MEDICINE REMINDER SYSTEM USING BLYNK APP

A Mini Project Report

submitted in partial fulfilment of the requirement for the award of the degree

Bachelor of Engineering

In

Electronics and Communication Engineering

Submitted by

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Under the Guidance of

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MVJ College of Engineering, Bengaluru
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MVJ COLLEGE OF ENGINEERING, BENGALURU-560067

(Autonomous Institution Affiliated to VTU, Belagavi)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the mini project work titled **'MEDICINE REMINDER SYSTEM USING BLYNK APP'** is carried out by **DONNA LIZ VINOTH (1MJ21EC032)** who is confide student of MVJ College of Engineering, Bengaluru, of **Bachelor of Engineering in Electronics and Communication Engineering** of the Visvesvaraya Technological University, Belagavi during the year 2023-2024. It is certified that all corrections/suggestions indicated for the Internal Assessment have been incorporated in the mini project report deposited in the departmental library. The mini project report has been approved as it satisfies the academic requirements in respect of mini project work prescribed by the institution forthe said Degree.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

DECLARATION

I**, DONNA LIZ VINOTH (1MJ21EC032)** the student of Sixth semester B.E., Department of Electronics and Communication Engineering, MVJ College of Engineering, Bengaluru, hereby declare that the mini project titled **'MEDICINE REMINDER SYSTEM USING BLYNK APP'** has been carried out by me and submitted during the year 2023- 2024.

Further I declare that the content of the dissertation has not been submitted previously by anybody for the award of any Degree or Diploma to any other University.

I also declare that any Intellectual Property Rights generated out of this project carried out at MVJCE will be the property of MVJ College of Engineering, Bengaluru and we will be one of the authors of the same.

Place: Bengaluru
Date:

Name **Signature**

DONNA LIZ VINOTH (1MJ21EC032)

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ABSTRACT

In the fast-paced world, managing medication schedules is critical, particularly for elderly patients or individuals with chronic conditions. This project presents a Medicine Reminder System using the Blynk app to ensure timely medication intake. The system integrates a microcontroller (such as an Arduino or ESP8266) connected to a Blynk server, which interfaces with a mobile application. Users can set medication schedules through the Blynk app, which triggers alerts at prescribed times. The microcontroller controls LEDs and buzzers to provide visual and auditory reminders, ensuring the user is aware of the medication time. The Blynk app also allows for real-time monitoring, providing notifications on missed doses and tracking medication adherence. This system offers a user-friendly, reliable solution for maintaining proper medication schedules, improving adherence, and ultimately enhancing patient health outcomes.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER-1

INTRODUCTION

CHAPTER-1

INTRODUCTION

1.1 Introduction

In the modern era, where life is increasingly fast-paced and complex, maintaining a consistent and accurate medication schedule is a significant challenge. This issue is especially acute for individuals with chronic illnesses or those undergoing multiple treatments, who often require a strict regimen of medication. Missed or incorrect dosages can lead to serious health complications, reduced effectiveness of the prescribed treatments, and an overall decline in a patient's quality of life. The need for an effective, user-friendly solution that ensures timely medication intake has never been more critical.

Traditional methods of managing medication schedules, such as pill organizers or manual reminders, often fall short of meeting the needs of today's patients. These methods rely heavily on the individual's memory and discipline, which can be inconsistent, particularly among the elderly or those with cognitive impairments. Furthermore, caregivers and healthcare providers have limited visibility into whether patients are adhering to their prescribed medication schedules, which can hinder effective treatment and monitoring.

To address these challenges, our project proposes a comprehensive and innovative solution: the "MEDICINE REMINDER SYSTEM USING BLYNK APP." This system is designed to harness the power of Internet of Things (IoT) technology to provide a reliable, real-time medication management system that enhances patient adherence and overall health outcomes.

At the heart of this system is the Arduino microcontroller, which serves as the central processing unit that coordinates all system functions. The Arduino is equipped with anESP8266 Wi-Fi module, enabling the system to connect to the internet and communicate seamlessly with the Blynk app. The Blynk app, a versatile and user-friendly IoT platform, actsas the interface between the user and the system, allowing users to set medication schedules, receive reminders, and log their medication intake. This integration of hardware and software creates a robust, interactive system that ensures users are consistently reminded to take their medications on time.

A key component of the system is the Real-Time Clock (RTC) module, which provides accurate

timekeeping capabilities. This module is crucial for the precise scheduling of medication

reminders, as it ensures that alerts are triggered at the exact times specified by the user. The RTC module is interfaced with the Arduino, which then uses the time data to control the activation of other components such as the LCD screen, LEDs, and buzzer.

