IOT Based Automatic Medical Dispensary

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Abstract - This Project proposes an automatic medicine dispenser using the Internet of Things (IoT) with an alert system. The dispenser is controlled by an ESP32 microcontroller, which uses an RTC module to keep track of time and dispense medication at the scheduled time. Servo and stepper motors are used to rotate the medicine carousel and dispense the correct amount of medication. An LDR sensor is used to detect if the medication has been taken. If the medication is not taken, the system sends an alert to the patient's caregiver using the Blynk app. The system is powered by a battery, making it portable and convenient for use. An LCD display shows the patient the name of the medication, the dosage, and the scheduled time. A switch is used to turn the system on and off. The system has the potential to improve the medication adherence of patients, especially those who are elderly or have chronic illnesses. It can also help to reduce the workload of caregivers.

***Key Words*:** ESP32 microcontroller , LDR , LCD , IOT

1.INTRODUCTION

Medication adherence is the degree to which a patient follows the prescribed regimen of medication. It is a critical factor in managing chronic illnesses, but it can be challenging for patients to adhere to their medication regimens, especially those who are elderly, have multiple medications to take, or have complex medication schedules. Automatic medicine dispensers can help patients to improve their medication adherence by dispensing medication at the scheduled time and notifying the patient if they have not taken their medication. Automatic medicine dispensers can also help to reduce the workload of caregivers by managing the patient's medication regimen.

This paper proposes an automatic medicine dispenser using the Internet of Things (IoT) with an alert system. The dispenser is controlled by an ESP32 microcontroller, which uses an RTC module to keep track of time and dispense medication at the scheduled time. Servo and stepper motors

medicine carousel and dispense the correct amount of medication. An LDR sensor is used to detect if the medication has been taken. If the medication is not taken, the system sends an alert to the patient's caregiver using the Blynk app.

The proposed automatic medicine dispenser using the IoT with an alert system is relevant for the following reasons:

1. **Improved medication adherence**: Medication adherence is a critical factor in managing chronic illnesses, but it can be challenging for patients to adhere to their medication regimens. The proposed system can help patients to improve their medication adherence by dispensing medication at the scheduled time and notifying the patient if they have not taken their medication.

2. **Reduced workload for caregivers:** Caregivers often have to manage the patient's medication regimen, which can be time-consuming and challenging. The proposed system can help to reduce the workload of caregivers by managing the patient's medication regimen. 3. **Portable and convenient to use:** The proposed system is powered by a battery and is relatively small in size, making it portable and convenient for use. This is especially important for patients who travel frequently

4. **Easy to operate:** The proposed system is easy to operate, even for patients who are not familiar with technology. The system has an LCD display that shows the patient the name of the medication, the dosage, and the scheduled time. A switch is used to turn the system on and off.

5. **Affordable:** The proposed system is relatively affordable to build and maintain. The components used in the system are widely available and inexpensive.

he proposed system has the potential to make a significant impact on the lives of patients and caregivers. By improving medication adherence and reducing the workload of caregivers, the system can help patients to live healthier and more independent lives.

2. ITERATURE SURVEY

Automatic Medicine Vending Machine: 2017 India International Journal of Engineering Technology Science and Research IJETSR, Volume 4, Issue 12

Elderly Cardiac Patients' Medication Management: Patient Day-to-Day Needs and Review of Medication Management System 2013 International Conference on Healthcare Informatics

Pill dispenser with alarm via smart phone notification 2016 5th Global Conference on Consumer Electronics

