An Intelligent Medical Box Remotely Controlled By Doctor

P.Venkatesh[1], B.Tamizharasan[2], R.C.Yogaprakash[3], R.Sundar4, S.Saravanan[5]

UG Scholars, Department of Electrical and Electronics Engineering, Muthayammal Engineering College,

Tamil Nadu, India [1,2,3]

Assistant Professor, Department of Electrical and Electronics Engineering, Muthayammal Engineering College, Tamil

Nadu, India [4]

Professor, Department of Electrical and Electronics Engineering, Muthayammal Engineering College,

Tamil Nadu, India [5]

ABSTRACT: Now a day's, most of the people are encountered with some health-related problems and they need regular medications. From a survey, about 65% of people forget to take their medicines at right time. To avoid the medication non-adherence, a system has been proposed using an IOT Platform, sensors and with the medical box. An IMB model with wireless connectivity helps patients and doctors to be in closer communication. The model which has been developed has an intelligent medical setup that alerts the patients to take their medications at the right time. At the same time, the Doctor can check the patient's health condition using the sensors remotely. The sensors used will continuously monitor the patient's health. If there is any variation then the doctor varies the number of pills to be taken. In case if the patient forgets to take the pills even after the alert, then the information of skipped dosages will be available in the server. The doctor can remotely update the medication details in the IOT server and timely updates about medicines are available to patients. This project is claimed to be the best solution for intimating the patient to take medicines regularly and continuous monitoring of the patient's health.

KEYWORDS: Arduino Uno R3 Microcontroller, LCD, IR Sensor, IOT Module ESP 8266.

1. INTRODUCTION

Medication non adherence is the major problem faced by every individual. It resembles like a simple problem but it causes 1,25,000 deaths annually and accounts for nearly 10 to 25 percent of hospital and nursing home admissions. As the population ages and more people live for longer with long term illness, the people need good drug management. One wrong pill can take away a life. According to a survey, prescriptions are changed for nearly 10 times a year. So the people find it difficult to handle their medication details. The different forms of non adherence are taking more than the prescribed doses or omitting doses, taking doses at wrong time, prematurely discontinuing medicines. This system is basically an alert for taking the right pills at right time and helps in drug management. This system has a hardware set up of a PIC microcontroller with a pill dispenser model and some sensors for continuous monitoring of the patient's health. The employment of IOT has made the doctors to remotely monitor the patients continuously. When there is an anomaly in the parameters obtained from the patient, the doctor can vary the dosage of pills. Patient's other medication details, periodic health reports also can be updated on the server. This system helps in reducing the dependency on nurses or assistants. In addition to that, missing dosages are also available. This system will be useful when the patient approaches a new doctor.

Wireless communication is among technologies biggest contribution to mankind. It is enhanced to convey the information quickly to the consumers. In the modern health care environment, the usage of internet of things (IoT) The health and wellness sector is critical to human society and as such should be one of the first to receive the benefits of upcoming technologies like IoT. Some of the Internet of Medical Things (IoMT) are connected to IoT networks to monitor the day-to-day activities of the patients. Recently there has been attempts to design new medical devices which monitor the medications and help aged people for a better assisted living. In this paper, one such attempt is made to design a multipurpose portable intelligent device named MEDIBOX which helps the patients take their medications at

the right time. In this paper, one such attempt is made to design a multipurpose portable intelligent device named MEDIBOX which helps the patients take their medications at the right time. This box is a proficient system which maintains the parameters and wearable watchlike, pressure and heartbeat sensor is used continue monitoring system, this system use the IOT module for data transfer through medibox system and alert the patient using buzzer. We proposed the remote sensing of parameter of the body mostly heart rate and temperature. The parameters are sensed and monitored wireless using wireless sensors. The whole information gets displayed on a screen which can be placed at a place where doctor and other staff can access them and take actions accordingly. The major work of the project is to continuous monitoring of the patients in the hospital through internet. The model consist of Microcontroller, Temperature sensor, Pulse sensor, Liquid crystal display, GSM modem, Regulated power supply.

