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Intelligent Medicine Reminder System

Anuj Mahto[1], K Karthiga[2] Nitish Biswas [3], R Prakash[4]
[1](*Lecturer Ece, Dr B.R.Ambedkar Institute Of Technology,Port Blair, India)*
[2](*B.Techece, Dr B.R.Ambedkar Institute Of Technology,Port Blair, India)*
[3](*B.Tech Ece, Dr B.R.Ambedkar Institute Of Technology,Port Blair, India)*
[4](*B.Tech Ece, Dr B.R.Ambedkar Institute Of Technology,Port Blair, India)*
Corresponding author; Anuj Mahto

Abstract*: Due to forgetfulness, people with dementia need assistive technologies for managing medications. In this paper we present a smart medicine reminder system for unobtrusive medication for people with memory-degrading conditions. Unlike existing pill dispensers, our system not only reminds a patient on time of medicine intake, also provides user the freedom to enter his own dosage timing as per the doctor's prescription. The experimental evaluation of prototype system shows that it effectively monitors medication adherence and is very easy to use.*

Keywords-*medication adherence, assistive technologies, smart system, dementia.*

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I. INTRODUCTION

Dementia is a syndrome, which degrades the memory, thinking, behavior and the ability to do the works everyday. According to WHO, 47.5 million people had dementia in 2015, and 7.7 million new cases appear every year [1]. Many people afflicted by dementia also have other diseases, such as hypertension, arthritis, diabetes, urinary tract infections, heart diseases, etc. [2], and hence receive several drugs simultaneously. For people with degrading memory conditions, managing their medications is not always easy or even possible. They either forget to take one's medicine or even worse, do not remember what they have already taken. Because forgetfulness can derail a dosage schedule or lead to overdosing with serious medical complications, technologies that can assist a forgetful person with medications become increasingly important.

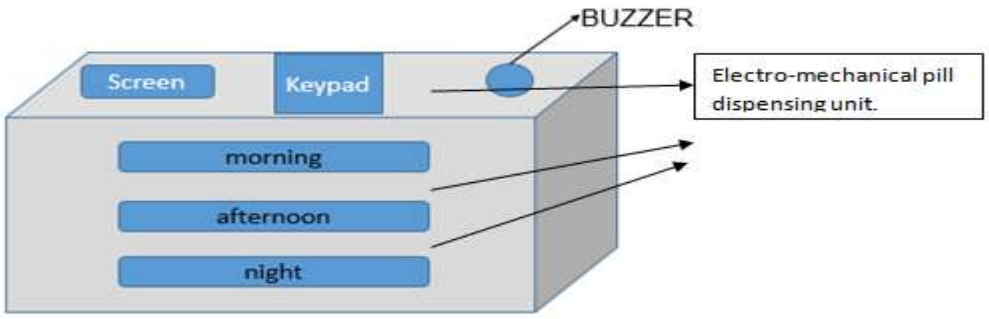
Over the years many technologies have been developed to assist the people in taking their dosages on time, also in remembering their dosage timing. Many are available in the market to remind the people in taking the dosages,MyMeds, RxmindMe [3], etc., can be used on a mobile phones or PDA to remind the users what type of medication to take. The wireless smart-pill bottles [4] can light up, beep and send messages to notify the patient or caregiver when it's time to take medication.

Despite differences in implementation, existing medicationdispensers have one disadvantage in common. That is, all these devices are less user friendly to the senior citizens. Most of the senior citizen peoples are not very comfortable with using the smart phone apps such as RxmindMe. So, In this paper we present a new system with less complexity and ease in operating for assisting memory impaired people with medication.

II. PROPOSED SYSTEM

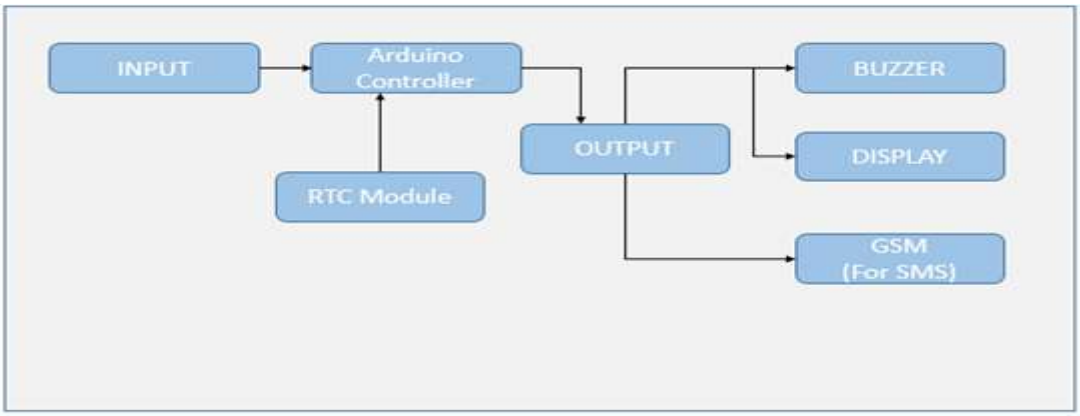
The proposed system will allow the user to provide three inputs (dosage timings), as prescribed by the doctor. The system will then notify the users about their dosages. The system will give the notification through SMS, a buzzer will be connected with the system (it will assist the blind people), that will ring when it is time for medication.

In addition to all these,the electro-mechanical pill dispenser opens the appropriate chambers at the time of dosage and it automatically closes after that, remains locked until user prompts to do so.



III. BLOCK DIAGRAM

The input is fed through the keypad present in the system, the dosage timings are being saved in the arduino. The arduinois interfaced with a RTC module, the current time is always synchronized, thus it helps in giving the indications on the right time.



INPUT: This unit is used to provide the dosage timings to the system (arduino), the user is free to alter the timing based on his doctor's prescription.
ARDUINO CONTROLLER: This unit is used to control the entire system and synchronize the various unit as per their function.
RTC (REAL TIME CLOCK): This is interfaced to provide the current timing to the system, without any delay.
BUZZER: Used for indicating (sound will be generated, so as to facilitate blind people).

DISPLAY: This is provided in order to show the people about their inputs.
GSM: This unit is incorporated with the controller to send the SMS regarding the dosage timing to the user.

IV. OBSERVATION

Fig. 1.1 Display unit

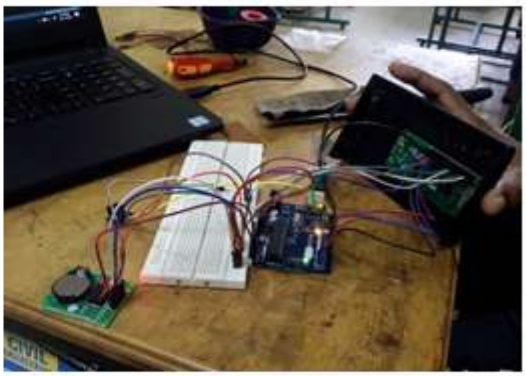


Fig. 1.2 RTC and various unit interfaced together

Fig. 1.3 Input from the user

V. Conclusion

The available systems in the market is not so user friendly, the system proposed and developed in this paper is very much interactive and user friendly. The system explained in the paper is less complex. The user himself can provide the dosage timing without any hassle. Also from this system, the user will be notified through SMS.

This system will help the visually impaired persons by giving the sound when the dosage time comes.

Hence, the system presented through the paper is very much reliable and provides hassle-free services to the users.

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