IOT PRESENTATION

GROUP 10

RAINDROP SENSOR

MEET OUR TEAM

AZIM

LEADER

AFIQ HANIF

PROGRAMMER

IRFAN HAKIM

RESEACHER

AKMAL

PRESENTER

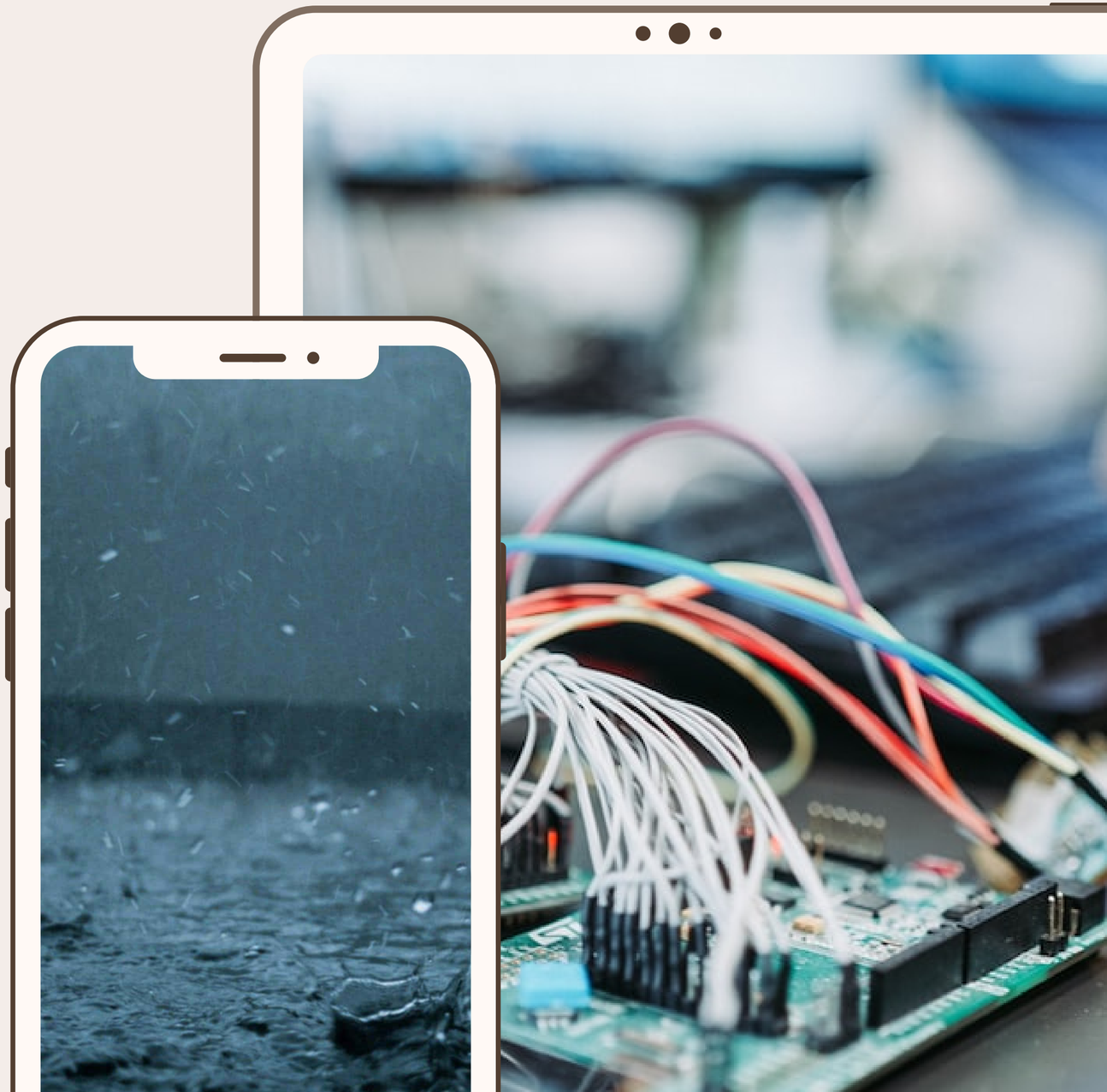
@GROUP 10

OUR PROJECT

RAINDROP SENSOR

The raindrop sensor for our IoT project is a smart device that accurately detects rainfall. It uses advanced technology to sense raindrops and quickly sends the information to a central control unit or cloud platform.

