

# IoT VIRTUAL DOCTOR ROBOT

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**ABSTRACT:** *Healthcare monitoring real time data transferring system in hospitals and other health sectors has tremendous growth, and this healthcare monitoring system having advanced technologies becoming one of the best approaches across globe nowadays. Doctors are usually needed to work at every hospital and emergency centre every now and then. But it is not feasible for every doctor to be available at every place at desired time. The problem with video calling is that video calls need to be done from a PC or laptop on a desk. This limits the doctor's capacity to view patient or around operation theatre at will or even move through hospital rooms as needed. Now-a-days there is an increase in elder adult population that should be capable of taking care and need a close monitoring in an emergency situation.*

**KEYWORDS:** *IOT, NodeMCU, Easy navigation, Robotic movements, Health monitoring, Robot, Power Supply, Battery, Switches.*

## I. INTRODUCTION

An embedded system can be defined as a computing device that does a specific focused job. Appliances such as the air-conditioner, VCD player, DVD player, printer, fax machine, mobile phone etc. are examples of embedded systems. Each of these appliances will have a processor and special hardware to meet the specific requirement of the application along with the embedded software that is executed by the processor for meeting that specific requirement. The embedded software is also called "firm ware". The desktop/laptop computer is a general-purpose computer. You can use it for a variety of applications

such as playing games, word processing, accounting, software development and soon.

Occasionally, doctors are required to work at every hospital and emergency room. Yet, it is not practical for every doctor to be accessible at all locations at all times. The drawback of video calling is that it requires using a computer or laptop at a desk to make

a connection. This restricts the doctor's ability to freely travel among hospital rooms, see patients, or even be in the operating room as needed.

## II. OBJECTIVE

The main objective of our paper is to make Doctor's available at anyplace anytime and also Doctors can move around in operation theatres. Doctors can move around the patient with ease. Doctors can see medical reports remotely via video call, and Doctors can move around in other rooms at will

## III. LITERATURE SURVEY

Divya Ganesh, Gayathri Seshadri, Sumathi Sokkanarayanan et.al., Implemented the Smart Automated Health Machine (AHM) using Internet of Things (IoT), with an interactive graphical user interface for medical. It is a self-screening system, aimed at being the first point of contact for patient screening, to monitor heart rate, blood pressure, ECG, oxygen saturation, and visual acuity of patients. It also placed a button used in the time of emergency which makes doctor to come online or to call an ambulance. Due to the fixed system and video call provided by the app it didn't make effective for doctors to know proper condition of the patient [1].

Mrs. A. Usha, Mrs. P. Sujidha et.al., Proposed a wearable device to provide health care services. It uses cloud storage service to store the data information of elder's daily health activities like blood pressure, pulse rate, temperature. The telemonitoring application is presented which allows others to view the patient's vital parameters remotely and dynamically in a Web page in real time [2].

Anita Chaudhari, Jeet Thakur and Pratiksha Mhatre et.al., Developed a Quadraped robot for

patients. The main advantage of spider robot also called as quadruped robot is that it is Bluetooth controlled robot, through the android application, we can control robot from anywhere; it avoids the obstacle using ultrasonic sensor [3].

Sahil Soni, Mahesh Pandit, Aniket Adwankar, Aniket Batane et.al., Designed a system using smart technology in IoT sector for monitoring the patient's basic health parameters which are required for the doctors for further treatment. In this system sensors are used to capture the real time data of basic parameters such as temperature, O<sub>2</sub> level and heart rate of the patient from hospital environment. This design and development of virtual doctor robot using Raspberry pi used to specify the doctor with patient's current status and information [4].

Mr. R. Ramadoss et.al., Designed "Automated Virtual Doctor" which is used to sense the patient and his conditions. This model only generates the reports of patient condition and there is no interaction among doctor and patient [5].

Anuradha. M. Sandhi, Vaishnavi Sindol, Shruti, et.al., Designed a health care robot using Arduino UNO and made use of LCD for display and ARM voice module as a interaction machine.

This voice module helped doctor and patient to interact among themselves. As LCD has very few pins to interface this modem has very less features in it [6].

#### IV. IMPLEMENTATION

Node MCU is an open-source firmware for which open-source prototyping board designs are available. The name "NODE MCU" is a combination of "Node" and "MCU" (Micro Controller Unit). Strictly speaking, the term "Node MCU" refers to the firmware rather than the associated development kits. Both the firmware and prototyping board designs are

open source. The firmware uses the Lua scripting language. The firmware is based on the Lua project, and built on the Espressif Non-OS SDK for ESP8266. It uses many open-source projects, such as lua-cjson and SPIFFS. Due to resource constraints, users need to select the modules relevant for their project and build a firmware tailored to their needs. Support for the 32-bit ESP32 has also been implemented.

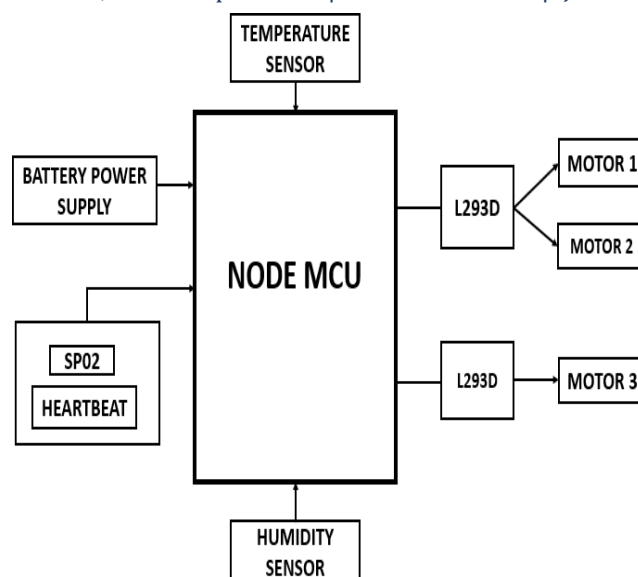


Fig 1: Block Diagram

#### V. RESULT



Fig 2: Front View of Proposed Prototype

Our system is concerned with the intelligent virtual doctor's robot using IOT, a user-friendly health robotic machine with an interactive user interface for medical needs. We here develop a virtual doctor robot that allows a doctor to virtually move around at a remote location at will and even talk to people at remote location as desired.

#### VI. CONCLUSION AND FUTURE SCOPE

##### CONCLUSION

The work load for a doctor during this pandemic can be lessened by utilizing an IoT Virtual Doctor Robot. Patients' wait times can be shortened. It is feasible to provide compassionate support with daily duties as well as primary patient monitoring.

We created the "Doctor robot" with a manual and autonomous control mechanism to make it more user- friendly. Thanks to the Internet of Things, doctors from all over the world will be able to video chat with patients and see all of their data. We believe that our robot will make a substantial impact on the healthcare industry's effort to overcome the global physician shortage.




## **FUTURE SCOPE**

Clinical robots help with a medical procedure, smooth out emergency clinic coordinated factors, and empower suppliers to concentrate on patients. Robots in the clinical field are changing the way that medical procedures are performed, smoothingout supply conveyance and sanitization, andsaving time for suppliers to draw in with patients. Clinical robot market is relied upon to acquire market development in the figure time of 2022 to 2028.

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