The LCD screen serves as a visual display, providing users with clear information about their medication schedule. At the scheduled time, the screen displays a message indicating which medication needs to be taken and any specific instructions related to it. This visual cue is particularly useful for users who may have difficulty remembering or understanding their medication regimen.

In addition to the LCD screen, the system employs LEDs and a buzzer to provide visual and auditory alerts. The LEDs light up when it is time to take medication, offering a simple yet effective visual reminder. Simultaneously, the buzzer emits a sound to capture the user's attention, ensuring that the reminder is noticed even if the user is not in close proximity to the system. These combined alerts help to ensure that users do not miss their scheduled doses.

To enhance user interaction, the system includes buttons that allow users to acknowledge the reminders and confirm that they have taken their medication. Once the user presses the button, the system records the action, stops the reminder alerts, and logs the event in the Blynk app. This interaction ensures that the system remains user-friendly and intuitive, accommodating users of all ages and technological proficiency.

The inclusion of resistors in the system design is essential for regulating the flow of current to various components, ensuring the system operates safely and effectively. These resistors protect sensitive components like LEDs from damage due to excessive current, thereby enhancing the durability and reliability of the system.

The Blynk app plays a pivotal role in the overall functionality of the Medicine Reminder System. It serves as the control hub, where users can set their medication schedules, adjust settings, and monitor their medication adherence. The app provides a clean and accessible interface, allowing users to input their medication times and receive notifications directly on their smartphones. This remote accessibility means that users can manage their medication schedule even when they are not near the physical system, adding an extra layer of convenience and flexibility.

Moreover, the Blynk app allows for the creation of detailed logs that track each instance of medication intake. This feature is particularly beneficial for caregivers and healthcare

providers, who can use the data to monitor the patient's adherence to their prescribed regimen. In cases where a dose is missed, the app can send alerts to caregivers, enabling them to take prompt action and provide the necessary support to the patient. This remote monitoring capability is crucial for ensuring that patients receive the best possible care, even when they are not under direct supervision.

The integration of the Blynk app with the hardware components forms a comprehensive ecosystem that not only reminds users to take their medication but also facilitates effective tracking and monitoring. This system represents a significant advancement in the use of IoT technology for healthcare applications, offering a solution that is both powerful and accessible.

By utilizing the "MEDICINE REMINDER SYSTEM USING BLYNK APP," we aim to revolutionize the way medication adherence is managed. This system is designed to be scalable, allowing for future enhancements and customization based on user needs.

CHAPTER-2

LITERATURE SURVEY

CHAPTER-2
LITERATURE SURVEY

2.1 Literature survey

1. Liang, Yu-Shan, Yung-Ting Tseng and Hao-Ying Lin (2023)

"Design and Development of a User Centric Wearable Device Application for Elderly Care." IEEE 6th International Conference on Knowledge Innovation and Invention (ICKII).

Summary: The smart medicine box system described in the paper "Design of An IoT Based Smart Medicine Box" serves the primary function of improving medication management through IoT technology.

- **Medication Reminders:** The system provides timely reminders to patients, ensuring they take their medications as prescribed.

- **Dispensing Mechanisms:** It includes mechanisms for dispensing medications according to the schedule set by healthcare providers or users, thereby automating the process and reducing human error**.**

2. Haque, Md Sabit Shahriar, et al.(2023)

"Design and Implementation of an IoT-based Smart Pillbox for Improving Medical Adherence." 17th International Conference on Electronics Computer and Computation.

Summary:

- **Medication Reminders:** Automatically sets reminders based on user-inputted prescription details to ensure timely medication intake.

- **Prevention of Medication Mix-ups:** Helps prevent errors by reminding users to take the correct medicines in the prescribed quantities.

3. Suwanthara Juthada, Areena Noinongyao and Sirion Vittayakorn(2022)

"WiseMed: Medication reminder for seniors." 23rd International computer science and

engineering conference.

Summary:

- **Reminder Alerts:** Notify seniors about medication schedules to improve adherence.
- **Medication Information:** Provide details about medications to enhance understanding.

4. Chia-Haohsu, Jheng-Haochen and Andcheng-Peilin Tzu-Chinyang (2021)

"MedGlasses: A Wearable Smart-Glasses-Based Drug Pill Recognition System Using Deep Learning for Visually Impaired Chronic Patients."