This sensor is compact, easy to use, and perfect for applications like smart irrigation systems and weather stations. It helps users make informed decisions by providing real-time data on weather conditions.



INTRODUCTION

ESP32 RAINDROP SENSOR

The ESP32 Raindrop Sensor combines the ESP32 microcontroller board with a raindrop sensor to detect rain or water droplets. The ESP32 is a versatile microcontroller module with Wi-Fi and Bluetooth connectivity, suitable for IoT applications.

A raindrop sensor typically consists of electrodes that sense conductivity changes caused by water droplets. When raindrops fall on the sensor, it alters electrical conductivity, enabling rain detection. By connecting a raindrop sensor to the ESP32, it can monitor the sensor's output and trigger actions or send notifications when rain is detected.

This combination can be used for various applications like automating sprinkler systems, creating weather stations, or providing rainfall alerts. Implementation details may vary depending on the manufacturer or project requirements.

@GROUP 10

PROBLEM STATEMENTS

TRADITIONAL RAIN GAUGE FOR RAIN DETECTION

1

PROBLEM 1

MANUAL DATA COLLECTION: TRADITIONAL RAIN GAUGES REQUIRE MANUAL COLLECTION OF RAINFALL DATA, WHICH IS TIME-CONSUMING, LABOR-INTENSIVE, AND PRONE TO ERRORS OR DELAYS.

2

PROBLEM 2

TRADITIONAL RAIN GAUGES MAY HAVE LIMITATIONS IN ACCURACY, LEADING TO UNRELIABLE MEASUREMENTS AND HINDERING PRECISE RAINFALL MONITORING.

3

PROBLEM 3

TRADITIONAL RAIN GAUGES OFTEN REQUIRE REGULAR CLEANING, CALIBRATION, AND PHYSICAL RETRIEVAL OF DATA, RESULTING IN ADDITIONAL COSTS AND INCONVENIENCE.

SOLUTION

PROBLEM SOLUTIONS FOR EACH STATEMENTS USING ESP32 RAINDROP SENSOR

The ESP32-based raindrop sensor is an efficient solution for automatically collecting and wirelessly transmitting rainfall data. Designed with high sensitivity and precision, the sensor ensures accurate measurements of rainfall intensity. Its self-cleaning mechanism minimizes debris accumulation, reducing maintenance requirements. With real-time monitoring capabilities, this durable sensor offers reliable and valuable information for various applications such as weather monitoring, agriculture, and infrastructure planning.

SOLUTION 1

IMPLEMENT AN ESP32-BASED RAINDROP SENSOR THAT CAN AUTOMATICALLY COLLECT AND TRANSMIT RAINFALL DATA WIRELESSLY.

