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Low Cost IoT Based Smart Health Monitoring with Medicine Dispenser and User Friendly Alert System for Elderly People

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ABSTRACT: Healthcare industry is one where lot of improvements is taking place. Medicines play important role for prevention and cure for most of the diseases. Many harmful and risky diseases can be cured through proper medication on time. The idea of digitizing such systems where different types of sensors and local processing connected to share information is used in many industries nowadays, such platform is also well suited for the health care system. The proposed system consists of an IoT which enables the health tracking and medication reminder system with timely alerts for the patients about their medication and also provides the smart alter to family members in case of emergency. It alerts the patient to take medicines at proper time by providing audio-visual alert. The system helps to monitor whether patient has taken the medicine on time and health status also.

KEYWORDS: Healthcare, medication reminder system, audio-visual alert.

I. INTRODUCTION

Health monitoring system focusing on generally well being of elderly people. The advances in information of communication technologies enable technically, the monitoring of health related parameter with wireless sensors wherever the users happen to be. The vital signals of any patients are extremely basics and key to be checked. Any progressions that may happen may influence the patient's health. Patient's vital signals and passionate parameters are chiefly heart rate, body temperature. Thus proposed system which patient can observe their signal at home or any place without stays at the healing facility or being under observant

Dosage for an elderly people is five time more than the younger person. Also elderly people are several times more likely to take the wrong medicine because of declining physiological functions. The WHO also indicates that one third of the world's deaths are caused not by diseases themselves but by the incorrect use of drugs. Due to the above mentioned problem of death caused by the improper use of drugs. A Smart medicine pill box can help users conveniently store and distribute medication and has a reminder function to remind users who forget to take their medicine on time.

II. LITERATURE REVIEW

In [1], It is designed to assist the patient who forgot to take the medicine. The proposed system consists of an IOT embedded device and android application. The mobile application is used for keeping the record of medicine details and reminding schedule of medicine

The main objective in [2] this an android based application is used for the patients. This application will remind their user to take correct medicines at appropriate time by setting the reminders in the mobile which is automatic manner.

In [3], This application is used to help the patients to avoid medication administration errors such as in-taking of wrong dosage instead of correct one, forgetfulness, etc. to avoid such critical situations, it can perform three functions Issue medicine identification and in-take remainder, provide medicine identification and in-take directions, keep the medicine in-take records.

The authors [4This method uses micro controller interface with alphanumeric keypad, LED display, motor controller, multiple pill container and dispenser, alarm system. It is partially an automated device. The general procedure is to facilitate the user is required to press a button to get the pill box and reset the alarm button.

In [5] presents the design & implementation of IOT Based health monitoring system. The main purpose of this project is to form the doctor about the patient's health condition time to time.

In [6], System provides several functionalities such as wearable gadget to monitor the overall condition of the patient & an android application software for relatives involved in eldercare.

III. PROBLEM STATEMENT

Elderly people face major issues in health due to forgetting of medicine to be consumed or delayed medical checkups. Most common health issues found in elderly people are BP, Sugar, Acidity, Issues related to heart and more, failing to follow up the routine health care precautions may lead to serious health issues. Current systems are either focused on health monitoring or monitoring patients remotely. The platform for medicine alters and health monitoring together is not addressed.

IV. METHODOLOGY

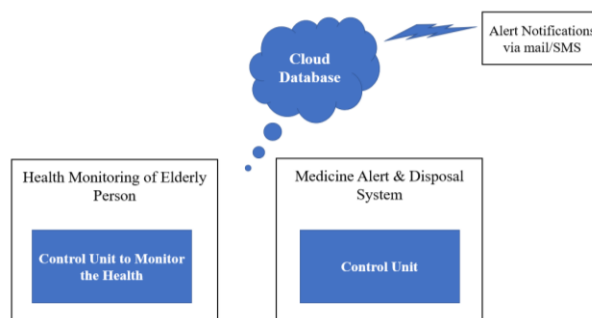The proposed method is explained in this part of the paper.