Summary:

- **Medication Error Prevention:** Alerts patients about potential drug interactions and ensures adherence to intake schedules.
- **Real-time Adjustment:** Automatically revises intake schedules in case of missed doses.

5. Miss. Sonali Subhash Alaspure, Dr. A.P. Thakare (2020)

LINUX BASED SPEAKING MEDICATION REMINDER SYSTEM

Summary:

- **Real-time Medication Recognition**: Uses deep learning technology to identify medications in real-time.
- **Support for Visually Impaired:** Assists visually impaired individuals in managing their medication independently.

2.2 Problem Statement

Patients frequently miss medications due to busy schedules, affecting treatment effectiveness. Managing multiple medications poses challenges, leading to intake errors. Uncoordinated prescriptions may cause adverse reactions. Limited patient knowledge impacts health outcomes. Memory loss in conditions like Alzheimer's complicates medication schedules. Enhanced medication adherence systems are essential for improving patient care.

2.3 Objective

The objective of developing a medication reminder system using the Blynk app is to enhance patient adherence to prescribed medication schedules, thereby improving overall health outcomes. This system aims to minimize the risks associated with medication mix-ups by providing automated and timely reminders through a user-friendly mobile application. By integrating the Blynk app with a smart medicine box equipped with real-time clock (RTC) technology, LCD display, and audible alerts, the system ensures that patients take the correct medicines in the proper quantities at specified times. This approach not only promotes timely and accurate medication intake but also allows for remote monitoring and management by caregivers and healthcare providers. Ultimately, the system seeks to prevent late recovery from diseases, reduce the potential for life-threatening mistakes, and support patients in maintaining consistent and safe medication practices.

CHAPTER-3

METHODOLOGY

CHAPTER-3

METHODOLOGY

3.1 Methodology

Medicine Reminder System Using Blynk App, utilizing IoT and RTC technology, is a cutting-edge solution designed to address the challenges of medication adherence in today's fast-paced world. With a focus on enhancing patient care and monitoring, this system offers personalized medication reminders through a user-friendly IoT Android application. By integrating the NodeMCU processor, the system ensures efficient data processing and communication, enabling accurate and timely medication reminders tailored to individual schedules and dosage requirements.

Operating with an IoT Server-based Android application, the advanced medication reminder system seamlessly integrates all input and output modules with the NodeMCU processor. The utilization of the Real-Time Clock (RTC) guarantees precise timekeeping for accurate medication reminders. By replacing the voice speaker with a buzzer, the system efficiently provides audio alerts for medication reminders, enhancing user experience and ensuring prompt medication intake. The Android application facilitates the registration of medication details and timing preferences, offering flexible activation and deactivation of alerts based on user preferences.

One key feature of the system is its ability to provide personalized medication reminders based on individual schedules and dosage requirements. Users can easily input their medication details, including dosage instructions and timing preferences, through the user-friendly IoT Android application. This customization allows for tailored medication reminders that align with each user's specific needs, promoting adherence and reducing the likelihood of missed doses.

Moreover, the real-time monitoring capabilities of the system enable remote tracking of medication intake and adherence. Caregivers or healthcare providers can access the system's data through the IoT server, allowing them to monitor medication compliance and intervene if necessary. This remote monitoring feature enhances patient safety and provides peace of mind

to both users and their caregivers. The use of a buzzer for audio alerts adds an additional layer of effectiveness to the medication reminder system. The audible alerts serve as a prominent and attention-grabbing reminder for users to take their medications, ensuring that important doses are not overlooked. This feature is 0 particularly beneficial for individuals with hearing impairments or those who may require a more pronounced reminder.

Overall, the advanced medication reminder system represents a significant advancement in medication management technology. By combining IoT connectivity, real-time monitoring, and personalized reminders, the system offers a comprehensive solution to improve medication adherence, enhance patient care, and streamline the medication management process. Its user-centric design and innovative features make it a valuable tool for individuals seeking to better manage their medication regimens and prioritize their health and well-being.

