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Medical Supervisory & Expiry Alerts

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ABSTRACT: The proposed Smart medicine box helps the patient to take the right medicine at the right time.It is an alarm based device that helps in reminding patients about their medication. This device helps in maintaining one-time medication to the patients, and helps increasing the life expectancy. If a tablet is taken out the medical box, the medicine slot level is measured and the information is updated in the cloud. This inversely reflects in the end user of the doctor, patient, and the pharmacist. In the patient's app, the medicine slot level will be measured periodically. If the measured value updated to the cloud is less than particular value, then both doctor and pharmacist will be updated and notified. Further the doctor will decide whether the patient has to continue with the same dosage of medicine or a new set. Once the doctor decides, he updates the table. SMS alerts are given to predefined guardian if there are any vital signs noticed. This update is reflected in the cloud database which is further updated to the patient's and the pharmacy's interface. The new medicines will be then delivered to the patient's residence after placing order by the patient. Health Monitoring and predicting framework utilizing IOT portrays the assortment and interoperation of Patient information gathered from the sensors, The collected sensor data will incorporated through micro controller Arduino board for processing and the processed data is sent to remote server using ESP8266 Wi-Fi module. IoT analytics platform that empowers us to imagine, and investigate live data streams in the cloud.

KEYWORDS: Smart Medicine Box, IOT, Arduino board, Health Monitoring system

I. INTRODUCTION

The proposed Smart medicine box helps the patient to take the right medicine at the right time along with an alert message which will help the patient to take the medicine. It is an alarm based device that helps in reminding patients about their medication. This device helps in maintaining one-time medication to the patients, and helps increasing the life expectancy. If a tablet is taken out the medical box, the medicine slot level is measured and the information is updated in the cloud. This inversely reflects in the end user of the doctor, patient, and the pharmacist. In the patient's app, the medicine slot level will be measured periodically. If the measured value updated to the cloud is less than particular value, then both doctor and pharmacist will be updated and notified. Further the doctor will decide whether the patient has to continue with the same dosage of medicine or a new set. Once the doctor decides, he updates the table. Sms alerts are given to predefined guardian if there are any vital signs noticed. This update is reflected in the cloud database which is further updated to the patient's and the pharmacy's interface. The new medicines will be then delivered to the patient's residence after placing order by the patient.

Health Monitoring and predicting framework utilizing IOT portrays the assortment and interoperation of Patient information gathered from the sensors, The collected sensor data will incorporated through micro controller Arduino board for processing and the processed data is sent to remote server using ESP8266 Wi-Fi module. IoT analytics platform that empowers us to imagine, and investigate live data streams in the cloud. And it is predicted for best accuracy using Machine Learning algorithm. In this system we are using ARDUINO controller and different like sensors. Here we are using components like temperature sensor, Heart Beat Sensor, Servomotor, LCD and IOT module.Arduino UNO and NodeMCU Wi-Fi module are the main two components of this project and connected with each other through serial communication. Arduino mainly controls three compartments of the medicine box and NodeMCU is used for controlling temperature sensor and Heart Beat Sensor, sending messages to patients mobile and storing medication time data, temperature data to the server.The temperature, Heart Beat and taking medicine data will be stored in a server which can be accessed by both patient and doctor so that when it is time the doctor can review the medicine and can change if needed.ECG sensor is used to monitor the patients ECG level, if any abnormalities occur it will send a emergency alert to the caretaker or doctor Also, it will be helpful for doctors to keep updated about the patient's physical health condition IoT analytics platform that empowers us to imagine, and investigate live data streams in the cloud. And it is predicted for best accuracy using Machine Learning algorithm.

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II. LITERATURE SURVEY

[1] Improving healthcare using Smart Pill Box for Medicine Reminder and Monitoring SystemAUTHOR: Minaam, D. S. A., &Abd-ELfattah,

Many medical errors are due to the fact that people in charge of patient or elder's medication have to deal with sorting huge amounts of pills each day. This paper consists on the conception, design and creation of a pillbox prototype intended to solve this deficiency in the medical area as it has the ability of sorting out the pills by itself as well as many other advanced features, with this device being intended to be used by hospitals or retirement homes. This medication pill box is focused on patients who frequently take medications or vitamin supplements, or attendants who deal with the more seasoned or patients. Our smart pill box is programmable that enables medical caretakers or clients to determine the pill amount and timing to take pills, and the service times for every day. Our shrewd pills box contains nine separate sub-boxes. In this manner, medical caretakers or clients can set data for nine distinct pills. At the point when the pill time has been set, the pillbox will remind clients or patients to take pills utilizing sound and light. The warning of pills should be taken will be shown by an android application which is held by the patient. Contrasted and the conventional pill box that requires clients or attendants to stack the crate each day or consistently. Our shrewd pill box would essentially discharge medical attendants or clients' weight on much of the time preloading pills for patients or clients and overlook the measurements which must be taken.

