

IOT Based Automatic Medicine Reminder using Arduino

Sayali Kuchekar, Bhagyshri Korde, Gayatri Doiphode, Alisha Kharat

Electronic & Telecommunication Department & Phaltan Education Society's college of engineering Phaltan

Electronic & Telecommunication Department & Phaltan Education Society's college of engineering Phaltan

Electronic & Telecommunication Department & Phaltan Education Society's college of engineering Phaltan

Electronic & Telecommunication Department & Phaltan Education Society's college of engineering Phaltan

Abstract- This project patient medication reminder could also be a system which helps in medication administration and monitoring. This method consists of an ATMEGA328P microcontroller with an inbuilt EEPROM and a real-time circuit. This method is driven by an embedded program that inputs predefined parameters which are processed supported the input variable entered via a programme device just like the keypad. All the entices made on the keypad are concurrently and simultaneously displayed on the LCD panel of the device. The logic for the processing is formed into the embedded program to initiate the alert through an audio alarm. Not only does it have a device, but also an LCD which displays the medication to be taken at the reminder time. Also, it's Wi-Fi module to send the E-mail to the respective person which we are visiting use GSM module to send SMS to the particular person, so he can take medicines although he's apert from this machine.

Key Words: Arduino Uno, GSM Module, Wi-Fi Module, Real Time Clock, IOT

1. INTRODUCTION

In our busy and hectic life, we sometimes forget to require medicines on time. In hospitals it becomes difficult for doctors to remind every patient to require the medicines on time. The proper solution for this problem should be an Automatic Medicine Reminder alarm which can alert the patient either by sending email/SMS or by triggering some alarm. In daily life the overwhelming majority of people must take drugs which wasn't there in recent years and also the explanation for this is often infections are expanding in enormous sum. So sometime numerous individuals interact with these illnesses. Some illnesses are transitory sicknesses while many are perpetual hazardous infections. Dangerous infections get blends in with the form in order that they cannot leave the body ever and that then increments in fast time. Lifespan of individuals clothed to be less a results of such infection and to survive or to hold on with a superior life we want to require meds routinely and further more in huge sum. We must always be in guidance of Doctor who instructs us to require wanted pills in wanted manner so patients face issues like failing to recollect pills to require

at ideal time and furthermore when Doctor changes the medication of medication patients have to recall the new timetable of medication. This issue of neglecting to require pills at opportune time, taking incorrectly medications and incidentally taking of lapsed medication causes medical problems of patient and this experience the ill effects of undesirable life.

2. Block Diagram

The medicine reminder system is powered using 5V supply. When it first boots up, it shows a welcome message as "Medicine Reminder System". The LCD screen is set to cycle in three screens. The 1st screen shows message as "Stay healthy, Get well soon". The second screen is a help screen which tells to press select push button to select any one time slot to remind (once/twice/thrice in a day). The time slot is changeable in program and can be configured accordingly. We have divided time slots into three modes. Mode 1 selects to take medicine once/day at 8:00 am. When user press 1st push button. Mode 2 selects to take medicine twice/day at 8:00 am and 1:00 pm. When user press 2nd push button. Mode 3 selects to take medicine thrice/day at 8:00 am, 1:00 pm, 8:00 pm, if user press 3rd push button. When user selects desired slots by pressing push button, the user input is recorded and the time is taken from RTC. When time is matched with selected time slot then the buzzer starts buzzing. User can stop the buzzer by pressing STOP button. If user will not stop the buzzer then buzzer buzzing within 5 second.