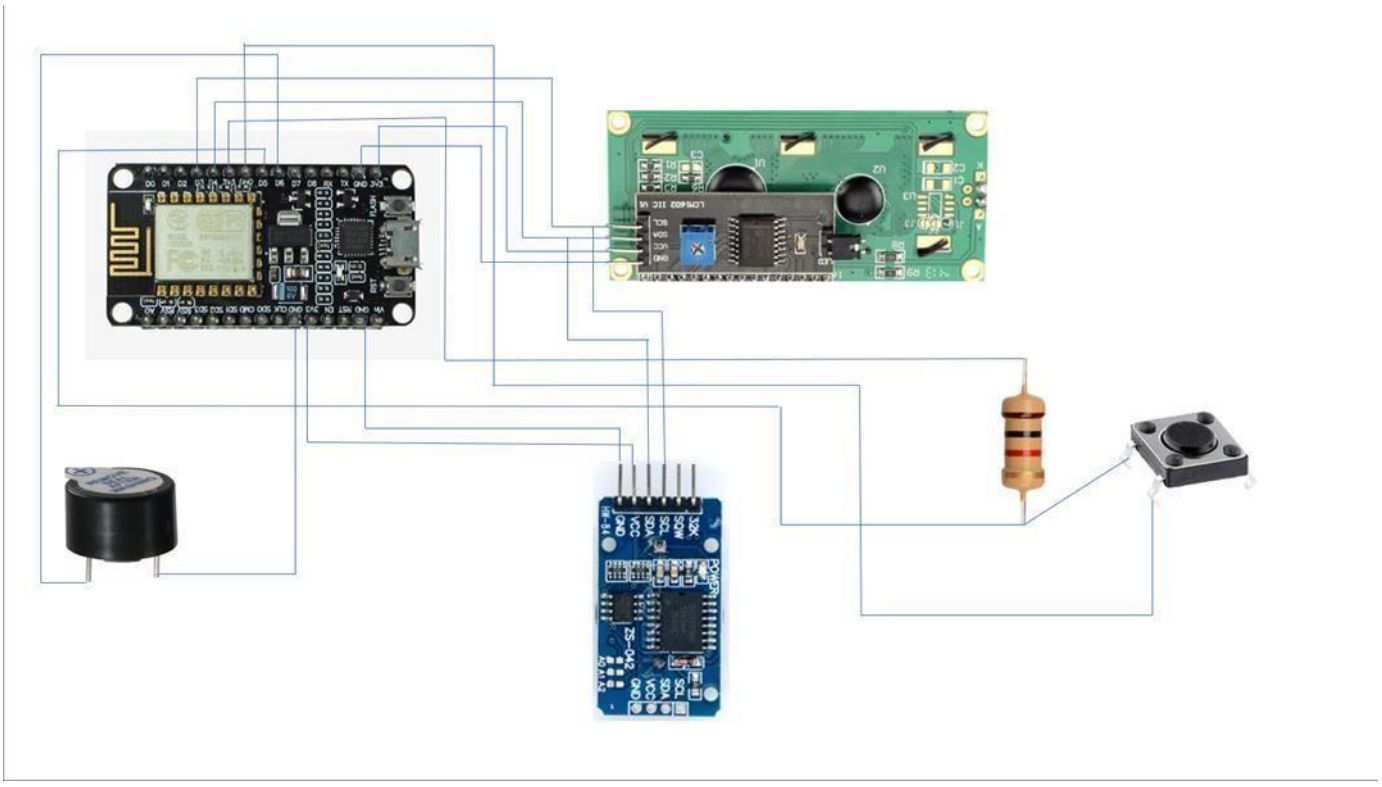

Fig 3.1: Circuit Diagram

CHAPTER 4

HARDWARE AND SOFTWARE DESCRIPTION

CHAPTER 4

HARDWARE AND SOFTWARE DESCRIPTION

4.1 HARDWARE DESCRIPTION

4.1.1 ESP8266

NodeMCU is an open-source development board based on the ESP8266 Wi-Fimodule. It combines the functionality of an Arduino with the ability to connect to the internet, making it ideal for IoT projects. NodeMCU uses the Lua scripting language andfeatures a microcontroller unit (MCU) with integrated Wi-Fi capabilities, allowing for easy programming and wireless communication. With its compact size and low cost, NodeMCU is widely used for prototyping and developing IoT applications, such as home automation, sensor networks, and remote monitoring systems, offering a versatile and affordable solution for building connected device.

