

Smart Medicine Reminder Box

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Abstract: *In this paper an advanced medicine box control system is proposed. The medicine box is designed in such a way that it will assist patients in taking their medicine treatment on time. This system can be also monitored by patient. This system characterizes some functionalities like safety and good functioning of the system and security. This application will be used to setting the schedule of medical intake, give reminder to user by alarming and blinking the LED. This application will display the name of medicine as well as date and time on the LCD which will help the user to take medicine on time.*

Keywords: Medicine Reminder, Arduino (AVR), Smart Medicine Box, Setting up time table, IoT, etc.

I. INTRODUCTION

Nowadays we see that there is an increase in diseases that's why people need to take medicines which was not there in the past couple of years. Also with aging some people may forget to take the medicine on time. To overcome or to live a better life we need to take medicines regularly. The main motto of our project is to remind the patient to take medicine on time. In order to make a really useful smart medicine box it had to be easily integrated with recent sweeping smart technologies. At the same time it had to be fit for elders and their limited knowledge and experience to implement the ease of use. Our project is to make an AVR based Smart Medicine box which uses Real Time Clock (RTC).

The proposed smart medicine box with an alerting system has the functions of time to remind and managing the doctor's advice. The system delivers medicines to the patient on time without any other support and also facilitated with an alarm. In our project we set three times to take medicines. First morning period at 10:00 am, second is afternoon period at 1:00 pm and third is evening (night) period at 8:00 pm. User can make changes in it. Every day in the morning at 10:00 am the LED will blink for 1.5 min and the recorded voice will remind the patient to take medicine same for afternoon and evening. Our Medicine box is programmable that enables medical caretakers or clients to remind to take pills, and the service times for every day.

II. PROBLEM STATEMENT

There are several problems related to the high amount of tablets nowadays prescribed to patients are found in hospitals or in retirement homes. In these places one of the main jobs is to give out to its patient the correct tablets. Managing, sorting and giving out the tablets to each one of the patients can sometimes have a high chance of error, with a patient or resident receiving one or more incorrect tablets.

III. METHODOLOGY

3.1 Hardware Implementation

Components required for smart medicine reminder box:

- Arduino Uno
- Speaker
- Microcontroller
- Real Time Clock (RTC)
- Voice record and playback system
- LCD interfacing and LED
- Crystal oscillator
- Capacitor, etc..

Microcontroller: In our system we use an Automatic Voltage Regulator i.e. AVR microcontroller. AVR is an 8 bit microcontroller used for high speed signal processing operation inside an embedded system. It contain on chip central processing unit i.e. CPU, Read only memory i.e. ROM, Random access memory RAM, input or output unit etc. Most of the Arduino boards use a particular type of microcontroller which is AVR i.e. Atmega328 microcontroller.

Voice record and playback system: In the voice record and playback system you can record your voice and play the same voice whenever you need. The voice recorder circuit is used as automatic answering device.

There are mainly three modes in voice record and playback system:

1. Play back mode: By pressing the play back switch, the play mode is start from beginning of the message.
2. Standby mode: After completing the record or playback function the IC will enters into standby mode.
3. Recording: Press the switch M1 and speak through the mic or record the sound and then we see that LED will glow in recording mode.

Light Emitting Diode (LED): In our circuit we use three to four LED's. Three of them are used to detect which medicine patient have to take at that time. This three LED's are multicolour LED's. The purpose behind the multicolour LED is to gain attention of patient towards medicine box. LED has capacity of instant lighting and the ability to withstand frequent switching. In our system LED from each box will blink for 1.5 min which will show the patient a specific box from which medicine need to be taken at given time.

Liquid Crystal Display (LCD): LCD is one of the electronic display module used in various circuits. This display are mainly for multi segment LED and seven segment. LCD monitors tend to have better viewing angled and anti-glare than edge-lit LED's. In our system we used 16*2 LCD module which is connected to AVR through a LCD interface IC or directly to its address and the data bus and few control pins. LCD shows the current time and date which RTC sends the data to LCD module. In our system LCD will display time date as well as name of medicine which patient have to take at that time so that there will be no confusion while taking the medicine.

Real Time Clock (RTC): RTC used to keep track of clock time and calendar date either in software or hardware. The main purpose of RTC is to provide accurate time and date which can be used for various application. In our system RTC is connected to Arduino which will give right time and date on LCD.

Speaker: Speaker will produce sound to hear by the listener and create surround sound. In our system speaker is one of the main device which will create sound and give remind to patient.

3.2 Software Implementation

In our system we use Arduino software. It is very easy to write program once you have thought of the ways to remind taking the medicine. We have used other peripherals like 16*2 LCD display, RTC DS3232, so we first have to add/include those libraries.

IV. RESULT

The solution of this complication is supplemented by the development of an advanced technology supported medicine box called the smart medicine box.

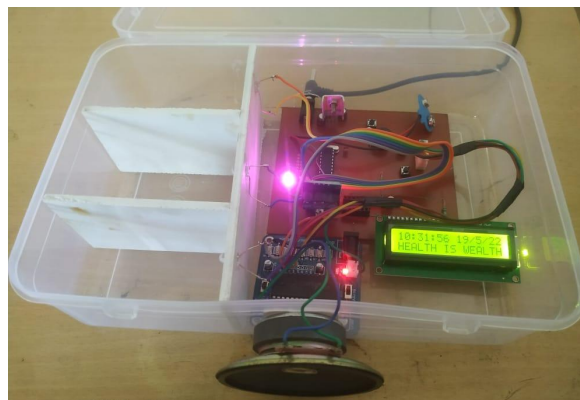


Figure 1: Smart Medicine Reminder Box

V. CONCLUSION

After completion of this project we will ensure that the problem of not taking medicine will be solved. It is specially used for elder people who are not able to take medicine on time.

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