We are using GSM module for sending the message from system, and NodeMCU for the sending the mail from the system. As buzzer alarms simultaneously system sends the message to the patient also it sends the mail to the patient through NodeMCU

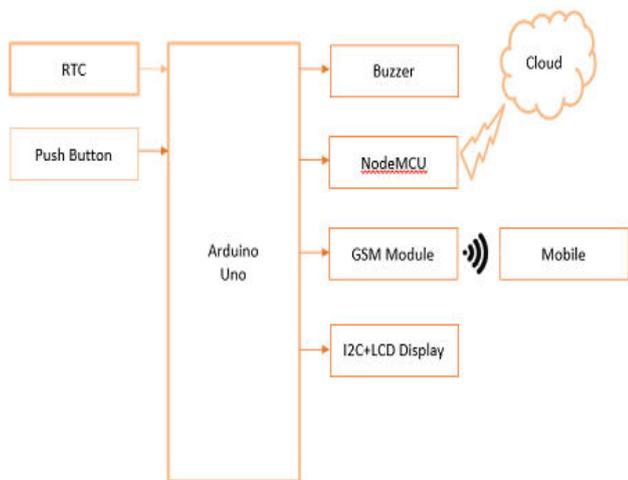


Fig.1: Block Diagram of Automatic Medicine Reminder System

RTC is connected to Arduino Uno for timing operation that helps in scheduling the time for taking medicine by the patient. We've divided time slots into three modes. Mode 1 selects to require medicine once/day at 8am when user presses 1st electric switch. Mode 2 selects to require medicine twice/day at 8am and 8pm when user presses 2nd button. Mode 3 selects to require medicine thrice/day at 8am, 2pm and 8pm if user presses 3rd button. When user selects desired slots by pressing push buttons, the user input is recorded and therefore the time is taken from RTC. When time is matched with selected slot then the buzzer starts buzzing. User can stop the buzzer by pressing STOP button. The identical process continues for the following slot reminder.

C) LCD



Fig.4: LCD

Here we used 16*2 LCD for displaying status of soldiers. It's accustomed display the temperature, heartbeat rate, current time, date and position of the soldiers. Liquid crystals don't emit light-weight directly. LCDs are accessible to display arbitrary images(as in an exceedingly, during a very all-purpose pc or laptop display) or mounted pictures with low info content, which can be displayed or hidden, like predetermined words, digits, and 7-segment displays as during a very digital clock. They use constant basic technology, except that arbitrary pictures are created from a bigger sort of tiny pixels, whereas different displays have larger components

3. HARDWARE

A) Aurdino Uno (ATMEGHA321)



Fig 2: Arduino Uno

The Aurdino Uno board may be a microcontroller supported the ATmega 328P. Its 14 digital input/output pins within which 6 are often used as PWM outputs, a 16 MHz ceramic resonator, an ICSP header, a USB connection, 6 analog inputs, an influence jack and a push. Arduino Uno is that the most traditional board available and doubtless the simplest choice for a beginner. Its biggest advantage is that we connect the board to the pc via a USB cable which does a dual purpose of supplying power and acting as a port to interface the Arduino

D) Wi-Fi module

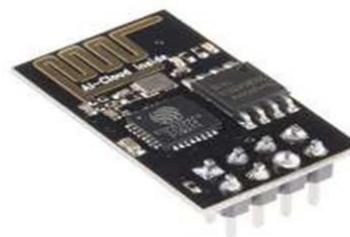


Fig.5: Wi-Fi module

The Wi-Fi module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your Wi-Fi network. This is capable of either hosting an application or of folding all Wi-Fi networking functions from another application process. One useful feature of Uno Wi-Fi is support for OTA (Over-The-Air) programming, either for transfer of Arduino sketchers or Wi-Fi firm wave.

B) Real Time Clock (RTC)



Fig.3: Real Time Clock

E) GSM module



Fig.6: GSM module

At the center of the module may be a SIM800L GSM cellular chip from SimCom. The operating voltage of the chip is from 3.4V to 4.4V, which makes it a perfect candidate for direct LiPo battery supply. This makes it an honest choice for embedding into projects without plenty of space. All the mandatory data pins of SIM800L GSM chip are broken intent on a 0.1"pitch headers. This includes pins required for communication with a microcontroller over UART. The module supports information measure from 1200bps to 115200bps with Auto-Baud detection. The module needs an external antenna to attach to a network. The module usually comes with a Helical Antenna and solders on to NET pin on PCB. The board also Includes a UFL connector facility just in case you wish to stay the antenna for away from the board.

