



MED-FOR-YOU

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Abstract— Taking medicine as prescribed or medication adherence is important for controlling chronic conditions, treating temporary conditions, and overall long-term health and well-being. Taking the right medication at the right time is the most important thing in terms of the medication system. In recent times, there are many people in the world who have chronic diseases, which means a disease that is more than a year long. For chronic disease, the affected person has to take medicines daily without any gap. And there are some old aged people who have to take 3 to 6 different medicines in a day which makes them confused about which medicine to take at what time. Taking the correct medication at the right time can cure a person's disease fast and efficiently. The paper 'MED-FOR-YOU' as the name suggests 'made for you' is a smart device that is used to remind people to take specific medication at specific time. This product is made especially for chronically diseased people and old age people. This product will have one smart box which will always be connected to the Android smartphone where a special application is made to handle this device. The simple working of the product is that if the person has to take a specific medicine at some specific time then the remainder will be set on the mobile application. The alarm will ring at the time of the medication and the person just has to put hand near the sensor and another hand below the box and the medicine will fall automatically on the person's hand. The main objective of this paper is to design a system which will help a person to take medication efficiently and effectively.

Keywords— : Smart Pill box, IoT, Health Care, Medicine Reminder, Chronic Diseases Medication

I. INTRODUCTION

There can be a lot of individuals out there who need constant help, it may be our elderly people, family members, the one who have special needs. Elders are more affected by the timing of taking a certain drug than others, in order to prevent any dysfunction or illness timing is a must. But as with ageing comes poor eyesight and poor memory, what if the patient has dementia like Alzheimer. Some people may forget to take the medicines at the correct time and can forget the medicines which they have to take. In order to eliminate the factors of always needed observation like nurses or taking a risk of a missed dose, there is a need to find an easy, portable and efficient solution. Pill boxes already exist but most of them either have limited use. Dana DeMeo et al. [3] has given a model that is bulky and has limited features that don't fit old aged people or even have a big size that makes it not suitable to take it with you anywhere. In order to make a really useful smart pillbox it had to be easily integrated with the recent sweeping smart technologies. While at the same time it had been fit for the elders and their limited knowledge and experience to implement the ease of use. Size and portability was also an important fact that one had to keep in mind. For it to be called smart, its connected through a wireless network, which enables it to be connected to the internet for future applications and integration, also its distinguished by the wide range of the Wi-Fi instead of a Bluetooth or any other field communication, Juthada Suwanthara et al. [7] paper -WiseMed: Medication reminder for seniors where only bluetooth technology is used. There is also the need to erase the need for any wires or wired connection which enables portability in the first place. Through that same network it's connected to the mobile phone, which with it one can set the timing interval for the dose and also notifies one by many ways when the dose time comes. Also, we added a buzzer with a LED to make a type of physical warning, so that it leaves no choice but to remember the pill time and take it. The aim of this paper is to build a Smart Pill Box for Medicine Reminder and Monitoring System. When the pill time has been set, the pillbox will remind clients or patients to take pills utilising 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. This model can aid in helping elders to take their medication.

II. PROBLEM STATEMENT

2.1 Understanding Problem Statement

As pills have taken such an important role in everyday life there has been the past years an increase in the number of medical neglect cases related to incorrect medication given to patients, such as the case of the nurse who gave a patient a paralytic instead of an antacid that was prescribed by the doctor, causing the patient's death. After seeing so many of these cases it is evidently crucial that the correct pill is taken by the correct person at the correct time, otherwise taking an incorrect one or not taking one at all may expose the patient to several dangerous situations, ranging from mild health issues up to death. This problem will most surely be a cause for concern for the people surrounding the pill-taker, as not taking a pill at the correct time can cause severe problems such as organ rejection in a patient with organ transplant or heart attack in patients suffering from grave heart conditions. There are situations where taking an incorrect amount of pills is a matter of the patient's inexperience and/or ignorance. No matter the cause, it has been proven that there is a significant risk of people ending up swallowing the incorrect medication or dose.

2.2 Benefits:

1. This helps seniors remain independent at home.
2. Remind the patient to take the right medication and right dose at the right time, every day.
3. Prevent medication errors .
4. Improves management of medication.