Figure 1: Block Diagram Of Proposed Project

Figure 1 given block diagram of proposed project, the present work focuses on timely scheduled health monitoring of elderly person and provides the user friendly medicine alert and disposal system, this system is designed to avoid further health related issues in case of forgetting the medicine consumption by elderly people. We are designing a medicine disposal system to incorporate simplified assistance to the elderly people with LED and buzzer. The vitals are monitored on timely bases to have low power consumption of the designed device and same is updated to database of IOT, this can be further utilized from remote monitoring of patients by the doctor

The present work is designed in 2 parts in the first part health status of elderly person is monitored and the sensor data is updated to the /database system, this unit interacts with the cloud/database to update the health vitals and the second part provides the reminder to the elderly on the medicine consumption by user friendly interaction using LED and buzzer. The designed medicine disposal system provides an easy interaction for elderly people to identify which medicine to be taken at what point in time.By this the status on medicine consumption on time is monitored and

the precaution of medicine getting shuffled is avoided. Further a reminder on availability of medicine can be alerted to the family member.
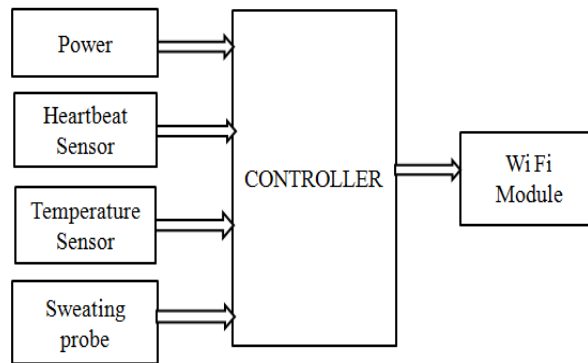

Figure 2: Block Diagram of Health Monitoring

Figure 2 gives the block diagram of Health Monitoring System, this unit is powered by DC battery and the system has interface with temperature sensor, sweating sensor, and hearth sensor to monitor the health status of the patient with the help of controller. The scheduling of various sensor is performed and the data collected is sent to the cloud. An efficient scheduling is to be design to reduce the power consumption of the system.
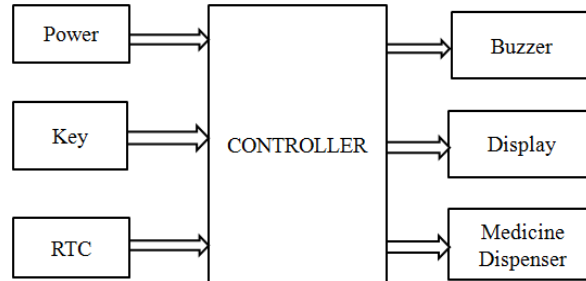

Figure 3: Block Diagram of Medicine reminder

Figure 3 gives the block diagram of User Friendly Medicine Remainder System, this system is powered by DC battery and the system has interface with Power, and RTC. The buzzer will alert the patients to take the medicine in-time and LED display will also help the patients to identify which medicine to be taken, by the help this unit the elderly can easily see the right medicine in the box to be consumed. It will help elderly to take care of their health.

V.   ALGORITHM OF WORKING PRINCIPLE

1. Start the processing of monitoring.
2. Enter the medicine time using RTC.
3. Here, it will alert the patient take the medicine in time.
4. It will check the health of patients using sensors.
5. Monitored value is displayed on LCD.
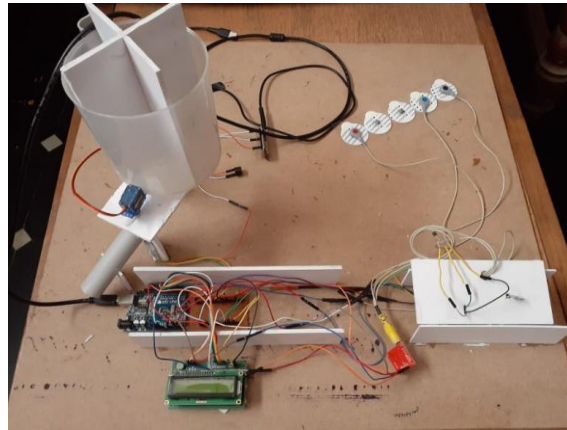
VI. RESULTS

