# IOT Based Patient Monitoring System with Auto Prescription Technique

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## Abstract:

This project is to analyse the real time family health condition that can facilitate doctor through cloud for continuous observation in order to get complete health data base. Detect and record an emergency case depending on the patient's health status, such as tablets to the patient's home or an ambulance call. Healthcare is a global problem, especially in India, the world's most populous country, where the majority of people live in villages with no access to healthcare on a continuous and regular basis. With the increased use of technology, a smart health monitoring system that can communicate between network devices and applications is urgently needed to assist patients and doctors in monitoring, tracking, and recording critical data containing medical information. This paper depicts the concept of using cutting-edge technologies, such as the Internet of Things (IoT), to solve health problems. It provides an architectural review of a smart healthcare system that uses the Internet of Things (IoT) to provide everyone with better health care.[3]

*Keywords: Patient care, Internet of Things (IoT), Biomedical sensors, Temperature, Alcohol Detection, Moisture Level.*

## I Introduction

A human being's wellbeing is the most important factor. Even though people are having all the luxuries in their lives, if their health is not in good condition, they cannot enrich their lives.

The main aim was to create a dependable patient tracking system that would enable healthcare professionals to keep track of patients who were either sick or going about their everyday lives. Recently, the patient monitoring systems are one of the major advancements because of its improved technology.

Currently, there is need for a modernized approach. Health care practitioners play a significant role in the conventional approach. They would go to the patient's ward to receive the required diagnoses and advice. There are two major issues with this strategy. ECG sensors, temperature sensors, pulse monitors, and other sensors are available on the market today. The price of sensors varies depending on their scale, versatility, and precision.[7]

## II Literature survey

### A. Existing system

The healthcare industry's primary goal is to provide better health care to everybody, anywhere in the world, at any time. As a result, there is a need to upgrade patient tracking systems in order to improve patient care quality. Since technology has made life easier, the effect has been shown to lower patient anxiety. Body sensor networks (BSNs) are one of the most important innovations in today's IoT-based healthcare system. It's essentially a series of low-power, lightweight wireless sensor nodes that monitor human body functions and the

surrounding environment.[1] Since BSN nodes collect sensitive (life-critical) data and can function in hostile environments, strict protection mechanisms are needed to prevent malicious interference with the device.

### B. Drawbacks of existing methods

- Prescription was not sent to the patient by doctor.
- Wired network-restriction between thebody movement.
- Takes time to analyse the manual reading.
- Intervention of the multi device that shares the channel.

### C. Proposed system

The proposed idea is to focus of the application which will help the family members to take care of the particular person. The sensor gathers data from the patient's body and stores it in the cloud. The collected data will be shared via cloud between the doctor and the patient.[2] The prescription for differenttemperatureand pressure levels is uploaded by the doctor. The data changes in web sheet can be easily made by the health centre and it can be easily viewed by the patients.[4]

The Node MCU controller is used to monitor the system's operation in this system. Temperature sensor, pulse sensor, alcoholic sensor are used to measure the healthstatus. Arduino IDE software is used to analyse and display the readings taken.To store and view the database using IOT, HTML is used to generate a webpage.

### D. Advantages of proposed system

- Completing the patient's physical data and providing the appropriate adaptive remedy in a timely manner.
- Physicians and other members of the patient's family may track the patient's wellbeing or detect a chronic illness at an early stage.
- The proposed system is not confined to a single patient, with slight modification this system can be utilized to take care a greater number of patients.
- It is low cost and provide the data in real time.
- Prescription is sent back to the patients by doctor.
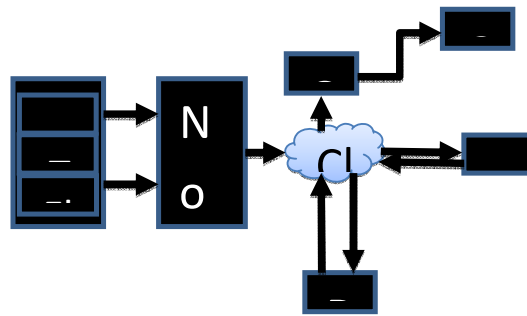
### III Block diagram



Fig. 1 Proposed block diagram

The figure explains about how the patient health is continuously observed and therefore the database is maintained. The objective is to integrate IOT and cloud technologies and to provide a data monitored continuously to both data centre and observation server simultaneously and to provide an alert system and data retrieval capability whenever needed. In this system, Node MCU controller is employed to regulate the operation of the system. Temperature sensor, pulse sensor, alcoholic sensor is used to measure the health status. The readings are analyzed and viewed using the Arduino software. HTML is employed to make a webpage for storing and displaying the database using IOT.

