ESP32 Rain Detection System with Telegram Alerts

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A project that detects rain using an analog sensor, triggers a buzzer, and sends alerts to Telegram. Includes remote control via Telegram commands.

1. Overview

This project monitors a rain sensor via an ESP32 microcontroller, activates a buzzer when rain is detected, and sends notifications to a Telegram chat using a bot. It can also operate offline if Wi-Fi is unavailable. Users can control the system remotely using predefined Telegram commands.

2. Hardware Requirements

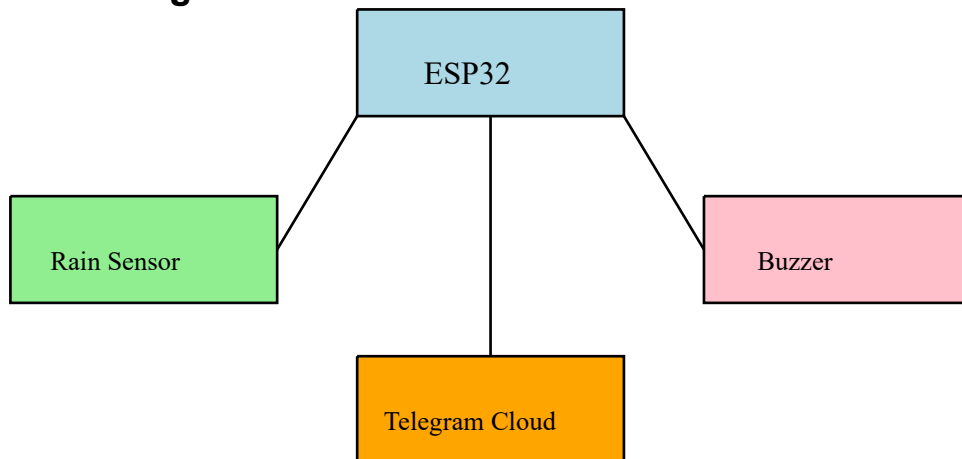| ESP32 board |
| --- |
| Rain sensor (connected to analog pin 34) |
| Buzzer (connected to digital pin 4) |
| USB cable for programming |
| Internet connection (for Telegram features) |

3. Pin Configuration

Component	Pin	Mode	Description
Rain Sensor	34	Analog	Reads moisture level
Buzzer	4	Output	Sounds alarm when rain is detected

4. Telegram Commands

Command	Description
/start	Enables buzzer & alerts
/stop	Disables buzzer & alerts
/status	Returns sensor value, rain status, and alert mode

5. Block Diagram

```
                    ESP32
         /            |            \
   Rain Sensor        |          Buzzer
                      |
               Telegram Cloud
```

6. System Flowchart

```
              Start
                |
            Wi-Fi Setup
                |
            Read Sensor
                |
           Rain Detected?
          /               \
   Buzzer + Alert          Idle
```