

IoT Based Pill Reminder System

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Abstract: Internet of Things is a virtual network equipped with software, sensors, and a network connection that allows those objects to collect and share data. The Internet of Things allows us to hear and control things remotely with the current network infrastructure. The Internet of Things is increasingly being recognized by various industries, especially in the healthcare industry. This paper explains that by analysing data, an online-based reminder system was created. It is designed to help patients who forget to take medication.

Keywords: Reminder system, IoT, IR sensors, Push Button, Arduino uno r3 smd, RTC DS3231

I. INTRODUCTION

Internet of Things (IoT) is a sensory-based technology that can connect a few objects to the internet. This connection can provide us with daily tasks. In today's world, people are constantly busy with their own lives. There may be many people out there who need help all the time - like our older people, family members, those with special needs. Some people may forget to take their medication on time and may need to take medication. In order to eliminate the surveillance features that are always needed as nurses or to place a missed dose risk, we had to find a simple, effective and efficient solution. Pill boxes are already available but many of them are less practical, not suitable for adults or have a large size that makes them unsuitable to carry anywhere. The purpose of this study is to develop a Smart Pill Reminder System. Once the pill period has been set, the pill box will remind patients to take the pills using sound and light. The tablet alert should be taken and displayed by the android app kept by the patient. Compared to a regular pill box that requires clients or assistants to plan a daily or routine schedule. This model can help adults to take their medication. IoT can be a powerful and efficient paradigm for storing data collected by cloud devices. In our project, an IoT enabled device will control the entire monitoring system. Also develop an android app that helps patients by reminding them of medication over time and more.

II. PROBLEM STATEMENT

Increased incidence of health-related complications related to over-the-counter medications, such as over the counter ta he patients, non-prescription pills is caused by the patients themselves. especially when the patient is older. Keep track of taking the right pill at the right time each day can be a challenging experience for the elderly, as it is not as easy as it might be for a young person. Patients may often fail to adhere to their medication whether it is due to forgetting to take medication, taking medication at the wrong time or even taking too much medication. With a focus on those patients who are struggling to take their medications on time, we have tried to design and assist the patient by managing their medical instructions, with a reminder app that they will use to monitor and control their medication. The pill reminder will help users search for the right medication on time. The system provides a real-time monitoring system that allows relatives to monitor patient activity from a distance.

III. RELATED WORK

There are various drug systems currently in use. They depend on different categories and opinions. There is a framework for drug reviews, My MediHealth [2] designed for children. It is made available on mobile phones as a digital help for staff. A mobile app that provides a Graphical User Interface to design drug schedules and an alarm system to remind patients, about time and other details. Zoa et al. create an application - a smartphone application intended to help patients avoid physician organization errors [3]. Prasad B proposed Application, 'Medication Rehabilitation Specialist'. This application is limited to IJCSNS International Journal of Computer Science and Network Security, VOL.20 No.7, July 2020 15 update limit. The patient can opt for these updates while retraining or non- reversible alert designs. Between the two-time monitoring projects should be selected. The length between the two monitoring projects should be at least one

hour. A reminder will be delivered during the schedule. This reminder can be a warning vibration or an LED signal [4]. Hamida et al. recommend a safe and effective In-Habitation Wearable monitoring and diagnostic monitoring system (2013) [5]. Home patient sleep data can be accessed by a remote clinic system with the help of the latest technology such as testing evaluation of communication processes and security measures regarding safety and more. According to Ray, (Home Health Hub Internet of Things 2014), health is the most important part of a lifetime. Simplifying is one of the most desirable things people want to experience with the help of the latest IoT [6]. Framework of novel developed by Ray helps to monitor the health of older people in their communities through this H3IoT program. Also, according to Al Majeed et al. (IoT Home Tele Health, 2013), IoT helps in real time to monitor the state of health. Related devices can detect, transmit data and analyse to perform a health care process. In this proposed system, they use a possible low-cost algorithm. reducing complexity for processing big data. This data is generated by imaging devices, sensors and human interactions [7]. Huang et al. [2014] proposed a smart Pillbox program for the elderly. The purpose of this work is to provide safe and secure medicines on time [8]. Moga et al. [2015] recommended an online-based control, monitoring, embedded system for low-cost smart home. This function uses a widely distributed sensor and control system to make the system easier to use and more accessible [9]. Provides a touch screen application that is easy to use for all events. Finally, we learned more about the problems that exist in current systems and proposed systems. We tried to solve them and improved our pill reminder novel and monitoring system.

IV. ARCHITECTURE OF PROPOSED METHOD

4.1 Hardware Interface

In our proposed system, we have a device that generate an alarm and hold the medicine in it. For that purpose, we design a smart IoT box. For it, the require instruments are Arduino Uno R3 SMD, IR sensors, Buzzer, Pill Box, jumper wires, Push Button.