[2]A Comprehensive Review on the Emerging IoT-Cloud based Technologies for Smart HealthcareAUTHOR: Isravel, D. P., &Silas.s

Internet of Things (IoT) has redefined the operation of next-generation technologies by offering an intelligent framework. Cloud and IoT based system has been widely used in numerous applications for providing automated solutions and services. One of the areas in which the IoT and cloud have been widely used in the healthcare industry. To strengthen the healthcare system many initiatives are undertaken using advanced technologies such as IoT and cloud. So in this paper, comprehensive reviews of the different IoT health model that are available are presented. The paper focuses on the various deployment strategies for building a cloud and IoT based system for smart home and smart hospital environment for handling different health-related issues. The paper highlights the various benefits that the IoT offers and also presents the challenges that are most prevalent in realizing the full automation of the healthcare system. The paper also discusses the integration of machine learning techniques for processing health data in the cloud to provide quality healthcare and modernize the healthcare system.

[3]Pill Care-The Smart Pill Box with Remind, Authenticate and Confirmation Function
AUTHOR: Najeeb, P. N. J, Rimna, A., Safa, K. P., Silvana, M., &Adarsh, T. K

Central to most aspects of medicine from primary care to specialized treatments, prescription drugs have become a major component of health systems worldwide. Owing to their psychoactive effects, these drugs are often taken in ways not intended by the doctor or by someone other than the person for whom it had been prescribed. patients often forget to take their prescribed medications or consume it out of the schedule recommended by the doctor. There are also instances of teenagers stealing drugs such as opiates, CNS depressants and stimulants from their friends and family. Our goal for this project is to build a system around prescription drugs that helps authenticate a patient's access of such medication based on their identity and prescribed schedule, and also facilitates the pharmacist or doctor to monitor this consumption.

[4]**IoT Driven Smart Pill Box**AUTHOR: Ms.Disha A. Rajgure1, Mr. R.D. Kada

Our paper main aim is to make a Smart medicine box for those people who regularly take medicines and the prescription of their medicine is very long as it is hard to remember to patients and also for their care giver. Also Old age patients suffer from problems of forget to take pills on proper time or as per the prescription which causes certain health issues for patients having Permanent diseases like diabetes, blood pressure, breathing problem, heart problems, cancer diseases etc. We saw these problems in hospitals & people around us who have such kind of diseases and thus based on these two problems we made smart medicine box which solve these problems by Setting up time table of prescribed medicines through push buttons as given in prescription.. All pill boxes are pre-loaded in the system which patient needs to take at given time. System advancement like blind people take pill from box using vibrator fit to the box. Using IOT no of pill in to box will be monitor by doctor or patient relative.

III. PROPOSED SYSTEM

Medication Monitoring System With Timely Remainders which will help patient to take Right Medicine and Right Time. Medicine schedule is set and updated in the android application. The patient can feel ease about medicine intake

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since entire scenario is handled by the medication box itself only during notifications the user or patient will have attention about their medicines. In additional user interface for doctor and pharmaceutical store was made to order medicine supplies on behalf of the patient to get the medicines delivered at the patient's doorstep. IoT analytics platform that empowers us to imagine, and investigate live data streams in the cloud. And it is predicted for best accuracy using Machine Learning algorithm.

Block Diagram:

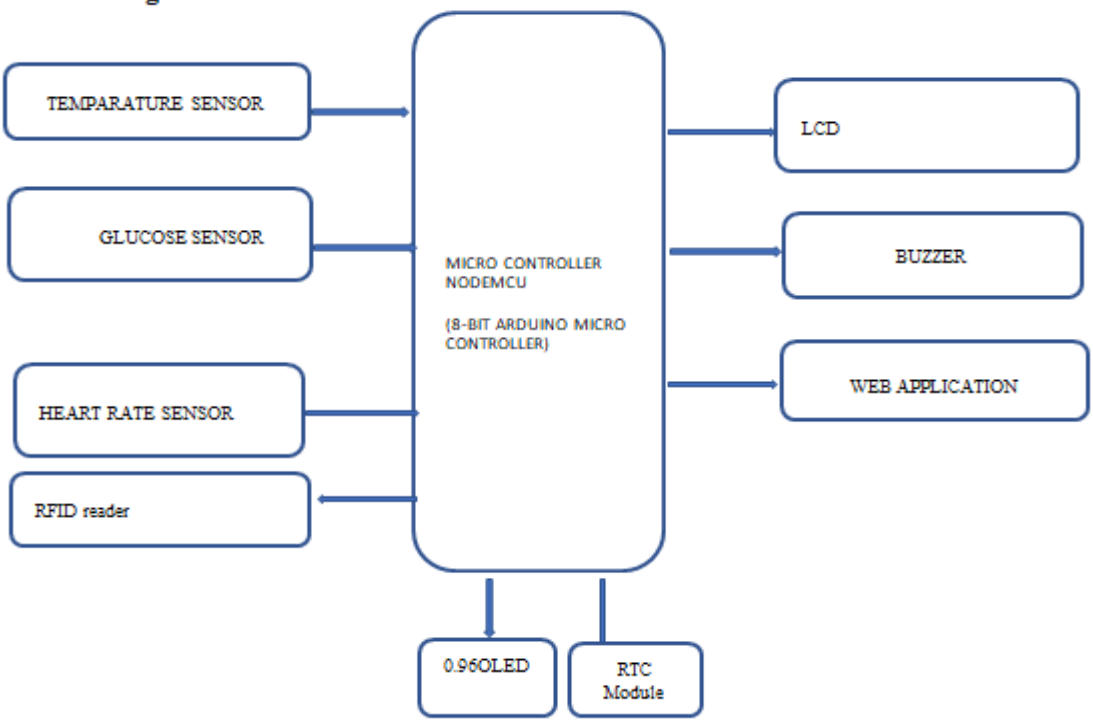

Fig.3.1 Block diagram

IV. APPLICATIONS

Applications:

- For Monitoring ICU Cardiac patients remotely.
- Accurate ECG wave pattern of cardiac patients.
- Medicine reminder for patient.
- Because of Remote monitoring function we can also use this system for Covid-19 patients.

Fig. 4.1 Medical Application on Smart phone

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V. RESULTS

Output can be expected as follows:

1.The output can be expected as follows: IoT analytics platform that empowers us to imagine, and investigate live data streams in the cloud. And it is predicted for best accuracy, performs the action based on the medication timing i.e set.

2.Arduino The mainly controls three compartments of the medicine box and NodeMCU is used for controlling temperature sensor and Heart Beat Sensor, sending messages to patients mobile and storing medication time data, temperature data to the server.

3.The data will be stored in a server which can be accessed by both patient and doctor so that when it is time the doctor can review the medicine and can change if needed and expiry alerts sends in time.

4.It gives medicine alerts and analyses parameters like hear beat, glucose level &temperature rate.

