

Automatic Medicine Dispenser

Ahire Tanuja. R, Shewale Aditi.S, Aher Nisha.S, Wagh Dhanashri.N,
Students of Electronics and Tele-Communication Engineering Department

Miss. P.S. Patil.

Guide Lecturer at Electronics and Tele- Communication Engineering Department of Shri Hiralal Hastimal
(Jain Brothers, Jalgaon) Polytechnic,
Chandwad, Dist. - Nashik, Maharashtra

Mr.N.R.Thakre

HoD of Electronics and Tele-Communication Engineering Department at Shri Hiralal Hastimal
(Jain Brothers, Jalgaon) Polytechnic,
Chandwad, Dist. - Nashik, Maharashtra

Abstract: An automatic medicine dispenser is a smart device designed to make taking medication easier and safer. It helps ensure that patients get the right dose at the right time without needing to do it manually. The dispenser uses technology like timers and sensors to give reminders through sounds and lights. It can be set up to handle different types of medications and doses and can even send real-time updates to caregivers. This makes it especially helpful for older adults and people with chronic conditions who need to take medicine regularly. With IoT connectivity, caregivers can monitor and manage the medication schedule remotely, which helps improve health outcomes and makes life easier for users.

Keywords: - Automatic medicine dispenser¹, Smart device², Medication³, IoT connectivity⁴, Monitor⁵.

INTRODUCTION:

An automatic medical dispenser is a device that helps people take their medicine in time. It stores a variety of medical treatments and can be programmed to release the correct dose at a particular time.

This ensures that you do not miss a dose and take the right amount of medicine as prescribed. It is especially useful for those who need to handle many medicines or have trouble remembering their program.

In today's Fast-Transit World, administration of the drug program may be a complex and time-consuming task.

The automatic medicine dispenser is designed to simplify this process and ensure that the patient follows their prescribed medication and follows the diet with ease and accuracy. This innovative equipment provides a spontaneous solution for the organization and distribution of medication, leaving the risk of lack of doses and drug errors.

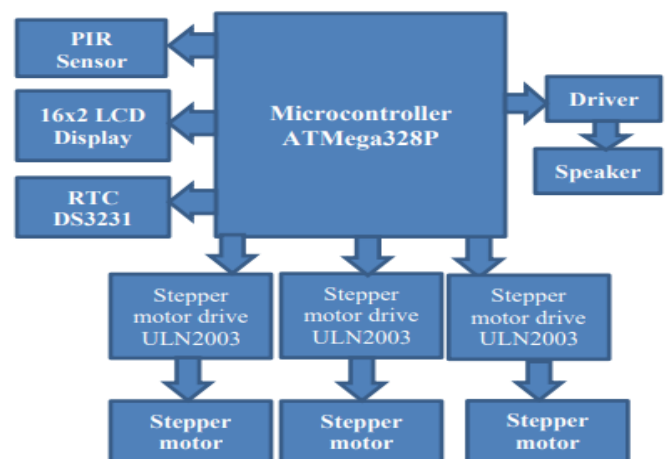
Existing System

An automatic medicine dispenser is a device designed to assist individuals in managing and taking their medications correctly, especially for those with chronic conditions or the elderly. These systems are typically programmed to dispense the correct dosage at the prescribed time.

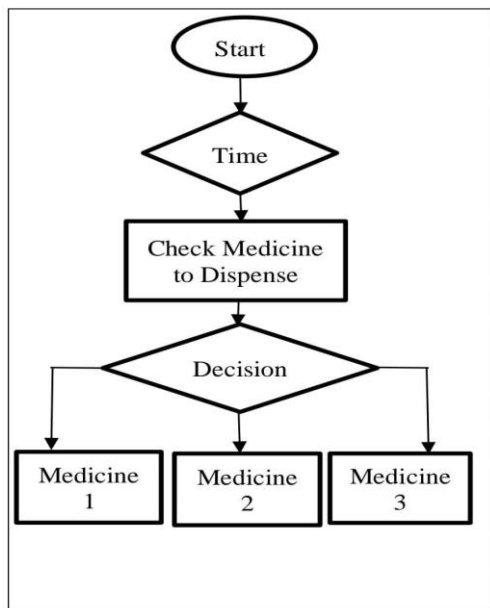
LITERATURE SURVEY:

An automatic medicine dispenser is an advanced health service designed to improve drug farming, reduce human errors and increase patient safety. Many studies and development have focused on integrating automation, Internet of Things (IoT) and artificial intelligence (AI) to ensure timely and accurate drug distribution. Early designs were primarily dependent on mechanical timer and east -filled rooms, while modern systems include functions such as smart alerts, remote monitoring, biometric authentication and tracing of real time. Research indicates that such dispensers are particularly beneficial for elderly patients, people with chronic diseases and people with cognitive losses, as they reduce the dependence of caregivers and reduce the risk of missing or more medicines. In addition, IoT competition dispenser can transmit real-time data to health professionals, allowing the possibility of adjusting distance intervention and adjusting personal treatment. Despite their benefits, challenges such as cost, user adaptability and technical limitations are still the field of active research, aimed at increasing the access and efficiency of diverse patient population.

BLOCK DIAGRAM:



TECHNOLOGY USED:



1. Microcontroller Arduino Nano (ATmega328P)

The Arduino Nano (ATmega328P) controls the automatic medicine dispenser, managing the PIR sensor, stepper motor, RTC module, and LCD display to ensure accurate and timely medicine dispensing.

2. Power Supply

- The power supply for an automatic medicine dispenser provides stable voltage to components like the Arduino Nano, stepper motor, LCD, RTC module, and sensors, ensuring reliable operation. It can be a DC adapter, battery, or USB power source.

3. Stepper Motor (ULN2003)

- The ULN2003 is a Darlington transistor array used to drive unipolar stepper motors like the 28BYJ-48. It handles up to 500mA per channel and supports motor voltages up to 50V, making it ideal for motor control applications.

4. LCD 16X2

- The 16x2 LCD display in an automatic medicine dispenser shows important information like time, dosage, and reminders. It helps users by displaying real-time updates and instructions for proper medication management.

5. RTC DS3231

- The DS3231 RTC module provides precise timekeeping for an automatic medicine dispenser, ensuring medicine is dispensed at scheduled times. It retains accurate time even during power loss due to its built-in battery.

6. Speaker

- A speaker in an automatic medicine dispenser provides audio alerts and reminders, ensuring patients take their medication on time through beeps or voice notifications.

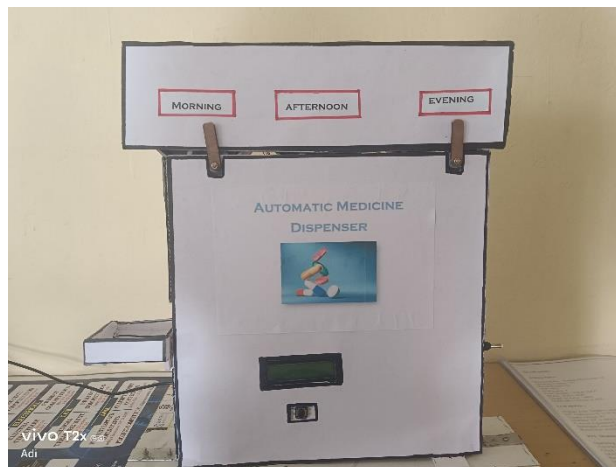
7. PIR Sensor

- A PIR sensor in an automatic medicine dispenser detects movement and activates dispensing when a person approaches, enabling a touch-free and efficient process.

WORKING :

An automatic medical dispenser has several doses of the drug in separate rooms. It is set on a plan, so at a certain time it releases the correct dose in a tray. The device can also give a notice to remind the user when it's time to take their medicine. This process ensures that the drug is taken in time and in the correct amount. If the user remembers a dose, the dispenser can help manage the track and missed or overdue dose. Overall, this drug simplifies the routine and reduces the possibility of errors.

RESULT:



FUTURE SCOPE:

The future of automatic medicine dispensers lies in increased intelligence, connectivity, and personalization. With these advancements, dispensers will play a critical role in improving medication adherence, enhancing healthcare management, and improving patient outcomes, especially for the elderly and those with chronic conditions.

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