E) Buzzer:



Fig.7: Buzzer

Buzzer is an audio signaling device. Which may be mechanical, electromechanical or piezoelectric. Use of buzzers include alarm devices, timer and confirmation of user input. The buzzer consist of an outside case with two pins to attach it to power and ground. When current is applied to the buzzer it cases the ceramic disk to contract or expand. Changing this causes the surrounding disc to vibrate. That's the sound you hear.

F) Push Button



Fig.8: Push Button

An electrical switch or just button may be a simple switch mechanism to regulate some aspect of a machine or a process. Button are typically made out of hard material, usually plastic or metal. The switch is sometimes wont to activate and off the control switch appliance that's widely used. It's employed in electrical automatic control circuits to manually send control signals to regulate contactors, relays, electromagnetic starters, etc.

G) NodeMCU



Fig.9: NodeMCU

Overhauled Version of 1M Flash ESP8266 ESP-01 includes Re- mote Serial Port, WIFI Transceiver and Wireless Module (Fig- ure 7). The most recent firmware variant 1.0.1, the default baud pace of 96000, (AT + CIOBAUD= to change the baud rate). The ESP8266 is prepared to do either facilitating an application or off loading all Wi-Fi organizing capacities from another application processor. In the documents area underneath, you will discover numerous assets to help you in utilizing the ESP8266, even guidelines on the.