An approved healthcare professional will request and receive real-time data collected by a specific sensor in an IoT subsystem under our proposed model. The contributions are:

- A system for remote patient health status monitoring that is versatile ,energy-efficient and scalable.
- A method for clustering and classifying health data in order to provide better patient care.
- A situation in which the Arduino framework's features are used to support patients with the disease.
- Evaluatethe Arduinoframework's efficiency to assess its efficacy.

Hence it helps to analyze the important time family health condition which will facilitate doctor through cloud for continuous observation so as to urge complete health data base. We can also detect and inform the emergency case as per patient health condition like, tablets to home or ambulance level.

### A. Hardware description

**1) Node MCU:**The Node MCU (Node Micro Controller Unit) is an opensource software andhardware development platform based on the ESP8266, a low-cost System-on-a-Chip (SOC).



Fig. 2 Node MCU

**2) Temperature Sensor:**The LM35 series of integrated circuits are high-precision. It's a temperature sensor with a proportional output voltage to the Celsius (centigrade) temperature. As a result, the LM35 has an advantage over linear temperature sensors calibrated in degrees Kelvin.
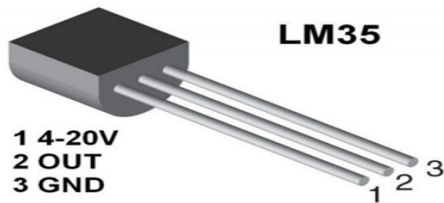


Fig. 3 Temperature sensor

**3) Pulse Sensor:**The Pulse Sensor for Arduino may be a plug-and-play heart-rate sensor. The flow of blood volume is set by the speed of heart pulses and since light is absorbed by blood, the signal pulses are like the guts beat pulses.
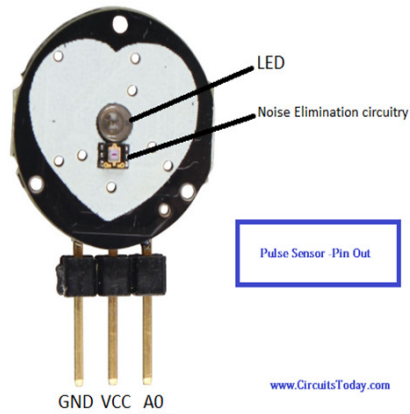


Fig. 4 Pulse sensor

**4) Alcoholic Sensor:**Alcohol Sensor may be a complete alcohol sensor module for Arduino. It is built with MQ3 semiconductor alcohol sensor. It has fast response to alcohol. It is suitable for making Breathalyzer. This sensor generates a voltage that is inversely proportional to the amount of alcohol in the air.
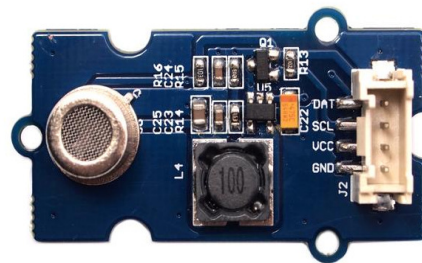


Fig. 5 Alcoholic sensor

**5) Moisture sensor:**This is a moisture sensor measurement module that will light up an LED when a certain moisture level is reached. It uses Arduino duemilanove microcontroller board. Two wires placed within the soil pot form a rheostat, whose resistance varies counting on soil moisture. During a potential divider setup, this rheostat is attached, and Arduino collects a voltage proportional to resistance between the two wires.

### IV Results and discussion

In NODE MCU, temperature sensor, pulse sensor and alcohol sensor are connected. The sensors are calibrated and therefore the values from sensor are received. The received values are

updated within the server using NODEMCU. Through server the info is shared to the closed group. In case of emergency, such as change in heart rate etc… The alert message is sent through GSM to doctor. The doctor can send the drugs prescription through the server to the actual closed group.[6]
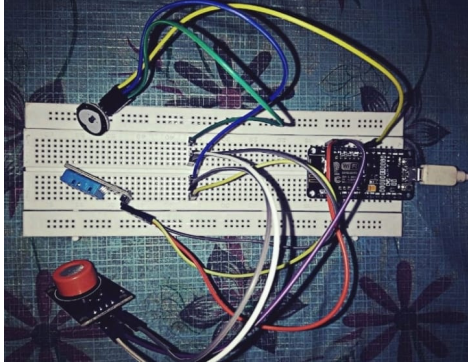


Fig. 6 Sensors in Node MCU

### V Conclusion

In this project we proposed that patient will get the prescription by the doctor to his mobile. Everyone's health condition are going to be monitored by relations and helps at the time of emergency. Hence the patient's health is analyzed and the real time family health condition that can facilitate doctor through cloud for continuous observation in order to get complete health data base.[5] It can be achieved and also, we can detect and inform the emergency case as per patient health condition such as, tablet's to home or ambulance level.

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