1

SOLUTION 1

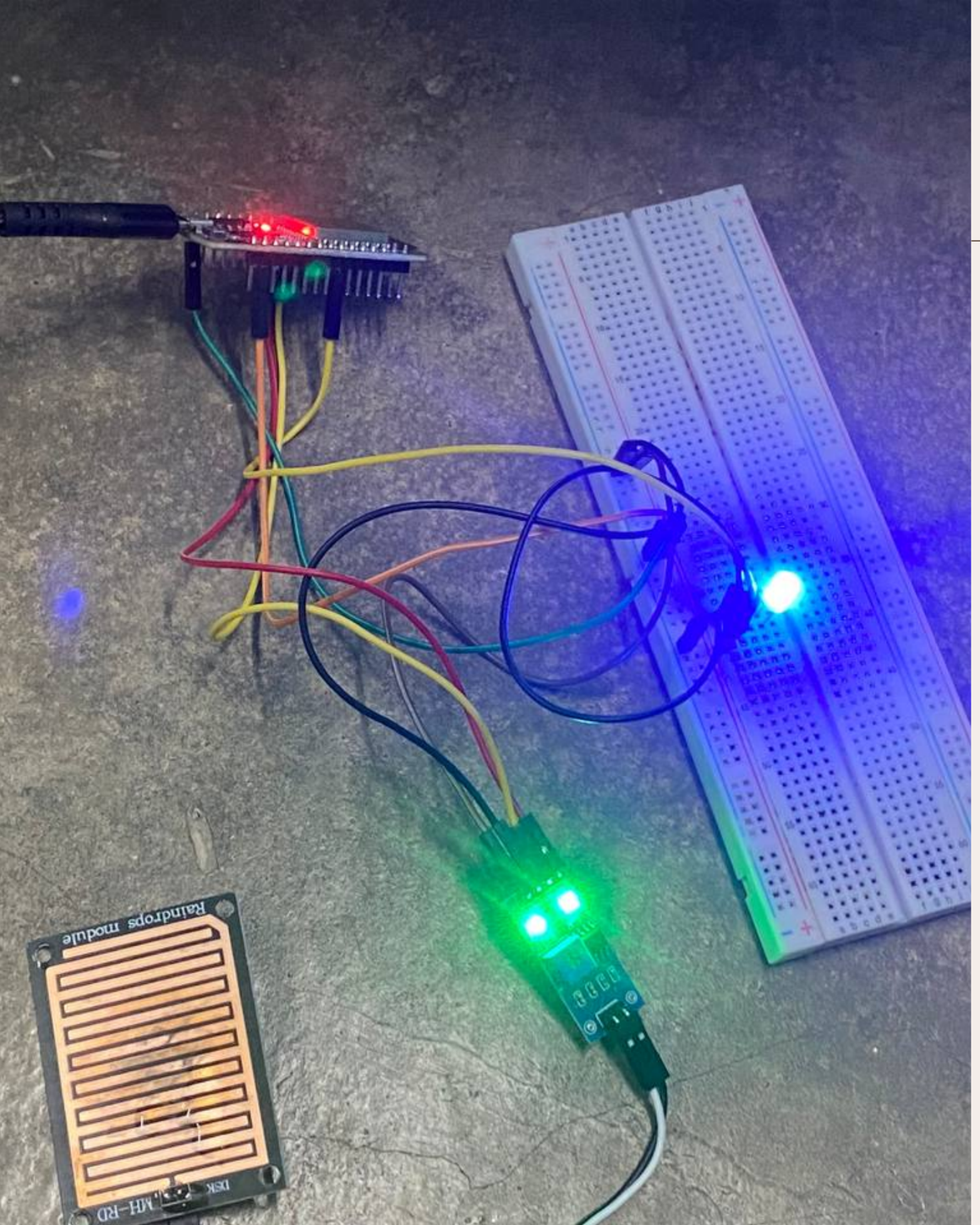
DESIGN THE RAINDROP SENSOR WITH HIGH SENSITIVITY AND PRECISION TO ENSURE ACCURATE MEASUREMENTS.

2

SOLUTION 1

DEVELOP A SELF-CLEANING MECHANISM FOR THE RAINDROP SENSOR TO MINIMIZE THE ACCUMULATION OF DEBRIS OR CONTAMINANTS.

3



RAINDROP CIRCUIT

CONNECTION

The raindrop sensor circuit with an LED indicator is a simple electronic setup that detects rain and visually indicates its presence. The circuit consists of a raindrop sensor module, a microcontroller or Arduino board, and an LED.