II.PROPOSED SYSTEM

The IoT technology uses internet to transfer the medical data about the patient continuously monitoring system in this paper, one such attempt is made to design a multipurpose portable intelligent device named MEDIBOX which helps the patients take their medications at the right time. This box is a proficient system which maintains the parameters like temperature and humidity in a controlled range recommended by the drug manufacturer and thus maintains the potency of the medicines even if the patient is travelling.
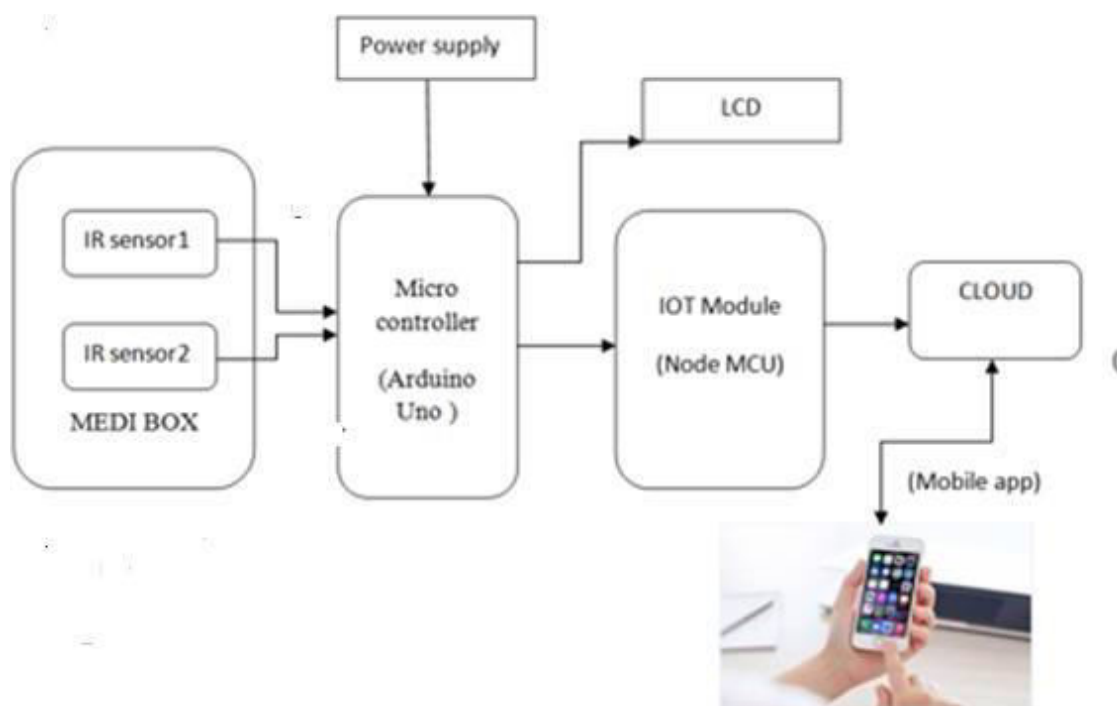
Fig 1 Block Diagram of Proposed System

To avoid the medication non-adherence, a system has been proposed using an IOT Platform, sensors and with the medical box. An IMB model with wireless connectivity (WiFi module) helps patients and doctors to be in closer communication. The model which has been developed has an intelligent medical setup that alerts the patients to take their medications at the right time. At the same time, the Doctor can check the patient's health condition using the sensors remotely. A microcontroller is a small computer on a single metal-oxide-semiconductor integrated circuit chip. A microcontroller contains one or more CPUs along with memory andprogrammable input/output peripherals.

The Internet of things describes physical objects that are embedded with sensors, processing ability, software, and other technologies that connect and exchange data withother devices and systems over the Internet or other communications networks. A power supply is an electrical device that supplies electric power to an electrical load. The primary function of a power supply is to convert electric current from a source to the correct voltage, current, and frequency to power the load. An infrared sensor (IR sensor) is a radiation-sensitive optoelectronic component with a spectral sensitivity in the infrared wavelength range 780 nm 50 µm. IR sensors are now widely used in motion detectors, which are used in building services to switch on lamps or in alarm systems to detect unwelcome guests. A liquid-crystal display is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals combined with polarizers. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in colour or monochrome.

In the proposed system, the patient using wearable device (watch) and continue monitoring the health condition To design a multipurpose portable intelligent device named MEDIBOX which helps the patients take their medications at the right time Wearable device like pressure and heart beat sensor, if suppose patient will be a abnormal condition the sensorwill be active and transfer through the zig bee module and alert the patient with buzzer in MEDIBOX system The IoT technology monitors the patients health and patient use the medibox at right time to data in a cloud storage.. The IoT technology uses internet to transfer the medical data about the patient continuously monitoring system in this paper, one such attempt is made to design a multipurpose portable intelligent device named MEDIBOX which helps the patients take their medications at the right time. This box is a proficient system which maintains the parameters like temperature and humidity in a controlled range recommended by the drug manufacturer and thus maintains the potency of the medicineseven if the patient is travelling. Related to this, we have developed a Host Management System (HMS) which is capable of cloud-based installation and monitoring that stores and controls the MEDIBOX functionality for further analysis and future modification in design aspects.

