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Digital Pill Box using Arduino

Anjali D. Kurzekar, Bhagyesh K. Bhavsar, Khushabu B. Nandanwar, Nishigandha K. Ambekar[4], Lokesh P. Nikhade[5]

[1,2,3,4]Student, B.E(Appearing), Department of Electronics and Telecommunication Engineering, Government College of Engineering, Chandrapur, Maharashtra, India
[5]Assistant professor, Department of Electronics and Telecommunication Engineering, Government College of Engineering, Chandrapur, Maharashtra, India

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ABSTRACT- *Medical errors are occurred due to fact that patients, caretaker, have to deal with sorting time and dosages. This paper gives information about design, concept, and creation of digital pill box. This digital pill box mainly focuses on patient who deals with problems of sorting and recalling medicine.*

Our pill box is reliable and user-friendly that enables patient and caretaker to determine the timing of pill. These digital pill boxes contain three sub pill boxes. Client can set up time for these three sub pill boxes. At a time when time of pill is set, pillbox will remind to take pill and generate message. Here we can record our own message to make system more user-friendly.

Key word-DOSAGES, SORTING, DIGITAL PILL BOX, CLIENT, USER-FRIENDLY.

1. INTRODUCTION

There are many individuals, who depend on their family members and caretaker for medical needs. Especially elder people due to aging faces problem is memorizing, and poor eye sight. People may have forgot to take dosage of medicine on time. To avoid these problem, always need observation or taking medicine on risk, we find solution. Pillbox already exist but has disadvantage due to more complexity or due to not suitable to use in day to day life.

In order to make pill box useful, we have to make fusion of both technology as well as simplicity. So that elders also can handle it with no hesitation of technology.

2. PROBLEM STATEMENT

As pill have taken important role in daily life, there has been the year increases number of medical neglected cases related to incorrect medication given to patient [6]. Usually there are wide ranges of pill an elder people to take at different time. It is challenging to take right medicine on right time. Explain by fact that ability as sight, logical capacity, memory decrease with increase in age, making difficult to remember pill time and increase risk [8]

According to a 2008 study published in journal of American Medical Association, more than 40 percent of American age 65 and older take five medicine a day. As people grow old human body tends to forgot things, and possibilities of wrong pills being ingest by patient are caused by patient themselves. [7]

3. RELATED WORK

Technologies are accelerative improving now a day. Healthcare field invented many new inventions. One of those is pill box. Automatic pill box created for patients especially for elders. In early buzzer was use in pill box. But now many more inventions are done by different manufactures with various functionality. The pill box available in market have many more functions but this increase complexity to understand sometimes.

On other hand there is increase in amount of prescribed medicine. The main job is to avoid sorting confusion of medicine.

An electrical pill box was designed called Med Tracker. Here open and close time of the lid of box is recorded and send to the personal computer via a Bluetooth link, but system has disadvantage that Med-Tacker does not provide reminder or recalling function [1].

An intelligent pill box was proposed. The IPB based on medicine bag system and can send medicine bag out of box at appropriate time. If it is miss, then notification is carried out via skype. It improves interaction between patient and caretaker by simply providing update of medication, here system has disadvantage that messaging is depend on network, system faces problem when internet connection is not available [2].

Pill box using microcontroller MCS-51 was proposed. That pill box sends medicine using stepper motor at scheduled time. But these systems have few disadvantages as no provision to record time when the patient actually takes the medicine [3].

Proposed approach of multidisciplinary, which helps to get trustful eHealthy monitoring system. There is contribution of IOT, wireless body area network and cloud computing help to improve quality of medical

healthcare. Patient centric system which involve aspect of data analysis, data transmission is well designed [4].

Developed a medication safety and help to avoid confusion of tablet specially among elders. These paper proposed a smart pillbox with reminds. This pill box proposed can reduce responsibility of patent and decrease dependency of them [5].

Proposed smart healthcare architecture named as BCEP care. These is IoT based healthcare application. The process use includes -1) decompose CEP and generate number of sub-occasions, 2) determining connection among sub occasions. Lastly 3) utilizing the bunching calculation kill duplication and accomplish outstanding task at hard parity [9].

This paper used two different clouding body for service uses. 1) Ingestible smaller than normal gadget, is utilize to review track of picture are transmitted to cloud for further handling process. 2) wearable gadget for consistent and long – term checking of photoplethysmogram(PPG) and electrocardiogram (ECG) [10].

4. BLOCK DIAGRAM

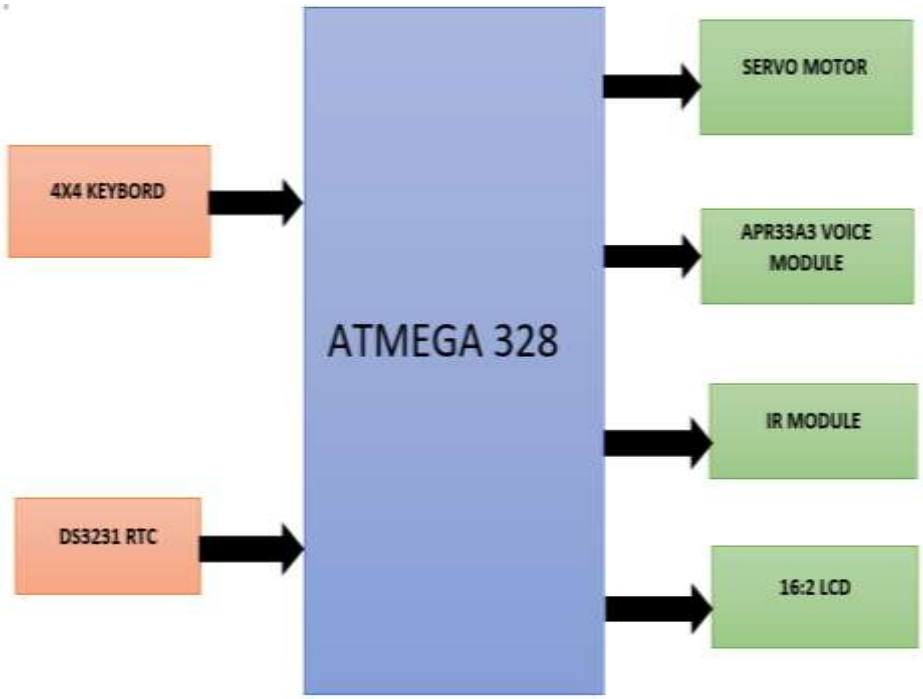

FIGURE 1- Block diagram of digital pill box.

5. FLOW CHART

FIGURE 2-flow chart of digital pill box.

6. PROPOSED SYSTEM

This system uses 4x4 keyboard to feed time, 16:2 LCD to display message, RTC-DS3231 module to compare real time with set time. APR33a3 module to record the voice message, SG90 servo to open pill box automatically.

The device work on three stages-

a) Initial stage involve user to enter information about pill for each sub pill box by using keyboard.

b) Comparison stage- during this stage device compares the sub box information with RTC time.

c) Reminder stages- once the information match, high signal goes to servo motor of respective sub box and voice module also get high signal and generate the message.

7. CONCLUSION

The proposed system is a very functioning step for healthcare field help to improve medical safety up to great extent. The main aim of these system is to provide a system which is easy to handle for patients especially for elders easily.

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