

Smart Medicine Box

[¹] D.Sathishkumar, [²]M.Nethra, [³]V.Rajashree, [⁴]P.Subhasree, [⁵] P.Vanmathy

[¹] Assistant professor (Sr.G)

[²][³][⁴][⁵] Electrical and Electronics Engineering, KPR Institute of Engineering and Technology, Coimbatore, India

Abstract— The project aims to make a smart medicine box for those who regularly take medicines. This work mainly helps the old age people who are suffering from permanent diseases like diabetes, blood pressure, cancer, heart problems and several other health issues. This cabinet will be connected to mobile applications that can cause multiple warnings when the medication is about to finish. It also provides a warning signal when the patient fails to take the medication in time to the care taker. Additionally an information will be sent to the medical store through GPS system when the medication is to be ordered.

Keywords - Arduino, Old age people, Mobile application, Warning signal.

I. INTRODUCTION

In our daily life, we faces many problems, one of the problem is our health problem. Nowadays people are supposed to take many medicines due to some health issues like diabetes, cancer, etc. But we are busy with this fast and modern world, we don't have time to take medicine at regular time. Due to forgetting the medicine at correct time, we faces many health issues. Our project is to made Arduino Uno based Smart medicine box which uses real time clock. The new awaited feature in our project is our system is sensible that patient has taken medicine or not and thus the patient can't postpone the time on which he/she needs to take pills. It is compulsory for the patient to take pills from the box at the right time otherwise our systems continues to make large alarm until the medicine is taken out from the box. This notification feature adds life years to the patient.

II. PROPOSED SYSTEM

The proposed system is to help the elders and uneducated people to take their medicine properly. Power supply is applied to the Arduino module. RTC, LCD, Buzzer, LED are connected with Arduino. Real time clock can be worked even without power supply because it is a battery backup power clock, it will always working whether external power supply is applied to it or not. RTC module contains a 3V CMOS cell. Certain medicine box is connected in which user will load the pills. When system gets started time and date will show on LCD module. At the time setted by the user, buzzer will ring and LED will

blink in the desired box notifying the user to take the pill from the box. Buzzer and LED will continuously notify until the user take the pills from that desired box. If the medicine is about to finish, it sends message to the medical store to place order of the particular medicine and also it sends message to the care taker to notify whether the patient had taken the medicine or not through GPS system.

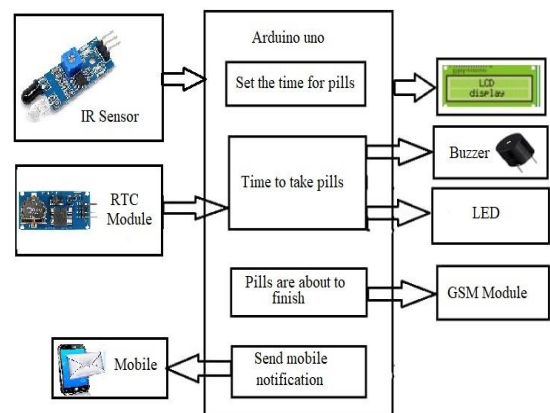


Fig 1. BLOCK DIAGRAM

III. LITERATURE REVIEW

According to the World Health Organization, more than 80% of people over the age of 60's are prescribed to be administered 2-4 times a day. With the rise in cardiovascular diseases and diabetes among peers, periodic administration of medicine has become a requirement. But among this, another 40-60% has the

**International Journal of Engineering Research in Electrical and Electronic
Engineering (IJEREEE)**
Vol 6, Issue 2, February 2020

problems of forgetting to take medications at the correct moment. The present popular reminder market methods include a standard pill box alarm. But this doesn't inspect patients for overdose and incorrect dosage. It only utilizes a clock that produces an alarm at the passage of a fixed moment. In addition, there is also no timely alert for the customer to refill the pill box, resulting in breaks during treatment. Sensing of pill box slots can be performed using both Load Sensing and Light-based sensing methodologies. The advantage of slot-based sensing is that it is feasible to detect individual moment sensing over dosage issues and inaccurate dosage issues. The study of multiple slot sensing methods was conducted both analytically and practically and comparisons were conducted between modes.

IV. HARDWARE DESCRIPTION

A. Arduino UNO

Arduino Uno is a microcontroller board based on 8-bit ATmega328P microcontroller. Along with ATmega328P, it consists other components such as crystal oscillator, serial communication, voltage regulator, etc. to support the microcontroller. Arduino Uno has 14 digital input/output pins (out of which 6 can be used as PWM outputs), 6 analog input pins, a USB connection, A Power barrel jack, an ICSP header and a reset button.