III.RESULTS AND DISCUSSION

For technical computing LXK Proteus 7.7 SP2 is a high performance language which integrates with computation, visualization and programming. It is an interactive system in an array and it does not require dimensioning. It allows us to solve many technical computing problems. Fig Shows the simulation diagram for medibox.
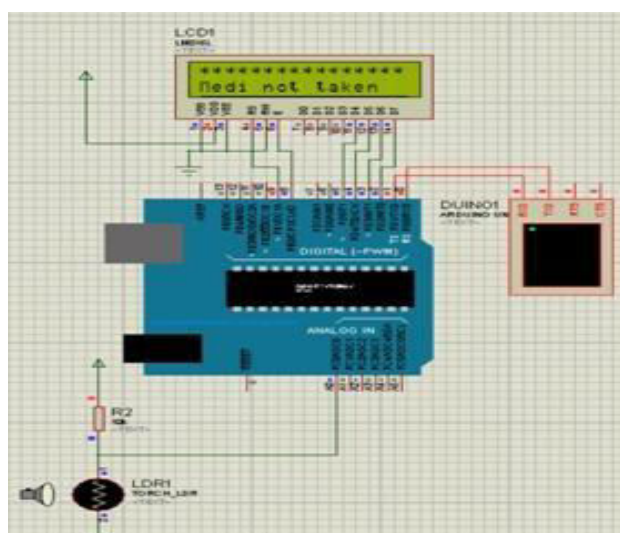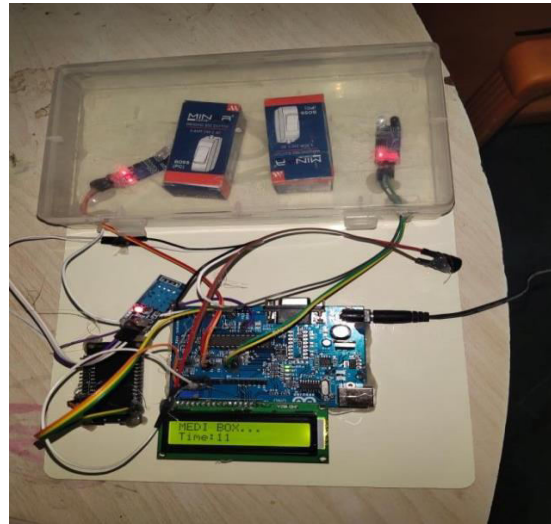

Fig 2: Simulation Diagram of Proposed System

IV.HARDWARE IMPLEMENTATION

Fig 3. Hardware Implementation

A power supply is an electrical device that supplies electric power to an electrical load. The primary function of a power supply is to convert electric current from a source to the correct voltage, current, and frequency to power the load. The sensors used will continuously monitor the patient's health. If there is any variation then the doctor varies the number of pills to be taken. Wireless communication is among technologies biggest contribution to mankind. It is enhanced to convey the information quickly to the consumers. In the modern health care environment, the usage of internet of things (IoT). Whenever the patients taken the medicine the lcd display indicates that the medicine will be taken and it will also indicate in the web page as by date wise. Whenever the patients taken the medicine the lcd display indicates that the medicine will not taken and it will also indicate in the web page as by date wise. And it will also indicate the tablet is empty in lcd display and also in web page. The message will be convey to the authorized person for the patient by using their mobile number.

V.CONCLUSION

In today's scenario, people are busy with their daily schedules and cannot remember their medication timings, which puts them in a difficult condition. In this paper, we have designed a new device MEDIBOX which aims at assisting a patient completely with a compact and user-friendly manner. It reminds the patient to consume the medications and provides a suitable storage condition for the drugs. Storage of medications intake details can assist the doctor for future references i.e. the effectiveness of drugs on the patient can be found through the history of medication intake helping him to prescribe accordingly to the patient. The medication details are also stored in a secure cloud along with its storage details. One challenge faced with the design of the box was the cooling module. The Peltier module draws more current, so we need a battery with a high current rating which in effect increased the size of the MEDIBOX.

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