Smart Pill Box

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Abstract- Many times due to work people from all categories i.e. from younger age to older age don't remember to take their medication on time. So people suffering from chronic diseases have to take their medication on given time. The proposed system represents a real time automatic system for people who take tablets on regular basis, nurses who take care of the elders, patients or vitamin supplements. This system is based on real time which reminds the users and nurse's about the specific medicine is to be taken at particular time of day. System contains two separate boxes. The medication timing can be set by using keys, and the system will also remind the user to take a particular medicine using alarm system, light and voice. The exact container from where we have to take the pill is displayed by glowing an LED in that particular box. GSM is also used for sending sms to relatives and doctor. Further the data will be updated to server for further actions.

Key words— IOT, ARM7, Embedded System, micro- controller, RTC.

1. INTRODUCTION

In today's life, peoples are having trouble to recall the medicine they have to take. Many a times the problem which occurs is the time not printed on the box of medicine or they won't remember it. Some people are also not able to read English. Due to this, they could not take proper dosage. Many patients are having chronic diseases so they have to take their respected pills over a continued period of time in order to steady their conditions. Guaranteeing that the patients devour the correct drug at the fitting time ends up essential. This project deals with the time at particular, the Patient needs to take pills. The timing is set to the system initially reminding and it can be changed by the patient according to his requirement. The system will start alarm at that particular time. Right now, overall maturing and consistency of diligent infections are complimenting a wide concern. Various nations are experiencing doctor's facility rebuilding by decreasing number of clinic beds and heightening home social insurance, which is imagined to liven up human services quality, has interested wide-extending consideration. So as to follow the physical status of the older and, in the then, to keep them sound, the proposed thought will be useful. IOT grows the Internet into our regular day to day existences by remotely associating different shrewd items, and will get huge hangs the manner in which we live and interface with keen gadgets. The new wave in the period of figuring will be outside the circle of the customary work area. Internet of Things (IOT) is where a considerable lot of the items that encompass us will be arranged in some shape. By using this technology the health statistics of medication are observed. In this process of encryption the schedule data or doctor's prescription are send to pill box through mobile app. The LEDs are placed for indication and buzzer for alarm alerts and reset button is used to count for medicine in cloud platform. The techniques which exist in the market for the reminder include alarm only. But this does not help in checking the medicine. This proposed system is valued solution to the medical noncompliance issue. The innovation scheme to help patient keep trail of their medicine consumption through a series LED alarm indicator signal and audio alarm indicator signals to make the user-friendly system, the LCD, and Keypad connected to the system. This helps to change pills time.

2. MOTIVATION

1. Medical assistance for older age people and a patient who daily need medicine.

2. Reminder for medical schedule.

3. Pop ups for medical health checkups.

3. OBJECTIVE

The main objectives of the project are:
1. Dispense of drugs from pill box at listed time.
2. Medicinal alerts to the person who takes care of users.
3. Online report generation of medicine
4. Real time SMS sending to care taker and Doctor.

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4. LITERATURE SURVEY

[1] A system for improving the efficiency of life by upgrading the comfort to organize the information and enhancing the security was proposed by L. Ilkko and J. karppinen. The three key roles of a centralized home system discussed in this paper are:

a) For the purpose of single point of control and remote analysis of data, registered systems which have pre-existing interfaces are used.

b) The end user will see a interface that is designed to adapt based on the content provided by the devices that are used in operation around the user. This acts as a Data Gateway for our system.

c) We will keep track of the medicine kit by using web browser. For keeping track of the medical kit activity and to remind the users i.e. elderly and the medical care professionals, ub pill devices based on local home servers have been designed.

[2] For the achievement of reliable and smooth eHealth care system, approaches that were based on more than one sectors of health care were put forward by A. Sawand, S.Djahel, Z. Zhang, and F. Na. in 2014. To improve the factor of medical health care a combination of wireless body area network, internet of things and computing over cloud have helped a lot. The roles of systems which aim to monitor the care assigned to an individual patient depend on collection and exchange of aggregated data which is further analyzed. This paper discusses all the components of that are involved in the cycle of data monitoring and the obstacles faced in the design process to achive sufficient quality. The various soluctions to overcome these problems are also discussed.

[3] To serve the poorly educated and disabled elderly, a system to track and organize inhouse medicines and drugs based on Radio Frequency Identification was designed by Malabika Parida, Huan-Chi Yang, Shiang-Wen Jheng, Chung-Jen Kuo in 2012. In this system, a medicines with or without tags for RFID can be tracked. Each user is given a HF tag and they can enable traking using a camera along with a reader for RFID.

5. PROPOSED SYSTEM ARCHITECTURE

We are also having a provision of executing a code at high clock rate by enabling unique accelerator of about 128-bit wide memory. Due to small size and less consumption of power we can use LPC2138 for number of applications. It is having two ports for serial communication from 2.0 high speed device, SPI, UART's, On-chip RAM from 4kb to 40kb, SSP to I2C, etc. which makes the device suited for good communication, protocols and many more. It is also having 10bit ADC, 10bit DAC, timers, GPIO pins, interrupts, etc. which makes it comfortable to use in industrial applications. It also contains RTC which plays an important role in our system.

Keys: Keys are used for the user, respective relative nurse to enter the information of time when the smart box would send "reminder". It is also used for the user to enter a number to command a specific pill box to open on a specific time, and user can also enter the frequency medicine name & quantity of medicine to take pills for each day. Keys contain four buttons. Buzzer, enter, increment, decrement.

LCD (16x2): The 16 characters and 2 line LCD to show the date with current timing and medicine which has to be taken.

APR Module: Main purpose of APR module is to play the name of medicine which is to be taken at that particular time.

IOT: The IOT is one of the most emerging technologies in automation, engineering and many of industries. In this system we are collecting data from hardware i.e. from our embedded system then then forwarding it to our database which we have created. Further the same data is uploaded to our server from database. Also the data is stored in database for further assistance if required.by using this we can also secures our data for safety reason.
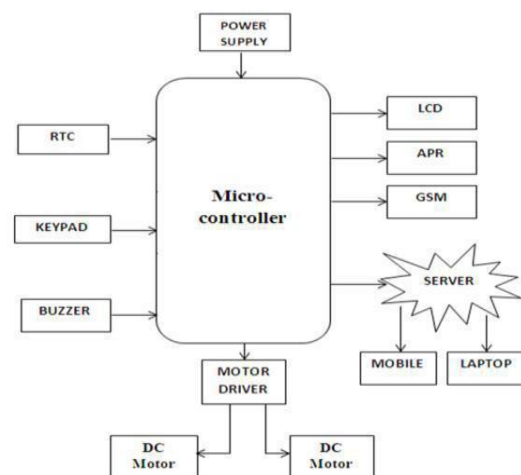

Fig1. Block Diagram

Components used in Smart Pill Box:

ARM7 (LPC2138): ARM7 is 32-bit controller which we can use for real time operations and many more purposes. It is having a high speed flash memory from 32kb to 512kb.

GSM module: GSM module is used in this framework for send SMS of medicine taken by the user to his doctor, care taker and respected relative/ person. If medicine is not to be taken by the user, after that some particular delay of time which we will set in the

system then SMS has been send to care taker or respected relative/ person.

6. CONCLUSION

This system will assure the safety of the people and also Prevent from taking wrong dosages. It will reduce the effort of remembering medicine and people will get the schedule of the medicine containing medicine name timing and quantity of medicine give the information if person is in emergency. It can be a life savior of time, as it reminds patient to take medicine.

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