Design and Implementation of Automatic Medicine Dispensing machine 2017 2nd IEEE International Conference On Recent Trends
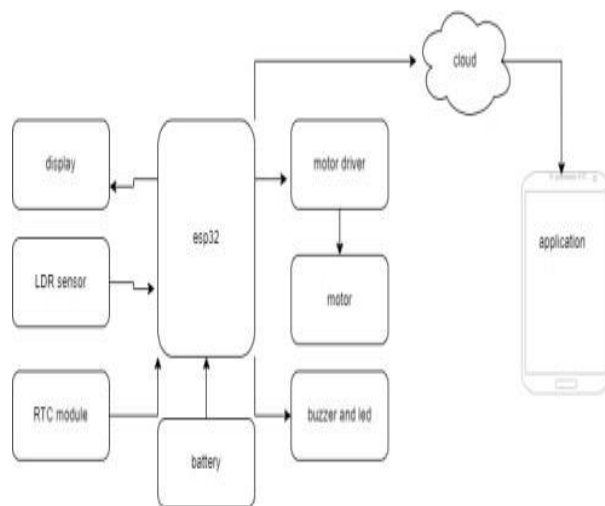
3. BLOCK DIAGRAM

Fig -1: BLOCK DIAGRAM

The microcontroller is the brain of the system and controls all of the other components. The RTC module keeps track of time so that the system can dispense medication at the scheduled time. The medication carousel stores the medications that are to be dispensed. The servo motor rotates the medication carousel to bring the correct medication into position. The stepper motor dispenses the correct amount of medication. The LDR sensor detects if the medication has been taken. The LCD display shows the patient the name of the medication, the dosage, and the scheduled time. The IoT connectivity module sends an alert to the patient's caregiver if the medication is not taken
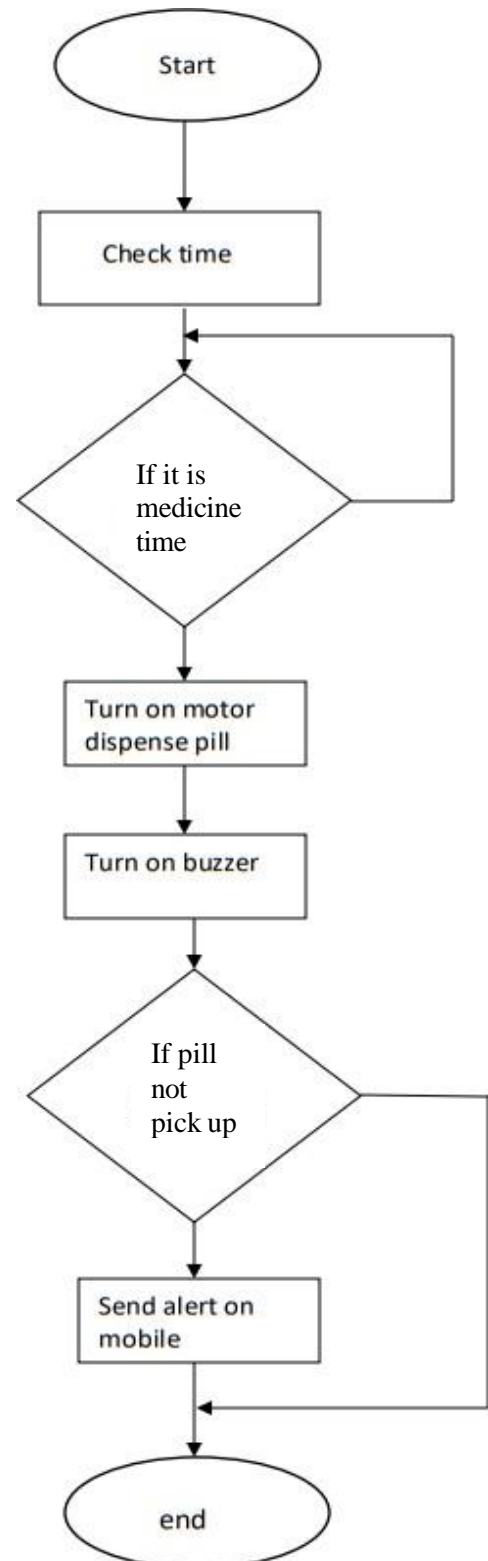
4. FLOW CHART

Fig -2: Flow Chart Diagram

Improved accuracy and precision. IoT-based

5.OVERVIEW AND KEY FEATURES

1.**Operating system:** A real-time operating system is required to ensure that the system can dispense medication at the scheduled time reliably. Some popular real-time operating systems include FreeRTOS, Zephyr, and Contiki.