III. PROPOSED SYSTEM

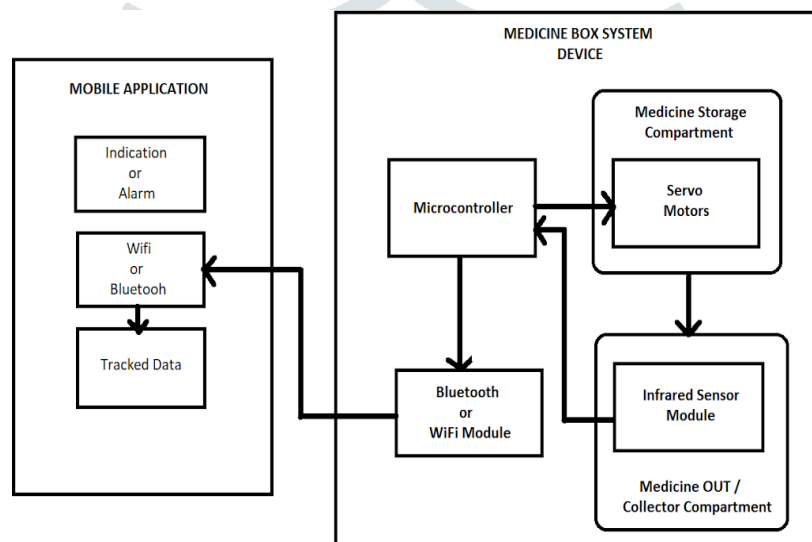


Fig. 1 A Block diagram of the system.

In the block diagram, there are two systems. First is the main Smart Box, and the second is the mobile application. Both of the systems will be connected through Wifi Module. The reminder and alarm will be saved and set on the mobile application. Now Smart Box will consist of six different compartments for six different medicines. The specific compartment will be controlled by specific servo motors for each compartment which will help to bring medicine to the collector compartment. These specific servo motors will be controlled by a mobile application which we have created. A timer will be set for a specific servo motor at what time they should bring medicine to the collector box. At the bottom of the box, there will be the opening of a collector box from where a person has to collect the medicine which will open by servo motor with the help of IR sensor. The IR sensor will detect hands and after detecting a hand a signal will be provided to the servo motor below the collector box. Now a person has to take the box in hand and have to put another hand at the bottom of the box where specific medicine falls on the hand of a person. The data that a person has taken medicine or not will be saved in a mobile application.

IV. RESULTS AND DISCUSSIONS

In this paper we have made an IOT device which is always connected to our mobile using an Android application which is developed by us from scratch. The glimpse of an Android application and its UI is given below for better understanding. The 3D model of the IOT device is also made and shown in the given figure.

Fig. 2 represents a UI and layout of the android application where one can set an alarm for medication.

Fig. 3 represents a 3D model of the IOT device which includes servo motors and sensors inside the box.

