IOT account using ESP8266 Wi-Fi interface. Then the IOT platform processes them and adds to the previously stored values to log data.

KEYWORDS*:* Health Analysis, Power Supply, WIFI Module, Temperature Sensor, ARDUINO UNO, GPS Tracker.

I.INTRODUCTION

Health is always a major concern in all growth humansare always in terms of technology. Areas where the epidemic is spreading, it is always a good idea to monitor these patients using remote health monitoring technology. So, Internet Of Things (IOT) based health monitoring system is the current solution. The core objective of this project is the design and implementation of a smart patient health tracking system that uses Sensors to track patient health and uses internet to inform their loved ones in case of any issues.

IOT based health monitoring system is used where the patient and heath expert(s) are at different locations. For example, a patient can stay at home and continue his/her routine life and a doctor can monitor patient's health. Based on the received data the heath expert can prescribe a best treatment or take an immediate action in case of an emergency. Nowadays, wireless technology has increased in various sectors such as control, automation, etc. Doctors can detect various chronic diseases by using this technology. Various factors are maintained by this technology in healthcare such as heart rate, Heart beat rate, blood pressure, and this technology is involved in the diagnosis of disease.
We recorded the data of each sensor and uploaded the data into the server. We observed the data on many devices using internet with secured login and password. This paper has been described about the system of Internet of Things and its use in the health care department.

II.RELATED WORK

1. "Multi-hop WBAN Construction for Healthcare IoT",the author shows that their system is to design to give the message to the caretakers or to themedical facility team. There are five sensors placed under that system. Basically the sensors are temperature, respiration, ECG, SpO2, pulse sensor.
2. "HealthGear: A real-time wearable system for monitoring and analysing physiological signals,"the author shows that this system consists of basically three units:

• Sensing unit – It is responsible for measuring the patient related data which is coming from sensors.
• Processing unit – It is responsible for processed on the inputs which is received from the sensing units,and further it sends to the communication unit.
• Communication unit – It is responsible to communicate or send the data to the caretakers of that patient or medical health team. This are the main three units of this system

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III. METHODOLOGY

In this block diagram Fig.1, we are using Heart beat Sensor (MAX30205), SPO2 Sensor, ECG Sensor (AD8232), Power Supply (5V), LCD Display, LED & Buzzer, WIFI Module (ESP8266) and one Microcontroller (Arduino or Node MCU)). Power supply use to give the required power to Arduino board we connect power supply directly to the AC power supply any power source and it gives 5v supply to Arduino in that we mostly use 7805 IC. LCD Display (16 x 2) 1602 is used to show output which detect by sensor to the patient or near device person and LED & Buzzers is used to show indication in emergency or in critical stage.

Also, in below Fig.1 we use WIFI module (ESP8266) to transfer data on cloud platform and form the cloud platform data of patient or health information of patient send it to register doctor and relatives. Sensor is connected to in the input side of microcontroller and actuator are connected to the output side of micro-controller actuator is used to show the output means health of patients. And all the data of microcontroller send to cloud platform through WIFI module and from the cloud it stores the patient health condition and update it to patient relatives and specialist doctor.