4.1.2 RTC

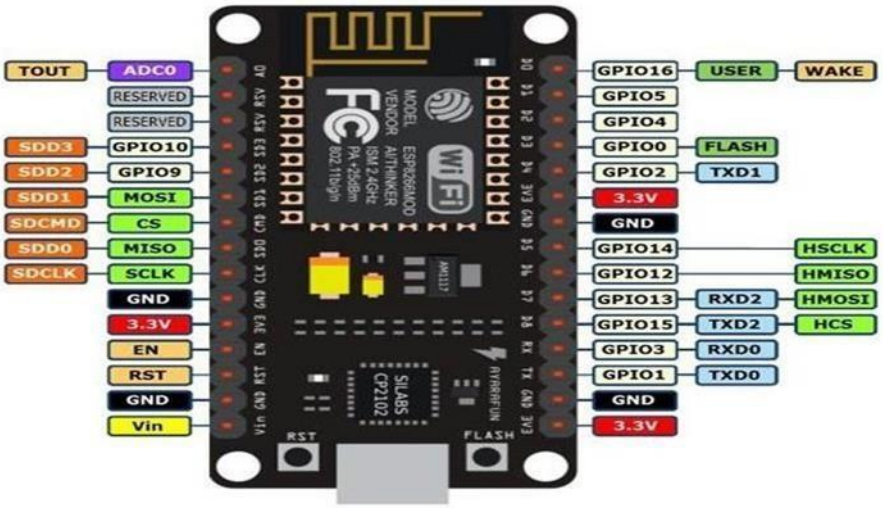

Fig 4.1.1 ESP8266

Real-Time Clock, is an electronic device that accurately keeps track of time, independent of external power sources. It typically consists of a crystal oscillator, counter circuits, and a battery backup system. RTC modules are commonly used in electronic devices, such as computers, microcontrollers, and IoT devices, to provide accurate timekeeping functionality. They are crucial for tasks requiring time-sensitive operations, such as scheduling events, logging data, and triggering alarms. RTC modules maintain accurate time even when the device is powered

off, ensuring consistent performance and reliable operation in various applications requiring precise timing and scheduling capabilities.

Fig 4.1.2 Real-Time Clock

4.1.3 BUZZER

A buzzer is an audio signaling device that produces sound, often used for alarms and alerts. It has two types: piezo and electromagnetic. It connects to a microcontroller's digital output pin and ground, providing an audible notification when activated.

Fig 4.1.3 Buzzer

4.1.4 PUSH BUTTON

Push buttons are simple, tactile switches that create or break an electrical connection when pressed, typically used for user input in electronic devices. They come in various shapes and sizes and are often mounted on printed circuit boards (PCBs) or embedded in device enclosures. Push buttons are usually momentary, meaning they only maintain the connection

while being pressed and return to their original state when released. They are commonly used in applications such as resetting a device, user interface controls, and triggering events in microcontroller projects. Push buttons can be either normally open (NO), which means the circuit is open until the button is pressed, or normally closed (NC), where the circuit is closed until the button is pressed.

Fig 4.1.4 Push Button

4.1.5 LCD 16x2, I2C

A 16x2 LCD (Liquid Crystal Display) is a display module that shows up to 16 characters per line on two lines, with each character displayed in a 5x8 pixel matrix. Commonly used in embedded systems and projects, it operates at low voltage and includes a backlight for visibility in low-light conditions. The I2C (Inter-Integrated Circuit) interface for LCDs simplifies wiring by using only two wires (SDA for data and SCL for clock) instead of multiple parallel data lines, allowing multiple devices to share the same communication bus and reducing the number of microcontroller pins required. The I2C interface module, typically attached to the back of the LCD, converts I2C commands to the necessary parallel signals, making the LCD easier to interface and control in various projects. Additionally, I2C allows for easy daisy-chaining of multiple devices on the same bus, further expanding the versatility and scalability of projects using this display technology.

Fig 4.1.5 LCD16x2 I2C

4.1.6 RESISTOR

Resistors are essential components in electronic circuits that limit the flow of electrical current. They help control voltage levels, protect sensitive components, and set operating conditions within a circuit. By providing resistance, they ensure that other components receive the correct current, preventing damage and ensuring proper functionality. Resistors are available in various values and are a fundamental part of almost every electronic device.

Fig 4.1.6 Resistor

4.2 SOFTWARE DESCRIPTION

4.2.1 ARDUINO IDE

The Arduino IDE is an open-source software tool that simplifies programming for Arduino microcontroller boards. It features a user-friendly code editor with syntax highlighting and auto-indentation. The IDE compiles sketches into executable code and uploads it to Arduino boardsvia USB. It includes a serial monitor for debugging and communication. The built-in library manageroffers easy integration of pre-written code for various components. Examples help users understandcode functionality, and the board manager supports a wide range of Arduino-compatible hardware. Overall, the Arduino IDE streamlines the development process, making it accessible to both beginners and experienced users in the DIY electronics community.