2.**Programming language:** A programming language that is supported by the real-time operating system and that has libraries for controlling the hardware components is required. Some popular programming languages for embedded systems include C, C++, and Python.

3.**IoT connectivity module driver:** A driver for the IoT connectivity module is required to allow the system to send alerts to the patient's caregiver. The driver should be compatible with the real-time operating system and the programming language that is being used.

Database: A database is required to store the medication schedule and the status of the medications. The database should be compatible with the real-time operating system and the programming language that is being used.

4.**User interface:** A user interface is required to allow the user to configure the medication schedule and to view the status of the medications. The user interface can be implemented on an LCD display, a mobile app, or a web app. In addition to the above requirements, the software should also be designed to be reliable, secure, and easy to use

6. RELEVANCE TO THE PRESENT INDUSTRIAL SCENARIO

The rise of chronic diseases. Chronic diseases such as diabetes and heart disease are on the rise, and these diseases often require patients to take multiple medications on a regular basis. IoT-based medical dispensers can help patients to manage their medications more effectively by reminding them to take their pills on time and by dispensing the correct dosage.

The aging population. The global population is aging, and older adults are more likely to have chronic diseases and to require multiple medications. IoT-based medical dispensers can help older adults to live more independently by making it easier for them to manage their medications.

The increasing demand for remote healthcare. More and more people are demanding healthcare services that can be accessed from their homes or other convenient locations. IoTbased medical dispensers can be used to provide remote healthcare services, such as medication delivery and monitoringoffer a number of potential benefits for both patients and healthcare providers. These devices can help to improve patient safety,
adherence to medication regimens, and access to care.

medical dispensers can dispense medication with greater accuracy and precision than traditional medical dispensers. This can help to reduce the risk of medication errors.

Real-time monitoring. IoT-based medical dispensers can be monitored remotely to track medication levels and to ensure that patients are taking their medications as prescribed. This can help to improve patient safety and outcomes.

7. APPLICATION

In hospitals and clinics: IoT-based medical dispensers are being used in hospitals and clinics to dispense medication to patients and to track medication levels. This can help to improve patient safety and efficiency.

In pharmacies: IoT-based medical dispensers are being used in pharmacies to dispense medication to patients and to provide remote medication counseling services. This can help to improve patient convenience and access to care. 17 In nursing homes and assisted

living facilities: IoT-based medical dispensers are being used in nursing homes and assisted living facilities to dispense medication to residents and to track medication levels. This can help to improve patient safety and reduce the workload on staff.

In homes: IoT-based medical dispensers are being used in homes to help people with chronic diseases to manage their medications. This can help to improve patient adherence to medication regimens and improve patient outcomes. As IoT technology continues to develop, we can expect to see IoT-based medical dispensers become even more widely used in industry and in homes around the world.

8. CONCLUSION

IoT-based medical dispensers are a promising new technology with the potential to revolutionize the way we manage and dispense medication. These devices offer a number of advantages over traditional medical dispensers, including improved accuracy and precision, real-time monitoring, and reduced costs. IoT-based medical dispensers are already being used in a variety of settings, including hospitals, clinics, pharmacies, nursing homes, assisted living facilities, and homes. As the technology continues to develop, we can expect to see IoT-based medical dispensers become even more widely used in the future. In conclusion, IoT-based medical dispensers

IoT-based medical dispensers can also help to reduce healthcare costs by automating medication dispensing and reducing the need for human intervention. Overall, IoT-based medical dispensers are a promising new technology with the potential to improve healthcare outcomes for everyone

9. ACKNOWLEDGEMENT

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