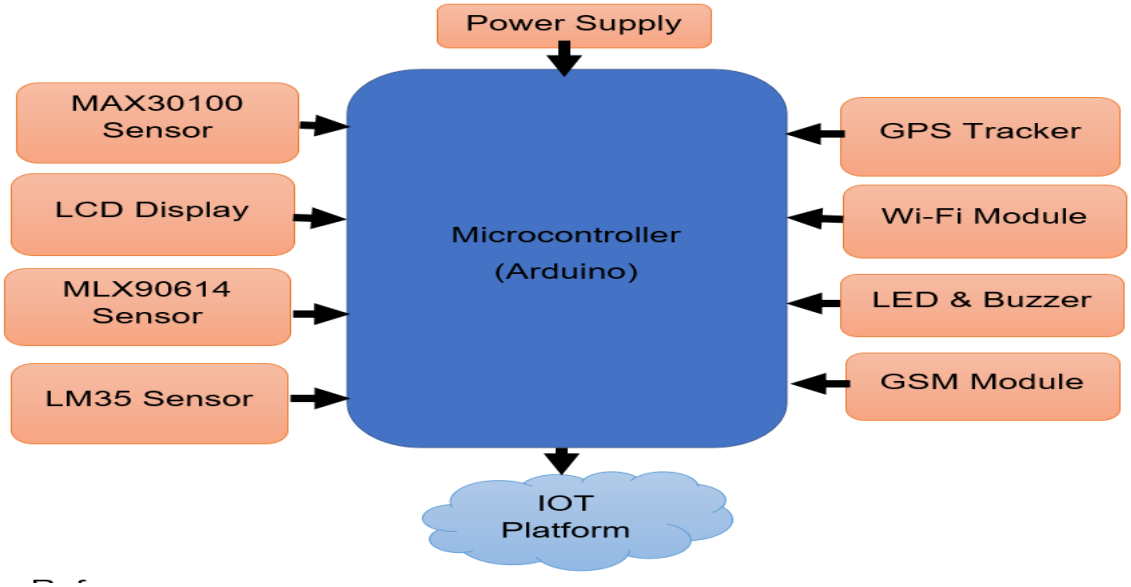

Fig.1: Block Diagram

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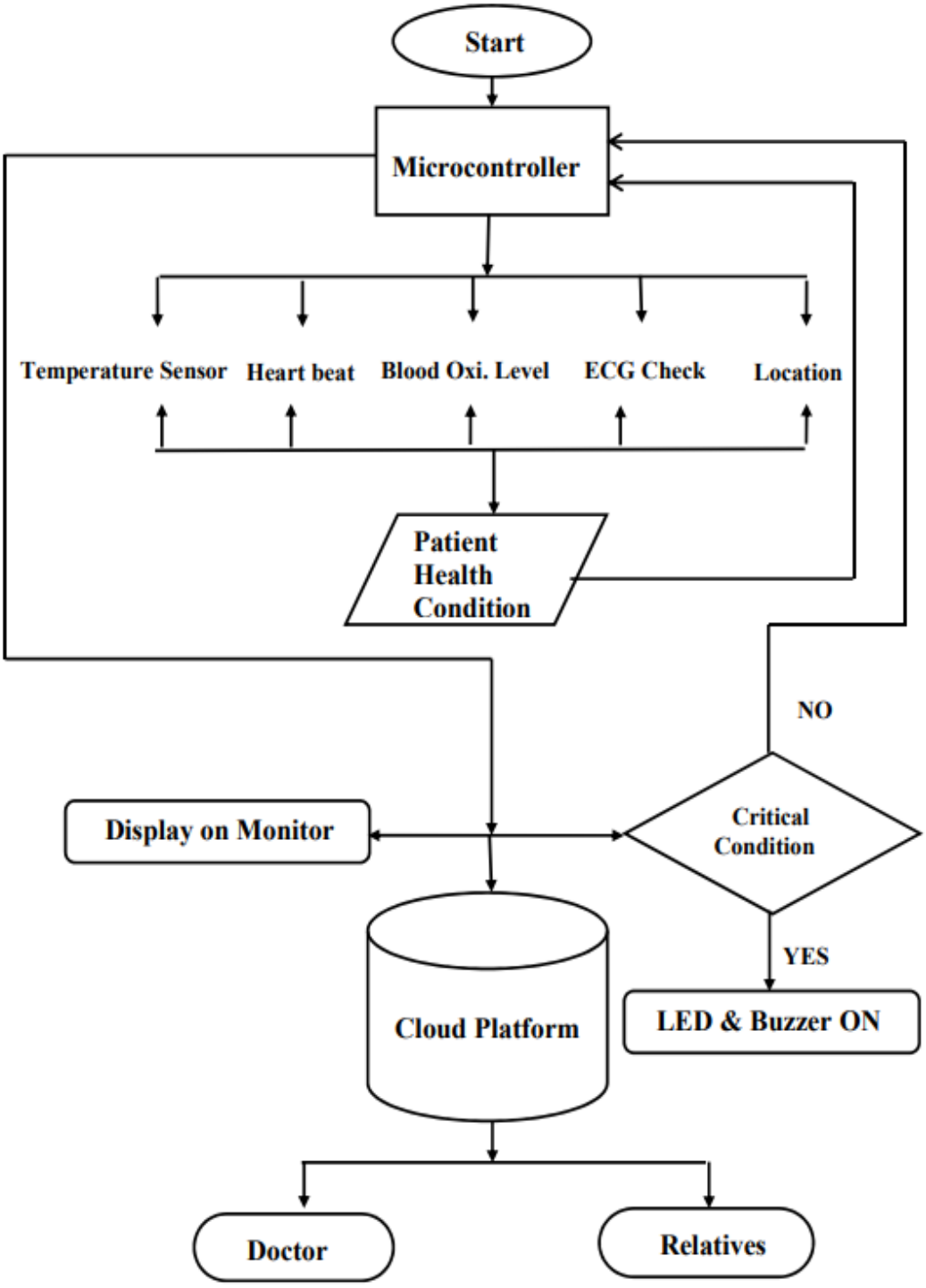

Fig 2: Flowchart of System

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A. HARDWARE IMPLEMENTATION:

- **Microcontroller (Arduino Uno):**

The Arduino Uno is an open-source microcontroller board based on the microchip ATmega328p microcontroller and developed by Arduino cc. The board is equipped with sets of digital and Analog (I/O) pins that is used to interfacing with another board, circuit, sensors, and actuators. The board has 14 digital(I/O) pins and 6 Analog I/O pins and it programmable with the Arduino IDE(Integrated Development Environment).it also contain some power port such as USB power it used to give the power as well as to connect another equipment similarly power port also available in Arduino board and one reset button. One built in LED which inbuilt with pin no 13 and one indicator LED which shows Arduino is on or not.This board accompanies every one of the highlights required to run the controller and can be straightforwardly associated with the PC through USB link that is utilized to exchange the code to the controller utilizing IDE (Integrated Development Environment) programming, basically created to program Arduino. IDE is similarly good with Windows, MAC or Linux Systems; in any case, Windows is desirable over use. Programming dialects like C and C++ are utilized in IDE. Apart from USB, battery or AC to DC adopter can likewise be utilized to control the board.

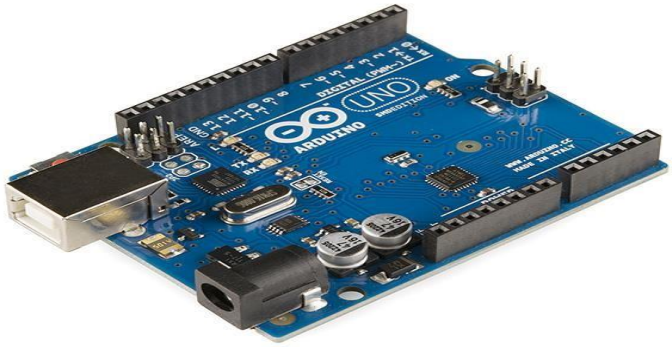
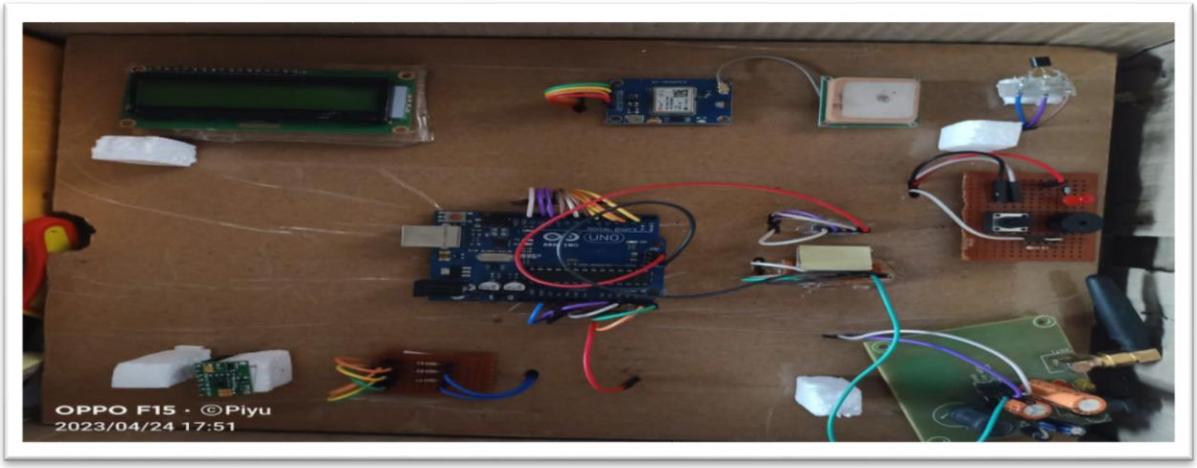


Fig.3: Microcontroller (Arduino)