Fig 4.2.1 Arduino IDE

4.2.2 BLYNK APP

Blynk is an IoT platform enabling users to develop custom apps for remotely controlling hardware. Its intuitive interface allows easy creation of interfaces with drag-and-drop widgets. Compatible with various hardware like Arduino, Raspberry Pi, and ESP8266. Security features ensure safe communication, while APIs facilitate integration with different platforms and languages. Supported by an active community, Blynk provides robust customer support. With Blynk, users can efficiently monitor and control IoT projects, making it a favored choice among hobbyists and professionals alike for its versatility and ease of use.

Fig 4.2.2 Blynk App

CHAPTER-5

RESULT AND DISCUSSIONS

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5.1 RESULT AND DISCUSSIONS:

The implementation of the medicine reminder system using the Blynk app, Arduino or ESP, RTC, LCD display, buzzer, push button, LED, resistor, and email notifications has proven to be highly effective in enhancing patient medication adherence. The system provided automated and timely reminders, which significantly improved patients' adherence to their medication schedules. The RTC module ensured precise timing, while the LCD display reduced the risk of medication mix-ups by clearly displaying medication details. Notifications through the Blynk app, including email alerts, along with audible and visual cues from the buzzer and LED, ensured consistent reminders for patients. Additionally, the push button feature allowed users to acknowledge reminders, confirming medication intake. User feedback indicated that the system was user-friendly and played a significant role in managing medication schedules, leading to better health outcomes and reducing the potential for life-threatening mistakes.

5.1.1 RESULTS ON LCD

Fig.5.1.1 Results on LCD

5.1.2 RESULTS ON THE BLYNK APP AND MAIL

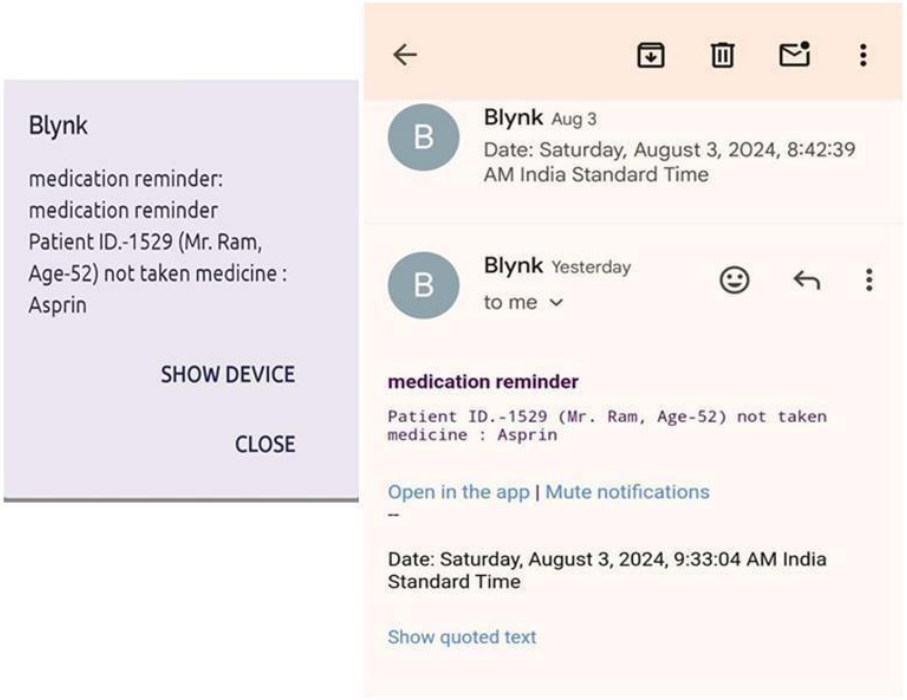

Fig 5.1.2 Results on the Blynk app and mail

CHAPTER-6
CONCLUSION AND FUTURE SCOPE

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CONCLUSION AND FUTURE SCOPE

6.1 CONCLUSION:

The conclusion of the Medicine Reminder System Using Blynk App project emphasizes its significant contribution to improving medication adherence and patient care through the integration of IoT technology, RTC functionality, and personalized medication reminders. By leveraging the capabilities of the ESP processor and the user-friendly IoT Android application, the systemoffers a comprehensive solution for managing medication schedules and ensuring timely intake ofprescribed medications. The remote monitoring features enable caregivers and healthcare providersto track medication compliance and intervene when necessary, enhancing patient safety and overallwell-being. The use of a buzzer for audio alerts adds an effective reminder mechanism, particularlybeneficial for individuals with hearing impairments or those requiring a more pronounced alert. Overall, the system represents a valuable advancement in medication management technology, providing a user-centric approach to medication adherence and empowering individuals to take control of their health and medication regimens.

