Voice Interactive Medicine Box with Hospital Automation

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Abstract- *Our project's main aim is to make a Smart medicine box for those users who regularly take medicines and the prescription of their medicine is very long as it is hard to remember to patients and also for their care giver. Also Old age patients suffer from problems of forget to take pills on proper time which causes certain health issues for patients having Permanent diseases like diabetes, blood pressure, breathing problem, heart problems, cancer diseases etc. We saw these problems in hospitals & people around us who have such kind of diseases and thus based on these two problems we made smart medicine box which solve these problems by Setting up time table of prescribed medicines through push buttons as given in prescription. Present time will be saved in RTC module and notification time will be saved in EEPROM. Therefore at the time of taking medicine system generate Notification sound and display the Bright light for pill boxes. So, patient can know the specific box from which he has to take out medicines. All pill boxes are pre-loaded in the system which patient needs to take at given time. And our system has quality that it can sense if the patient had taken out pills from the box or not. Another advantage of our system includes of Sensing capability if the patient tries to postpone the time of taking medicine by suddenly opening and closing the medicine boxes to stop the sound. Compare to other devices available in market are capable to generate sound at one time and afterwards it stops.*

Keywords- AMD, e-nursing.

I. INTRODUCTION

Caring of the aged is of a serious concern in the developing countries. Family members are responsible for the care and management of the old. In the modern age it is difficult for family members to be available all the time to support the aged. Today, in our society most families are nuclear. Elderly would prefer to remain independent and their desire for independence in natural, but it is a worry for their children. Sometimes despite their best effort, the aged fail to remember to take their medication on time. Automatic Medication dispenser is one such approach to help them take their medicines efficiently. As the cost of in-home medical care rises, it has become more and more incumbent among individuals to opt for a device that effectively takes care of their medications.

II. METHODS AND MATERIAL

A. Proposed Methodology

Details about the design of the automatic medicine dispenser (AMD) are included in the paper. Initially the requirements to design this device are collected and then design consideration is taken care. Finally a design process is suggested to design automatic medicine dispenser. The Programmable automatic medicine dispenser designed allows the care taker to reliably administer medications to a patient without needing to be present every time the medication is scheduled. The caretaker pre-programs the AMD that allows it to set up to 30 medications does through an ergonomically designed interface, utilizing an alphanumeric keypad and LCD display. The AMD can be pre-programmed to repeat the same cycle for one month. An alarm is provided to load the Medicine if the number of pills/capsules falls below a threshold value that can be fixed by the owner.

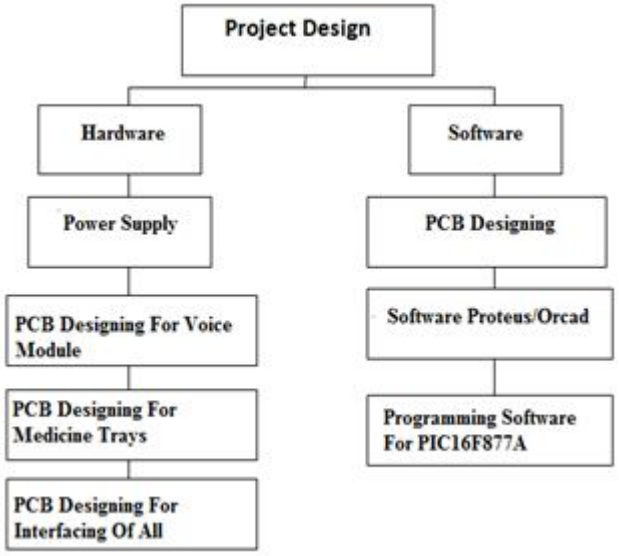

Fig 1.Proposed Methodology.

