Automatic pill Reminder for Better Supervision

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Abstract: The functioning model of an Automatic Pill reminder system can help individuals who overlook taking their medications most of the time when necessary. Older people tend to forget their schedules. The project aims to help these people take their medicines on time. This system has a two-way alarm to make sure that people take their medicine i.e., the appropriate one at the right time. The machine reminds the user through sound that the buzzer gives to take the pill at a selected time, additionally showing the call of the medicine to be taken.

INTRODUCTION

Today, 24/7 home medical monitoring and Surveillance facilities require a lot of money and human labor. This was added with the innate forgetting the human mind can lead to serious irregularities, which often lead to negligence, criticism situations, and despair. Often we cannot understand that it harms our body without taking the right pills time, delay in recruitment or interruption in the middle, or even if you accidentally take the wrong amount. While automation and technology have contributed to some of the most important areas for the elimination of human error and the achievement of the desired level. Impossible to care in this century, Elderly are busy at any time. Therefore, issues such as irregular care on taking medicine, taking a lot of drugs at once from different sources. These problems occur to everyone due to non-compliance with medication. So it is essential to take appropriate medicines for one's health benefit. With the increase in family medical expenses, everyone is looking for a well-organized device. To avoid these criticisms, Automatic Pill reminders provide a system to help patients take their doses effectively. Another considerable benefit of this device is that it's far low-priced and clean to function for aged people.

This system will offer timely reminders to patients concerning their medication, and precisely manage the kind of quality of prescribed medicines, therefore avoiding medication misuse and abuse.

STRUCTURE OF PAPER

The paper is organized as follows: In Section 1, the introduction of the paper is provided along with the structure, important terms, objectives, and overall description. In Section 2 we discuss related work. In Section 3 we have the complete information about components. Section 4 shares information about the software. Section 5 tells us about the process description. Section 6 tells us about the future scope and concludes the paper with acknowledgment and references.

OBJECTIVES

The motivation for making this product comes from observing the elderly in families who may suffer from pain caused by dropping medicine. Public hospitals out there moreover show loss of supervision at instances,

which has worsened these kinds of situations. Sometimes, it becomes worse. All these events inspire us to find a simple solution for elderly patients.

RELATED WORK

Author Hsiu - Ling Tsai e. t.[1] all proposed a pillbox primarily based totally on an MCS51 microcontroller wherein the pillbox can ship out medication and use a stepper motor at a scheduled time. This pillbox is affordable compared to other products available in the market. It is user-pleasant and additionally exact in exceptional and performance; capable of being relied on for patients.

Kale Sapna, Bhadane, Ashwini, Pawar Pallavi, P.N.Achaliya [2] proposed an Android-primarily based utility medical drug reminder for patients. This app will remind its users to take the right medicine by setting appropriate times for reminders on your phone. These reminders will apply spontaneous fastening as prescribed. This method will only help young people, who have an android phone. But for the illiterate elderly, it is difficult for people to manipulate and understand it. Also, the tool used on this machine is costly.

K.Doughty e.t. [3] stated that the (intelligent pillbox) IPB is primarily based totally on the drug bag medicine, and the IPB sends a remedy bag out of the field at the correct time. It might be very easy to apply and manufacture. Having said that, the alarm will ring at the proper time which was set by the user previously. Also, the product may be used for an extended time.

Mei-Yeing Wang proposed [4] a Multidisciplinary Approach to achieve efficiency and trustworthiness. This software is used to assist the sufferers to keep away from medicine management mistakes along with in-taking of the correct dosage. This application can perform some functions like medicine in-the reminder, medicine identification in-take directions, keep the medicine in the records.

MAJOR COMPONENTS

The undertaking includes an easy digital reminder machine which includes the subsequent components: Atmega328 microcontroller, Real-time clock, Buzzer, LCD Display, Keypad.

A. Atmega328-Microcontroller-----Atmega328 is a single-chip microcontroller created by Atmel in the megaAVR series. Atmega328 is an 8-bit microcontroller based on AVR RISC architecture. It includes a CPU similar to a hard and fast quality of RAM, ROM, I/O ports, serial ports, and a timer all on a single chip.

B. Real Clock Time-----RTC Module is an easy time and date closing gadget which has a battery setup. RTC is a virtual clock that shows real-time on 16*2 LCDs. In our work, miles are used to specify a particular time consistent with the needs of the patient. If the consumer desires to set their medical drug time, then they could do it with the assistance of this section.

C. Buzzer-----A Buzzer is a sounding tool that could convert audio indicators into sound indicators. It is generally powered by DC voltage. It is extensively utilized in audio equipment in digital merchandise along with alarms, computers, printers, etc.