Fig 1: Proposed System

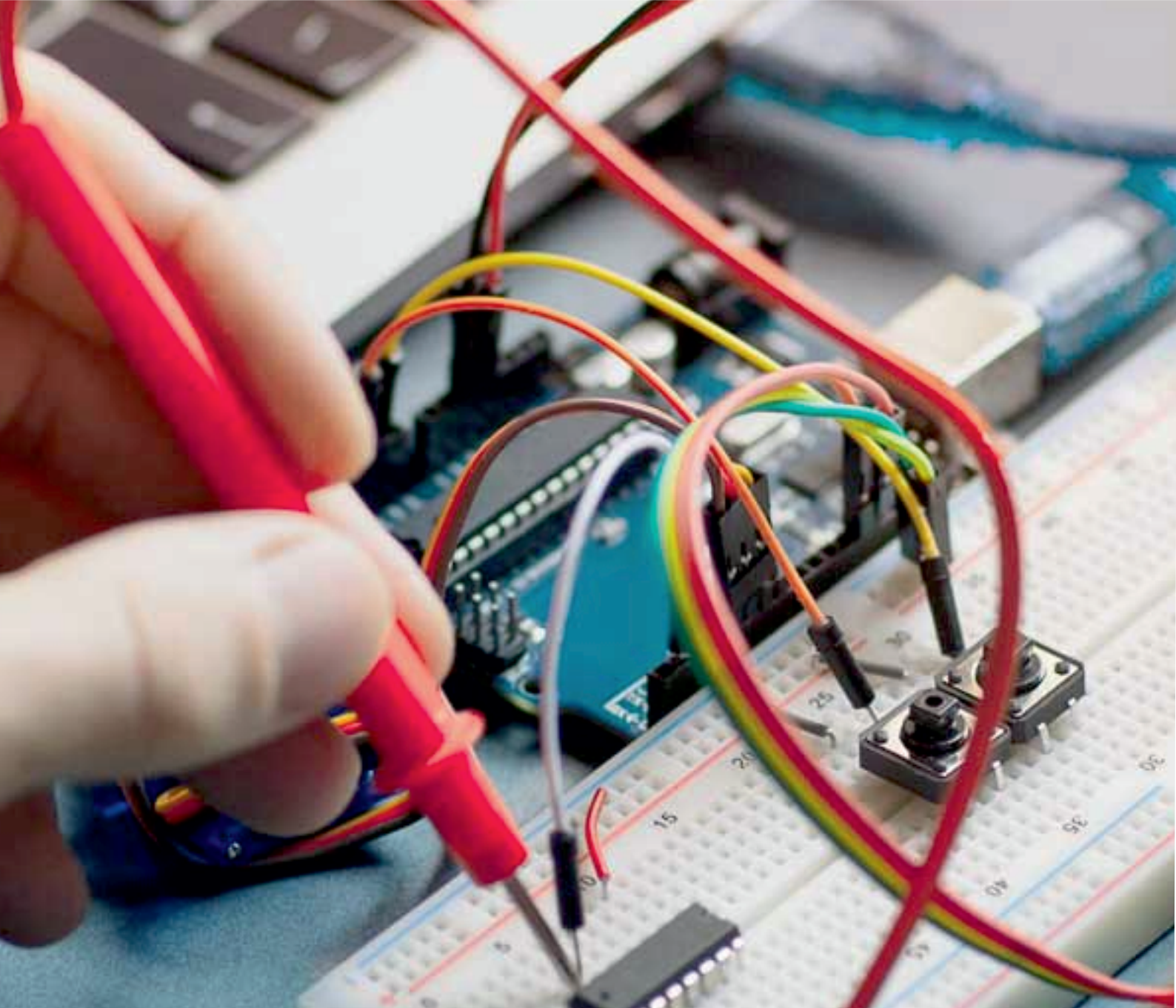Fig 2: Monitored Health Status

VII.   CONCLUSION

A model for the Medicine reminder and also health monitoring for elderly persons at home. The main target of the proposed paper is to screen the conditions of elderly people. This proposed system can easily detect the abnormalities in the body condition and also reminds of medicine intake on time through buzzer and lcd display. In the case of abnormal conditions and if the elderly people fails to take the medicine on time, the relatives or caretaker will be informed. The proposed system is cost-efficient and user friendly and also suitable for all class of users.

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