4. FLOWCHART

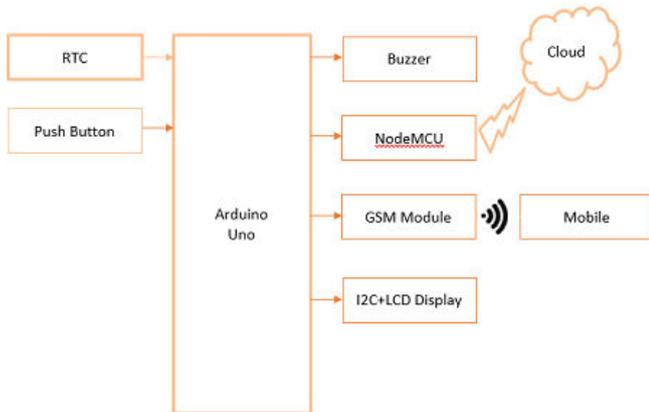


Fig.10: Flowchart Of Proposed Work

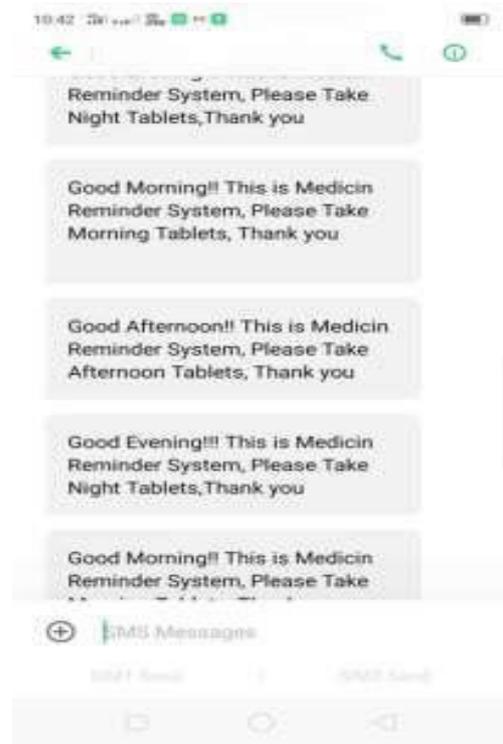


Fig.12: Medicine reminder to the patient through message

5. RESULTS AND DISCUSSION

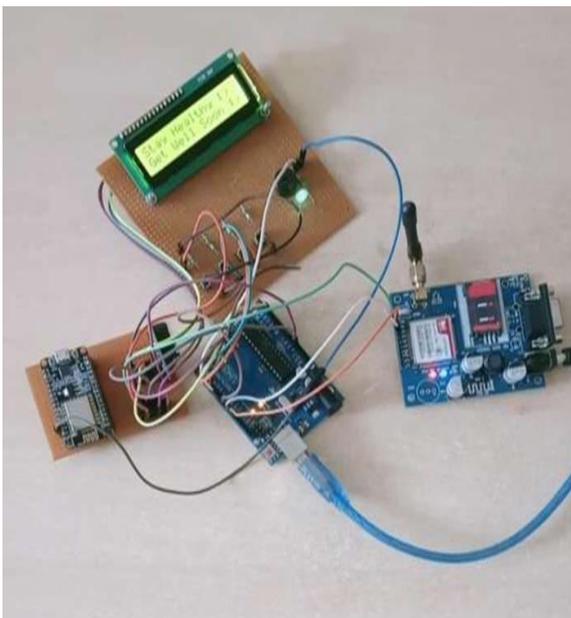


Fig.11: Showing message to the patient using medicine reminder system

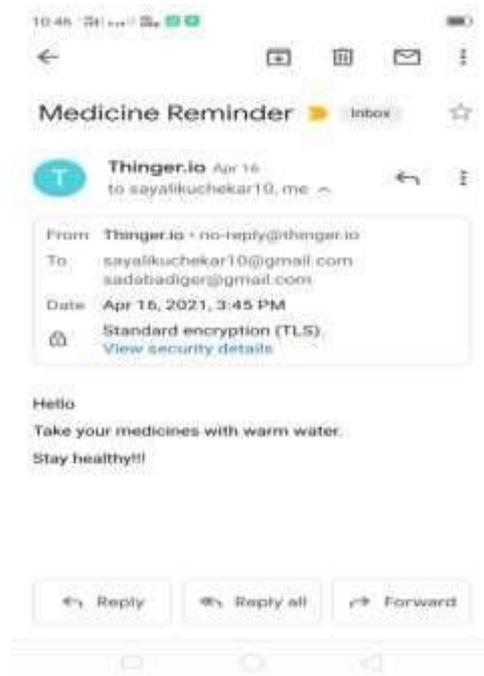


Fig.13: Medicine reminder to the patient through mail

6) CONCLUSION

The goal of our project is to provide healthy and tension free life to those users who are taking regularly medicines. It also helps to take medicine at right time. For Alzheimer's patient it is very helpful. It is smart an organized system that is designed with helping the elderly people in our homes. , "Smart drugs: Improving healthcare using Smart Pill Box for Medicine Reminder and Monitoring

7) REFERENCES

- [1] Daa Salama Abdul, Minaam Mohamed Abd-ELfattah System". Future Computing and Informatics Journal Volume 3, Issue 2, December 2018, Pages 443-456
- [2] Shih-Chang Huang; Hong-Yi Chang; Yu-Chen Jhu; Guan-You Chen "The intelligent pill box - Design And implementation". 2014 IEEE International Conference on Consumer Electronics – Taiwan.
- [3] Ying-Wen Bai; Ting-Hsuan Kuo, "Medication adherence by using a hybrid automatic reminder Machine", 2016 IEEE International Conference on Consumer Electronics (ICCE)
- [4] Geng Yang; Li Xie; Matti Mäntysalo; Xiaolin Zhou, "A Health-IoT Platform Based on the Integration of Intelligent Packaging, Unobtrusive Bio-Sensor and Intelligent Medicine Box" IEEE Transactions on Industrial Informatics, Volume: 10, Issue: 4, Nov. 2014.
- [5] Pang Z. Technologies and architectures of the internet-of- things (IoT) for health and well-being. Ph.D. dissertation. Stockholm, Sweden: Dept.Electron.Syst, School Inf. Commun. Technol., Royal Inst. Technology (KTH); 2013.