D. LCD Display-----The LCD is a flat screen, electro-optical display using light modulation of liquid crystals. LCD does not emit light directly. In our project, we used a 16*4 LCD screen, for giving information about the organizer of the tablet. The actual liquid crystal display is made up of several layers.

E. Keypad-----Keypad is an organized matrix of switches in rows and columns. We use a 3*4 keypad matrix for this project, which has 4 rows and 3 columns. The running percept could be very simple: pressing a button shortens one of the row strains to one of the column strains, permitting the present day to flow between them.

SOFTWARE

Embedded C is a field of language extensions of the C programming language provided by the C Standards Committee to solve community issues between C extensions in various embedded systems. Embedded C programming performs a key position in acting precise features via the means of the processor for growing digital gadgets. In embedded systems, programming C code is desired over different languages. Due to the following reasons:

● **Size**: The memory that this system occupies May be very vital as Embedded Processors like Microcontrollers have a completely restrained amount of ROM (Program Memory).

● **Speed**: The packages should be very speedy i.e., They should run as speedy as possible. The hardware has to now no longer be bogged down

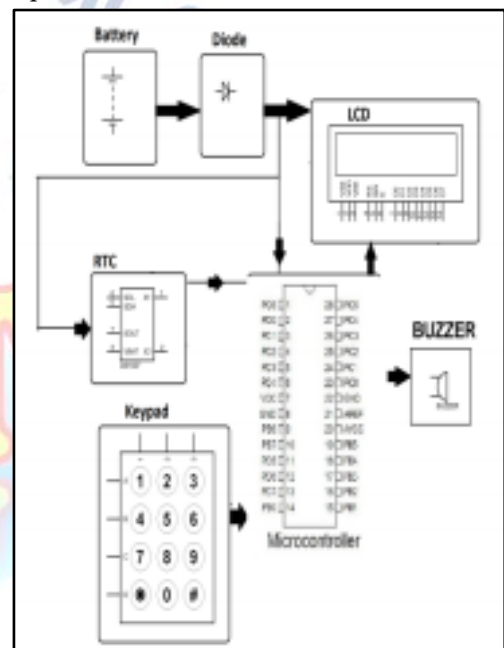● **Portability**: The equal software can be compiled for different processors.

● Ease of Implementation

● Ease of Maintenance

● Readability

Process Description

The following diagram makes it easier to understand how we proceed.

The device facilitates people that overlook taking their medicines on time. Aged human beings normally tend to overlook their remedy timings. The device has two-manner indicators to make sure people take the proper medical drug at the proper time. The device signals the consumer via means of sounding a buzzer about medicine to be taken at that specific time and additionally shows the call of the drugs to be taken.

This challenge consists of each hardware and software program idea design. It is shown in fig(1) a block diagram containing different components of the medicine dispenser. It includes the microcontroller that is the heart of the machine handling the general operation of the machine. It gives an LED show and a keypad interface to engage with the outside world. The textual content show gives records at the putting

operation.

Firstly the individual has to go into their medical drug time and date through a matrix keypad. Once the time is entered it is displayed on the LCD screen and humming sound for an alert. An RTC real-time clock is interfaced with a microcontroller to alert the patient.

When the time displayed on the LCD screen is equal to the RTC module time then this system reminds the patient to take their medicine by sounding a buzzer and displays the name of the medicine to be taken. The program is written to help the user use the system effectively directing them to use it without any problem.

RESULT

The Equipment has high working efficiency and serves the purpose of independent going out for the elderly. The prototype of our project is shown below.

Figure 2.prototype of Automatic pill reminder system

In the prototype, all the above-mentioned components are embedded together as shown in the above figure. It will be a multi-dimensional device, helping the elderly in various fields, and is a very important and useful step in the medical field.

Figure 3.   Figure 4.

Figure 3, 4, 5 Prototype of Automatic pill reminder system with LCD indications.

FUTURE SCOPE AND CONCLUSION

Accordingly, there's a good want for well-timed consumption of drugs that are frequently skipped via the means of many people. This Automated Pill Reminder allows us to remind us to take drugs frequently and additionally on time. Thus this implementation, even though small and simple, could be a completely extremely good and beneficial step within the subject of drugs. This task has centered on the troubles confronted by senior residents regarding adherence to their prescribed medication. It now no longer helps the aged who stay independently however additionally the caretakers of the aged via ways of reminding the proper quantity of drugs at the proper time.

This gadget can later be advanced through an interfacing gadget with a GSM tool to ship an SMS awake to the person's cell telecall-smartphone at the time of taking medicine.

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