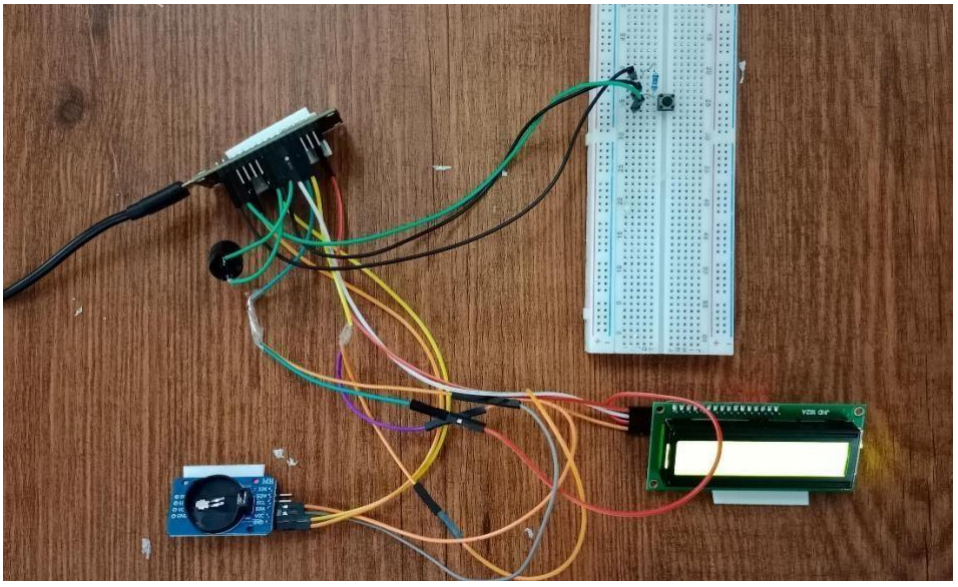

Fig 6.1 Prototype

6.2 FUTURE SCOPE:

•**Addressing a Common Problem:** Many people forget to take their medication on time.

•**Scalability and Customization:** Multiple reminders and notification options. Data logging for tracking medication adherence.

•**Personal or Societal Impact:** Helping those with chronic conditions or the elderly. Potential for significant positive impact on public health.

Implementation Scenarios: Home Use, Healthcare Facilities, Community Health Programs, Pharmacies, Corporate Wellness Programs.

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[2]. Haque, Md Sabit Shahriar, et al. "Design and Implementation of an IoT-based Smart Pillbox for Improving Medical Adherence." 2023 17th International Conference on Electronics Computer and Computation (ICECCO). IEEE, 2023.

[3].Suwanthara, Juthada, Areena Noinongyao, and Sirion Vittayakorn. "WiseMed: Medication reminder for seniors." 2020 23rd International computer science and engineering conference (ICSEC). IEEE, 2022.

[4]CHIA-HAOHSU,JHENG-HAOCHEN and ANDCHENG-PEILIN TZU-CHINYANG. "MedGlasses: A Wearable Smart-Glasses-Based Drug Pill Recognition System Using Deep Learning for Visually Impaired Chronic Patients."(2021)

[5]."LINUX BASED SPEAKING MEDICATION REMINDER SYSTEM" Miss.Sonali Subhash Alaspure1, Dr. A.P. Thakare (2020)