B. Working

Below figure 1 shows the functional block diagram of Voice Interactive Medicine Box With Hospital Automation. The power supply circuit will provide necessary power requirements for the AMD. Design requirement is 5V DC for the microcontroller and motor controller. Additionally, 12V is necessary for the motor. While the current requirement for the microcontroller is in the range of 100mA. The keypad input is given through 6 key push button keypad. The alpha numeric display unit is for the user to view the time set or reset operation. It provides the user visual representation of the contents of the container. The same unit may be used for providing the medicine name. The Speaker is provided to give voice announcement of medicine name and warn the patient regarding the time to take the tablet. The pill/capsule container design will have 3 tray slots with 3 available for medicines. The microcontroller is the main part of the AMD. It is responsible for performing all the functions and commands of the medicine box. The microcontroller is selected to meet the required functionality of the AMD without wasting money on unneeded features. The basic requirements of the microcontroller are a few Input output ports to interface the keyboard, display unit, motor, and speaker. When the user presses the command key, it enables the user to program the timing and set the required pills to be available in the output tray. The time is set in the RTC. On that particular time the microcontroller with turn on and off the relays through the relay driver IC. This will open the tray of a particular medicine with has to be taken on that time. Also it will turn on the tray indication light and the announcement of the medicine name through the speaker connected to voice module. The time to keep tray open is set in RTC. After that particular time the tray will close automatically and the tray indication light will turn off.

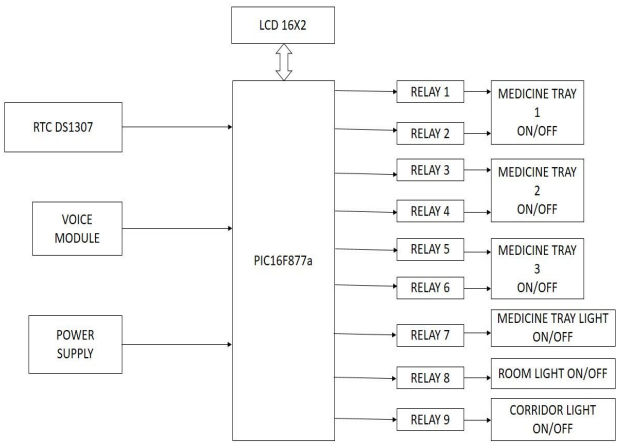

Fig 2. Block Diagram

III. RESULTS AND DECLARATION

This is the working prototype of our developed system. When the medicine tray is opened the LCD will show the name of medicine and the indication light will glow. Also the speaker connected to voice module announces the name of medicine.

Fig 3. Working Model

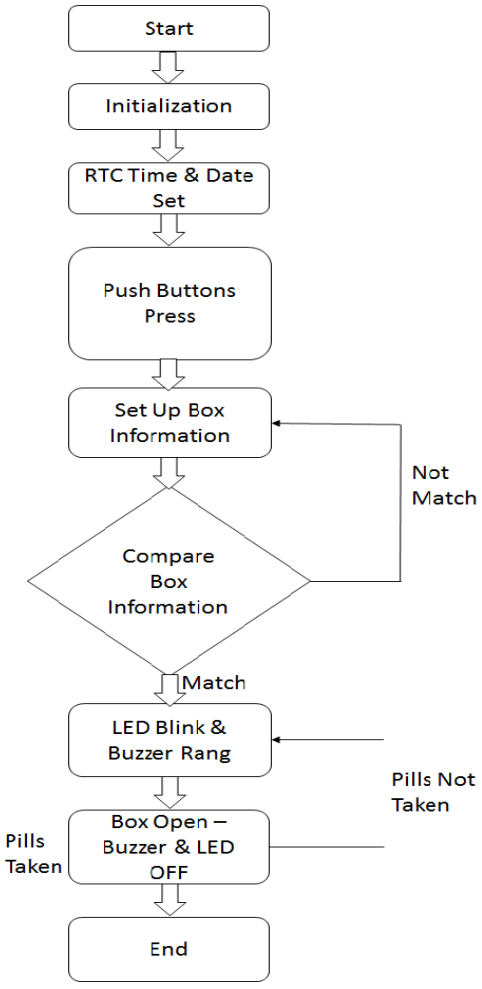

Fig 4. Flowchart of System

As shown in flowchart when time & date are set through push buttons, devise will continuously compare the real time & settime. If the time is matched, LED will blink & buzzer will ring. It then senses the box is opened by the user or not. If box isopened, LED & buzzer stops and if it is not

opened, LED will continuously blinks & buzzer will continuously rings.

IV. APPLICATIONS

1) Government hospital
2) At home for person nursing
3) At hospitals

V. CONCLUSION

The system will inform and give voice announcement of the medicine which patient needed and will also help to control the devices in hospital such as fans, lights so as to reduce time wasting and for proper working.

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