Fig 2. ARDUINO UNO

B. Real Time Clock

Real Time Clock or RTC is a system that keeps track of the current time and can be used in any device which needs to keep accurate time. It also keep tracking the exact time without using RTC systems.



Fig 3.RTC MODULE

C. LCD

A Liquid Crystal Display commonly abbreviated as LCD is basically a display unit built using Liquid Crystal technology. The most basic form of electronic display available is 7 Segment display – which has its own limitations. The most commonly used one is 16×2 LCD Module which can display 32 ASCII characters in 2 lines (16 characters in 1 line). It is used to display the time and date.



Fig 4. LCD

D. Buzzer

A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke. It indicates the patient when time is over to take medicine.



Fig 5.BUZZER

E. IR Sensor

An IR sensor can measure the heat of an object as well as detects the motion. These types of sensors measure only infrared radiation, rather than emitting it that is called a passive IR sensor.



Fig 6.IR SENSOR

**International Journal of Engineering Research in Electrical and Electronic
Engineering (IJEREEE)**
Vol 6, Issue 2, February 2020

F. GSM Module

A GSM modem is a device which can be either a mobile phone or a modem device which can be used to make a computer or any other processor communicate over a network. A GSM modem requires a SIM card to be operated and operates over a network range subscribed by the network operator.



Fig 7.GSM MODULE

V. RESULT AND CONCLUSION

To improve medication safety and to avoid confusion in taking tablet among the elderly, this paper proposed a smart pillbox with remind and confirm functions. The proposed pill box can reduce family member's responsibility towards ensuring the correct and timely consumption of medicines. Because the proposed pillbox containing an alert sound to the user for a particular time and real-time clock gives continuous time as an output.



Fig 8.HARDWARE SETUP

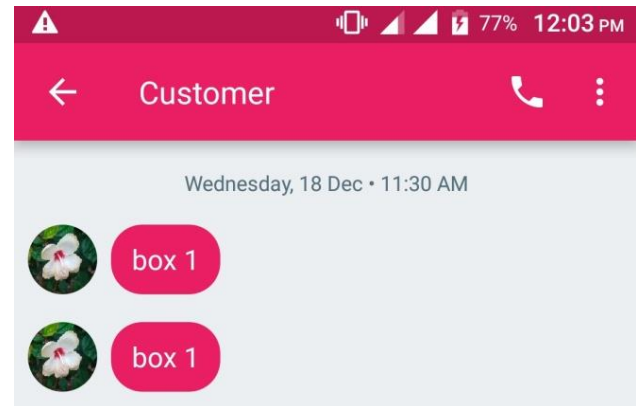


Fig 9.COMMUNICATE TO PHARMACY VIA SMS

REFERENCES

- [1] Viral Shah, Jigar Shah, Nilesh Singhal, Harsh Shah & Prof. Prashant Uapdhay, "Smart Medicine Box", Imperial Journal of Interdisciplinary Research(IJIR), Vol-2, Issue-5 ,2016.
- [2] Naga Udayini Nyapathi1, Bhargavi Pendlimarri2, Karishma Sk3 , Kavya Ch4,," Smart Medicine Box using ARM 7 Micro controller", International Research Journal of Engineering and Technology(IRJET) , Volume: 03 Issue: 05 | May-2016.
- [3] Aakash Sunil Salgia*, K. Ganesan and Ashwin Raghunath, "Smart Pill Box", Indian Journal of Science and Technology, Vol 8(S2), 189–194, January 2015.
- [4] P. Raga Lavima1, Mr. G. Subhramanya Sarma2, "AN IOT BASED INTELLIGENT MEDICINE BOX", IJCSMC, Vol. 4, Issue. 10, October 2015, pg.186– 191.
- [5] Suneetha Uppala1, B. Rama Murthy2, Smart Medicine Time Indication Box, International Journal of Science and Research (IJSR), Volume 6 Issue 1, January 2017.
- [6] Aakash Sunil Salgia*, K. Ganesan and Ashwin Raghunath(January 2015), Smart Pill Box, US2009/0299522 A1.
- [7] Bo pi, Halton pi (May 5, 2016), Smart pill container, control method and system, US 20160120758 A1.