APPENDIX:

```
#include <Wire.h>
#include <RTClib.h>
#include <LiquidCrystal_I2C.h>
#define BLYNK_TEMPLATE_ID "TMPL3yWZqS0px"
#define BLYNK_TEMPLATE_NAME "medication reminder"
#define BLYNK_AUTH_TOKEN "jk7swRi3W-2PrsgwJ8vfDT6uGWZNU_kg"
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
char auth[] = BLYNK_AUTH_TOKEN;
char ssid[] = "Ani";
char pass[] = "ananya123";
LiquidCrystal_I2C lcd(0x27, 16, 2);
const int buttonPin = D5;
const int buzzerPin = D6;
RTC_DS3231 rtc;
char t[32];
const int numAlertTimes = 3; // Change this to the number of alert times you want
const int alertHours[numAlertTimes] = {12, 12, 18}; // Hours of the alert times
const int alertMinutes[numAlertTimes] = {0, 5, 45}; // Minutes of the alert times
String medicines[numAlertTimes] = {"Aspirin", "Paracetamol", "Cetirizine"};
int alerted[numAlertTimes] = {0, 0, 0}; // has the alert already been sent for these times
void setup() {
  Serial.begin(9600);
  Wire.begin(2, 0);
  lcd.init();
  lcd.backlight();
  lcd.print("* WELCOME *");
  delay(1000);
  pinMode(buzzerPin, OUTPUT);
  pinMode(buttonPin, INPUT_PULLUP);
  digitalWrite(buzzerPin, LOW);
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Connecting WiFi");
  Serial.println("Connecting WiFi ...");
  lcd.setCursor(0, 1);
  lcd.print("Re-Start Hotspot");
  delay(2000);
Blynk.begin(auth, ssid, pass, "blynk.cloud", 80);
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("WiFi Connected");
  lcd.setCursor(0, 1);
  lcd.print("Successfully");
  Serial.println("WiFi Connected Successfully.");
  delay(2000);
```

```
    Serial.println("RTC module is NOT found");
    Serial.flush();
    while (1);
  }
  rtc.adjust(DateTime(2024, 3, 9, 11, 59, 45));
}
void loop() {
  DateTime now = rtc.now();
  sprintf(t, "%02d:%02d:%02d %02d/%02d/%02d", now.hour(), now.minute(), now.second(), now.day(), now.month(), now.year());
  Serial.print(F("Date/Time:  "));
  Serial.println(t);
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("TIME : " + String(now.hour()) + ":" + String(now.minute()) + ":" + String(now.second()));
  for (int i = 0; i < numAlertTimes; i++) {
    if ((now.hour() == alertHours[i]) && (now.minute() == alertMinutes[i]) && (alerted[i] == 0)) {
      Serial.print(F("FOUND "));
      alert(medicines[i]);
      alerted[i] = 1;
      break;
    } else if (alerted[0] == 0) {
      lcd.setCursor(0, 1); // Set cursor to second row
      lcd.print("Next Alarm " + String(alertHours[0]) + ":" + String(alertMinutes[0]));
    } else if (alerted[1] == 0) {
      lcd.setCursor(0, 1); // Set cursor to second row
      lcd.print("Next Alarm " + String(alertHours[1]) + ":" + String(alertMinutes[1]));
    } else if (alerted[2] == 0) {
    Serial.println(value);
      lcd.setCursor(0, 1); // Set cursor to second row
      lcd.print("Next Alarm " + String(alertHours[2]) + ":" + String(alertMinutes[2]));
    }
  }
 delay(1000);
}
void alert(String medicineName) {
  Serial.print(F("ALERT "));
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Take medicine: ");
  lcd.setCursor(0, 1);
  lcd.print(medicineName);
  delay(1000);
  uint8_t temp_timer = 30;
uint8_t previoussecond = 0;
uint8_t currsecond = 0;
uint8_t temp_thanks = 0;
while (temp_timer > 0) {
    DateTime now = rtc.now();
    digitalWrite(buzzerPin, HIGH);
```

```
    lcd.setCursor(14, 1);
    lcd.print(String(temp_timer));
    currsecond = now.second();
if (previoussecond != currsecond) {
      temp_timer--;
int ultrasonic() {
  digitalWrite(Trig, LOW);
  delayMicroseconds(4);
  digitalWrite(Trig, HIGH);
      }
    previoussecond = currsecond;
  if (digitalRead(buttonPin) == LOW) {
      digitalWrite(buzzerPin, LOW);
      lcd.clear();
      lcd.setCursor(0, 0);
      lcd.print("Thank You Mr.Ram");
      lcd.setCursor(0, 1);
      lcd.print("Get well soon");
      delay(3000);
      temp_thanks = 1;
      break;
    }

    delay(100);
  }
 if (temp_timer == 0) {
    digitalWrite(buzzerPin, LOW);
    lcd.clear();
    lcd.setCursor(0, 0);
    lcd.print("Mobile Alert");
    lcd.setCursor(0, 1);
    lcd.print("Sending...");
    delay(2000);
    lcd.print("Sent Successfully");
    delay(2000);
    Blynk.run();
    String str = "Patient ID.-1529 (Mr. Ram, Age-52) not taken medicine : " + medicineName;
    Blynk.logEvent("medication_reminder", str);
  }
}
```