4.2 Circuit Diagram

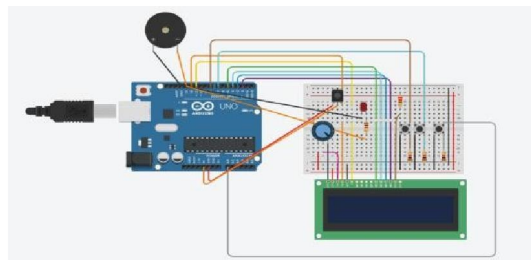


Fig.1. Circuit Diagram

4.3 Arduino Uno R3 SMD

Arduino IoT Cloud is an app that helps builders build connected objects quickly, easily, and securely. You can connect multiple devices to each other and allow them to exchange a data. You can also monitor them anywhere using a simple interface. It is a microcontroller based on Atmega328P. Contains 20 digital anchors, a resonator, a usb connector, a power jug. Computer language such as c and c ++ was used to make programs on the Arduino board. The input voltage to the Arduino varies from 7v to 12v. Includes systematic circuit board and software. Using an integrated development environment (IDE) we can write code to a computer and upload it to a virtual Arduino board.



Fig.2. [12] ARDUINO UNO R3 SMD

4.4 RTC DS3231 module

The DS3231 is a low-cost, extremely accurate I2C real-time clock with an integrated temperature-compensated crystal oscillator and crystal.



Fig.3.[13] DS3231

4.5 Push Button

The Push button is a type of switch to a simple mode called Push-to-make. It remains inactive or turned on but when pressed, it currently allows it to flow when the circuit is pressed.



Fig.4. [14] Push Button

4.5 IR Sensor

An infrared sensor is an electronic device used to sense certain aspects of the environment by emitting and / or detecting infrared radiation. Infrared sensors are also capable of measuring the output of an object and detecting movement.



Fig.5.[15] IR Sensor

4.6 Buzzer

A buzzer is a sound device that can convert audio signals into audio signals. It is widely used as an output device in an electrical circuit.



Fig.6. [16] Buzzer

4.7 Jumper Wires

Jumper cables usually transmit electricity between 2 points in a circuit above the main jumper cables used to analyse faults within a circuit or accustomed to changing regions.



Fig.7 [17] Jumper Wires

4.8 Working Procedure

The patient can set a reminder by pressing a button to select any time it will remind them (once / twice / three times a day). reminder. This can be recorded for the patient to take his medication successfully. If the patient fails to take the medication or refuses, the lid will not open and the remainder will stop automatically after the prescribed time. If someone misses another drug, the output can be sent to the mobile app and send a message to the patient reminding us that you have missed a dose.

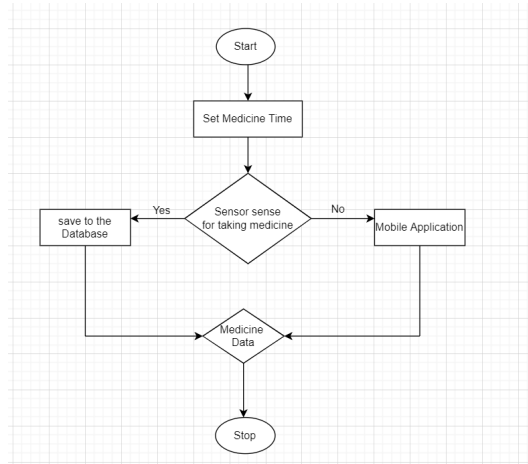


Fig.8. Flow Chart

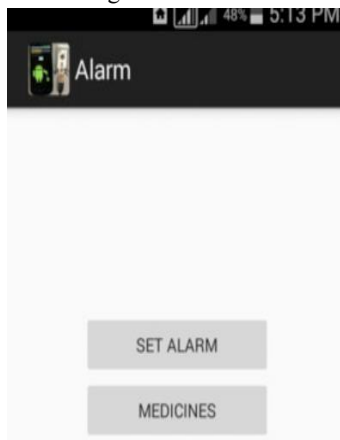


Fig.9. Main screen of Mobile Application.

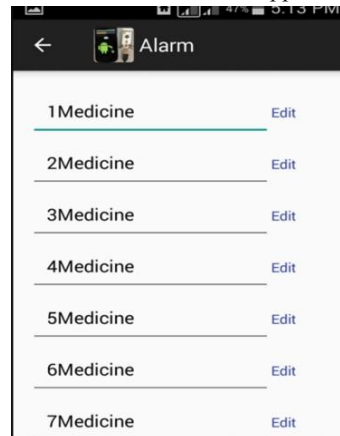


Fig.10. Set the Medicine

V. CONCLUSION

This paper describes the effectiveness of the pill monitoring system. The main goal is to provide the patient with timely medication. The availability of sensors and other medical devices (IoT) gadgets is more effective when considering patients. Allows real-time monitoring. Therefore, using iot devices is easy to remind patients about medications

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