IV. EXPERIMENT RESULT



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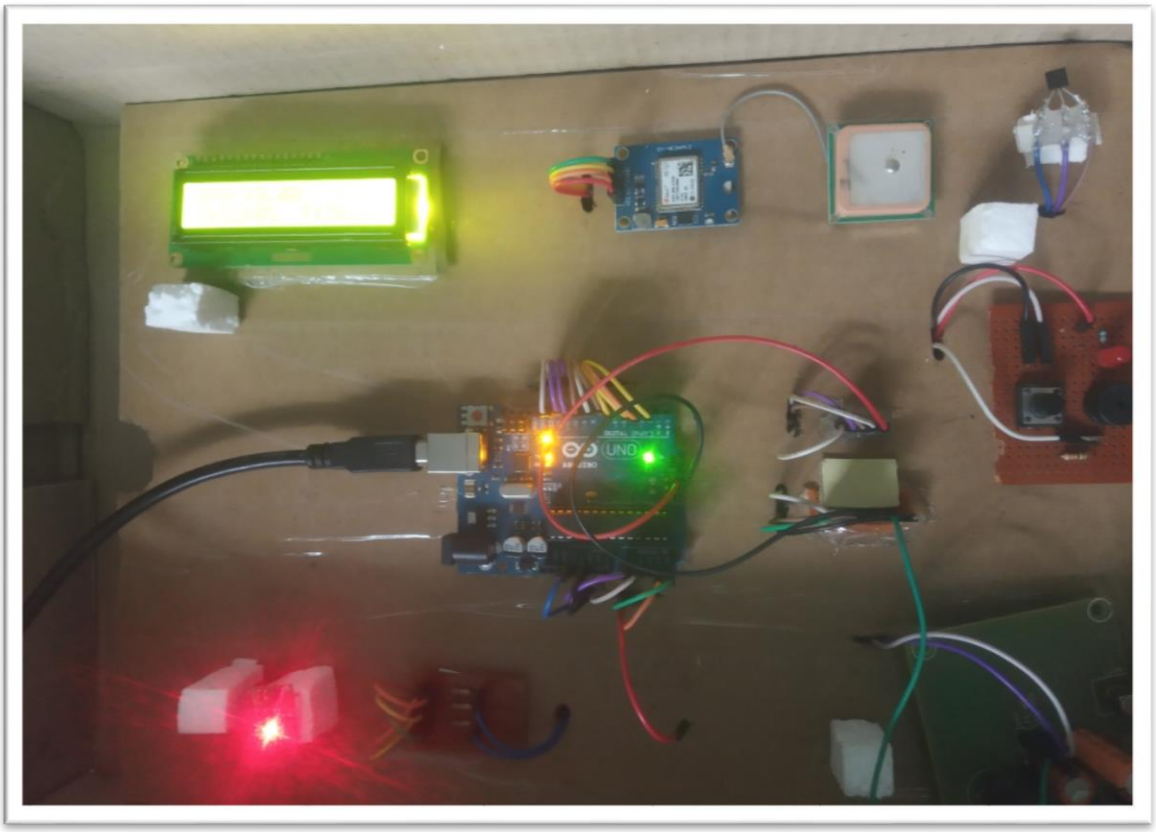

V. CONCLUSION

1.Human health monitoring systems have the potential to revolutionize the way we approach healthcare. By providing real-time data on vital signs, disease outbreaks, and patient health status, these systems can enable more personalized and effective care.

2. From remote patient monitoring to workplace safety and wellness programs, health monitoring systems have a wide range of applications and can be used to improve health outcomes, prevent disease, and promote overall well-being. As technology continues to advance, we can expect to see even more innovative uses for health monitoring systems, ultimately leading to better health for individuals and communities.

REFERENCES

1) S.H. Almotiri, M. A. Khan, and M. A. Alghamdi. Mobile health (m- health) system in the context of iot. In 2016 IEEE 4th International Conference on Future Internet of Things.
2) S.M. Riazulislam, Daehankwak, M.H.K.M.H., Kwak, K.S.: The Internet of Things for Health Care: A Comprehensive Survey. In: IEEE Access (2015).
3) Rajendran T et al. “Advanced algorithms for medical image processing”. Open Biomedical Engineering Journal, Vol. 13, 102, 2019
4) Vandana Milind Rohokale, Neeli Rashmi Prasad, Ramjee Prasad, “A Cooperative Internet of

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Things (IoT) for Rural Healthcare Monitoring and Control", 2011 Centre for TeleIn Frastuktur, Aalborg University, Denmark, P.P 978-1-4577-0787-2/11.

5) Charalampos Doukas, Ilias Maglogiannis, "Bringing IoT and Cloud Computing towards Pervasive Healthcare", 2012 Sixth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing, P.P 978-0-7695-4684-1/12.
6) Junaid Mohammed, Abhinav Thakral, Adrian Filip Ocneanu, Colin Jones, Chung-Horn Lung, Andy Adler, "Internet of Things: Remote Patient Monitoring Using Web Services and Cloud Computing", 2014 IEEE International Conference on Internet of Things (iThings 2014), Green Computing and Communications (GreenCom2014), and Cyber-Physical-Social Computing (CPSCom 2014), P.P 978-1-4799-5967-9/14.
7) Tae-Yoon Kim, Sungkwan Youm, Jai-Jin Jung, Eui-Jik Kim, "Multi-hop WBAN Construction for Healthcare IoT", 2015 International Conference on Platform Technology and Service, P.P 978-1-4799-1888-1/15.
8) Oliver and F. Flores-Mangas, "HealthGear: A real-time wearable system for monitoring and analysing physiological signals," Microsoft Res., Tech. Rep. MSR-TR-2005-182, Apr. 2006.

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