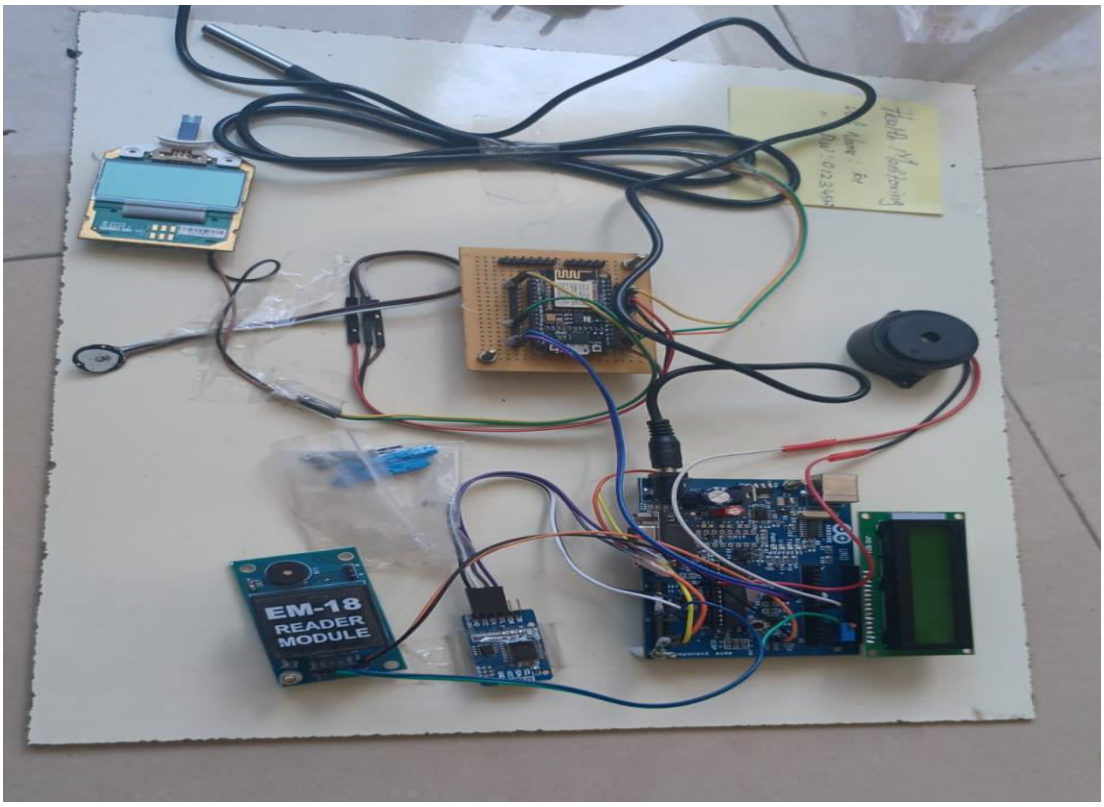

Fig.5.1circuit diagram

Fig 5.2.temperature displaying in output

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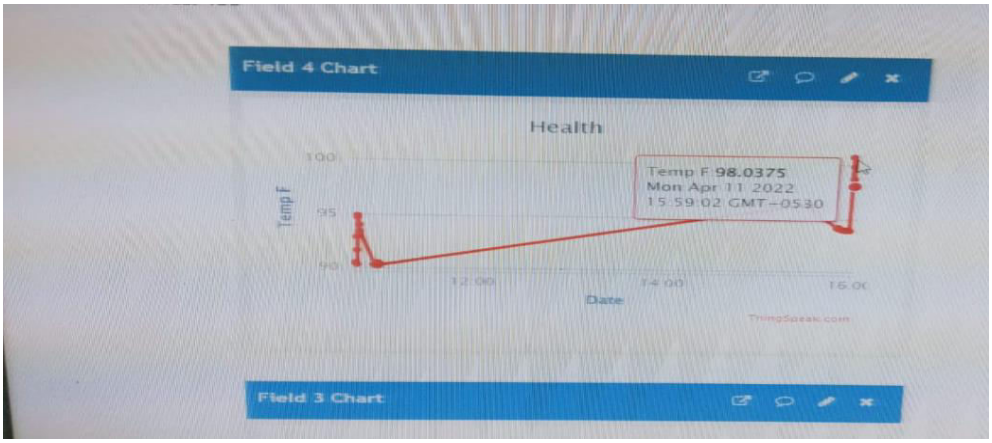

Fig.5.3.temperature displaying

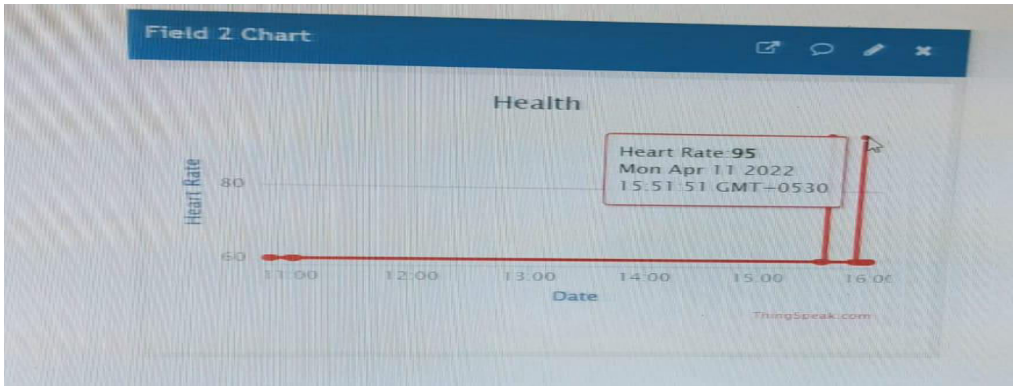

Fig.5.4.Heart Rate

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