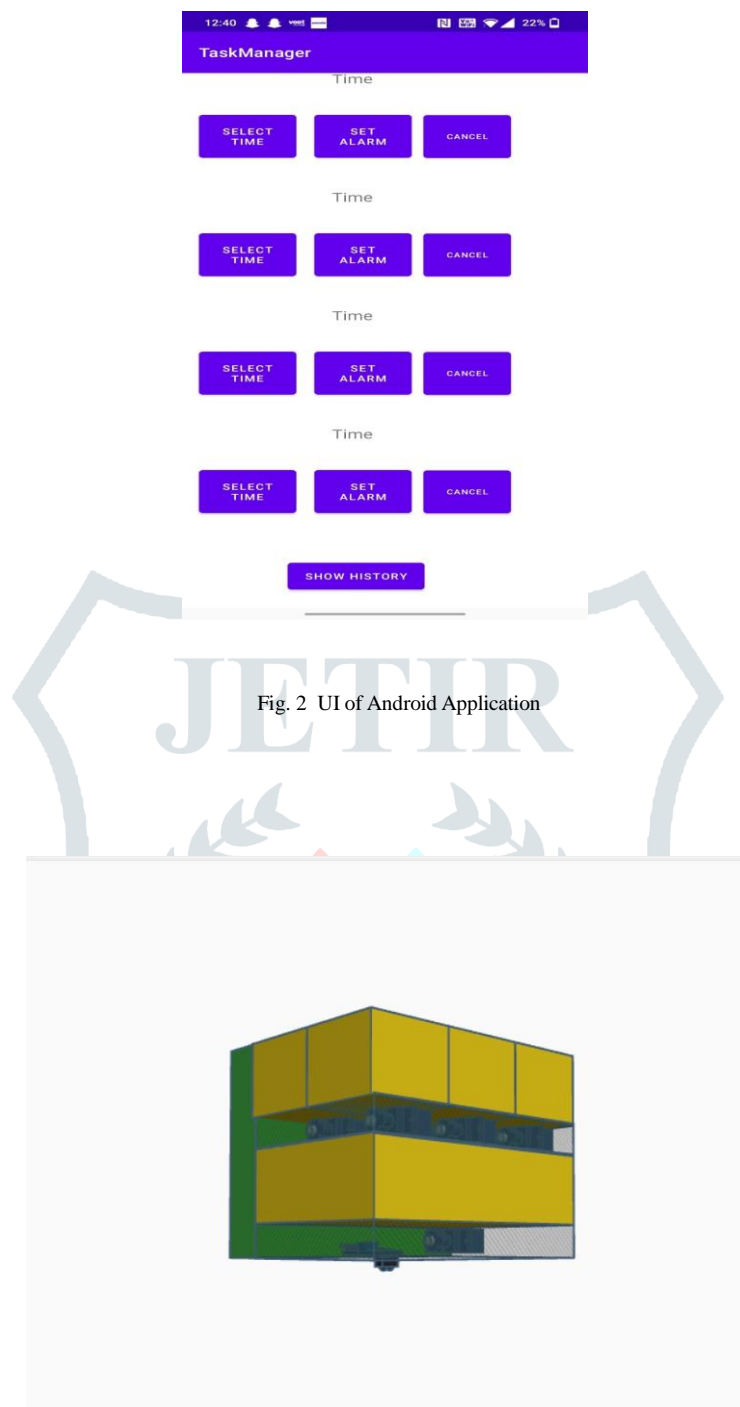


Fig. 2 UI of Android Application

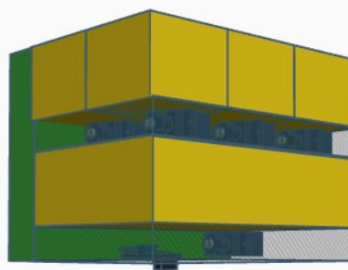


Fig. 3 3D model of IOT device

V. CONCLUSION

A MED-FOR-YOU pillbox is proposed and actualized in this paper. It illuminates the elder and chronic diseases people take medication. It productively controls the season of senior citizens to take medication. It additionally diminishes the proportion that patients miss and defer taking medication.. Which adds more functionality by applying more usability through networking locally or using the internet if it is available. The outline design is too appropriate for the medication bundles. Later on, we trust that the vitality sparing and compact can be considered. In this way, missing and deferring taking solutions can be totally eliminated. When designed and deployed properly, this new healthcare paradigm will have a significant impact on the world today. It will save lives, increase efficiencies and lower overall healthcare costs. Proper execution requires capabilities in several areas including medication adherence, pharmaceutical workflow, patient needs, regulatory standards, manufacturing and supply chain, engineering design, and testing and validation.

5.1 Future Scope:

1. Prescription Scanner can be added in Android Application which will scan all the medicines in Prescription Paper and order it online with partnered Medicine Delivery Services.
2. To make people use this device and take medicine daily without missing out, we will add goals features in an android application that means if a person took medicine for continuous 15 days we will give him a coupon for medicine where he can get some discount after purchasing the medicine and can also get other cash rewards.
3. To make it more convenient to use we can also allow it to connect smart speakers such as Alexa Echo where timer can be set by just saying it Alexa. Means it can be voice controlled.

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