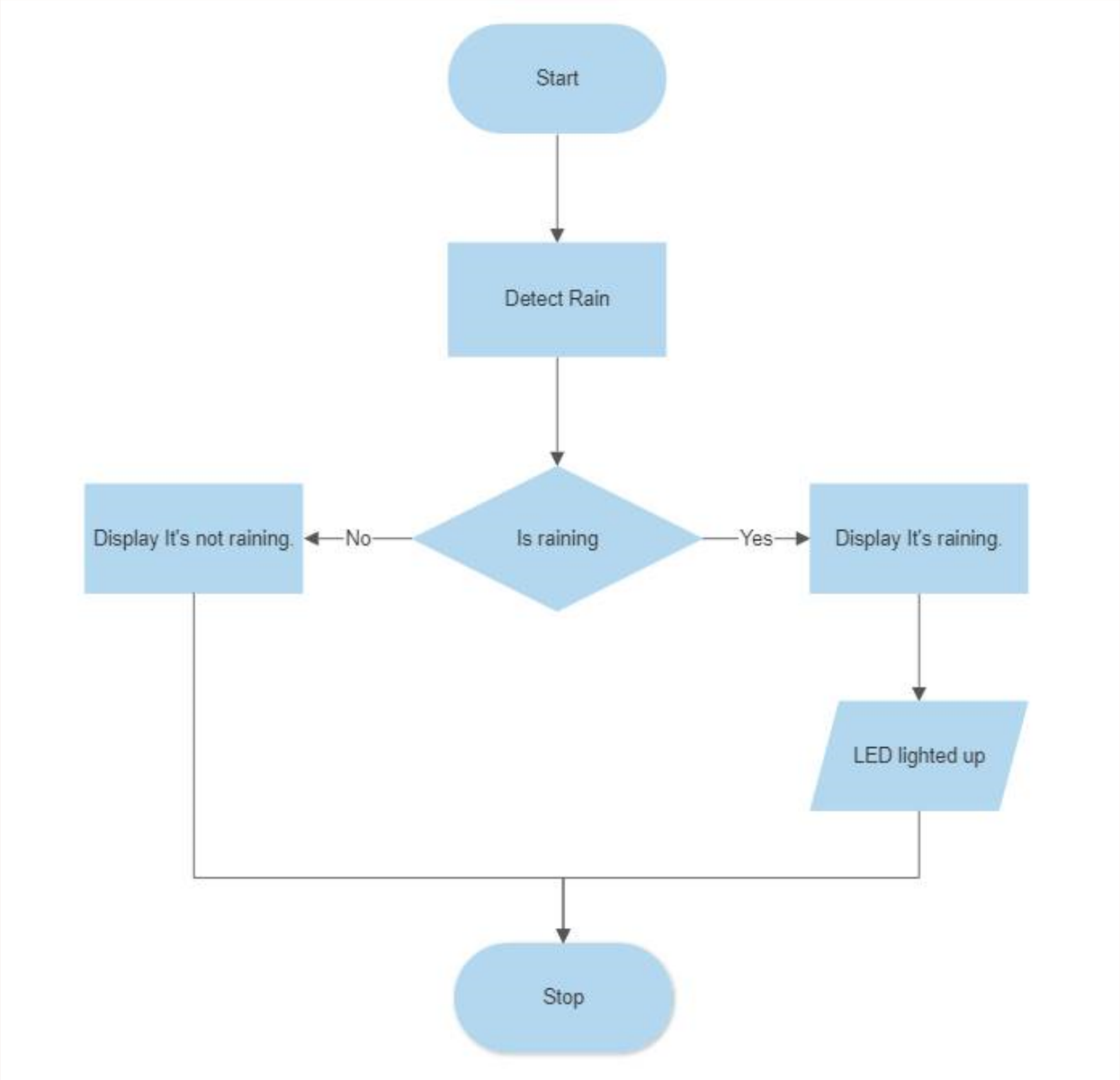
The raindrop sensor module detects rain by measuring changes in conductivity when raindrops fall on its sensing area. The microcontroller reads the sensor data and controls the LED based on the readings. When rain is detected, the microcontroller activates the LED, causing it to light up, providing a clear visual indication that it is raining. This circuit is commonly used in applications such as automated irrigation systems or weather monitoring stations to alert users of rainfall.

@GROUP 10

FLOW CHART OF RESULT

The flow chart represents a continuous loop where the raindrop sensor reading is checked periodically.

If rain is detected, the LED is turned on, and if no rain is detected, the LED is turned off. This process repeats indefinitely, providing a real-time indication of the presence or absence of rain using the LED as a visual marker



In conclusion, the ESP32 Raindrop Sensor combines the powerful capabilities of the ESP32 microcontroller board with the functionality of a raindrop sensor. This combination allows for the detection of rain or water droplets and enables various IoT applications. The ESP32 provides Wi-Fi and Bluetooth connectivity, ample processing power, and digital/analog input/output pins, making it suitable for creating intelligent and connected systems. The raindrop sensor, with its ability to sense conductivity changes caused by water droplets, detects the presence of rain.

THE END