



# **IOT BASED WEATHER MONITORING SYSTEM**

## **PROJECT REVIEW - 2**

**B -12**

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# I. INTRODUCTION

Weather Monitoring system plays a large utility in varied areas from agricultural growth and development to industrial development.

Sensing the weather has been important to man over the centuries. The winds and other weather variables are of equal concern and can have an even greater impact on our modern, high-tech lifestyle.

A weather station is that facility on land or sea, which has instruments and devices for observing and measuring atmospheric parameters to provide the information for weather forecasts. Modern weather monitoring systems and networks are designed to make the measurements necessary to track these movements in a cost effective manner.



# Proposed Idea

The weather station will be used to determine 3 parameters namely temperature and humidity using the DHT11 and rain condition using the KG004 rain drop sensor. NodeMCU will be used to interface the sensors and the WIFI module embedded inside the NodeMCU helps in connecting with the ThingSpeak cloud

Temperature & Humidity will be detected by DHT11 sensor and rain value will be detected by KG004. The collected data is then sent to the system via NodeMCU. NodeMCU sends the data to Think Speak cloud which will graphically represent the data for the analysis.

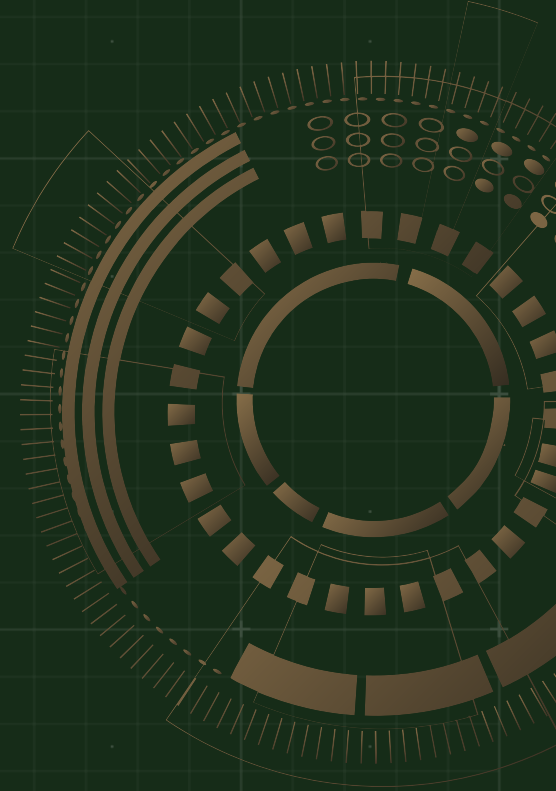
# Tools Required

## Hardware Requirement

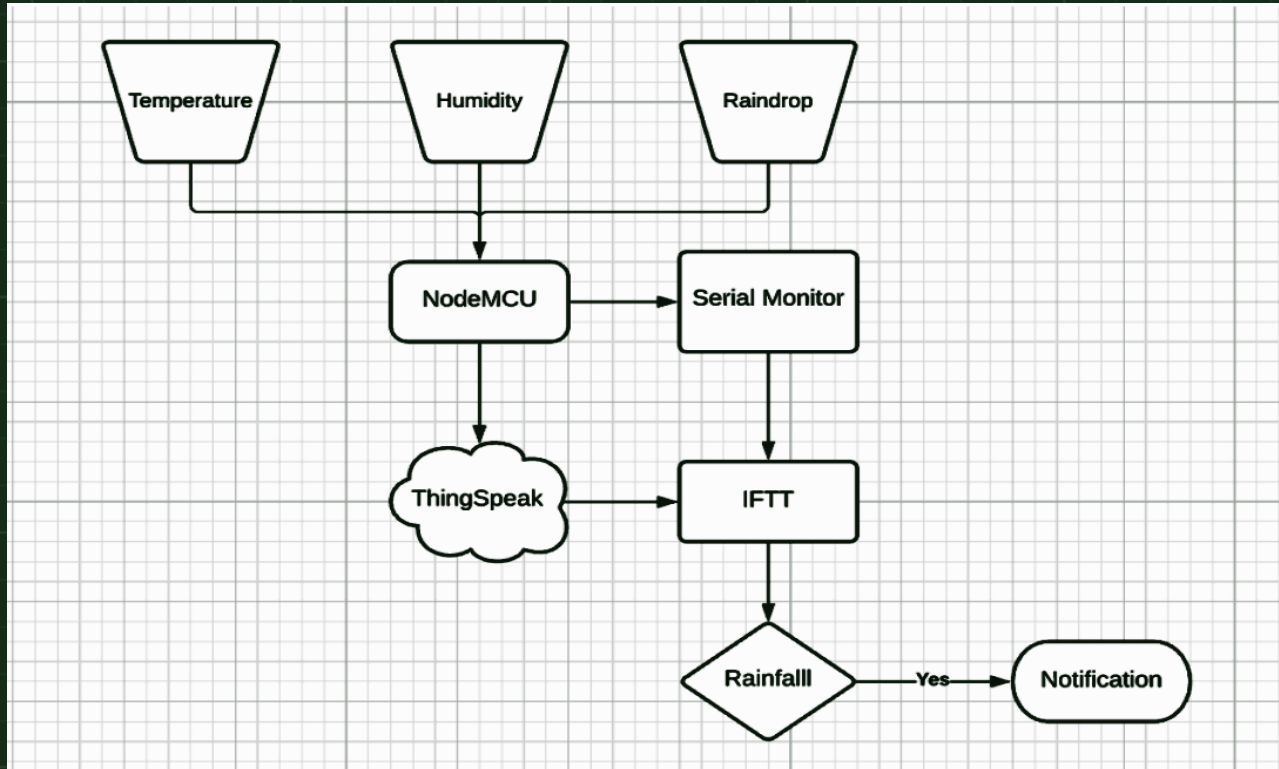
- DHT11
- KG004
- ESP8266/Node MCU
- LED LIGHT
- WIRES
- BREAD BOARD AND USB CABLE

## Software Requirements

- ARDUINO IDE
- THINK SPEAK CLOUD



# WorkFlow

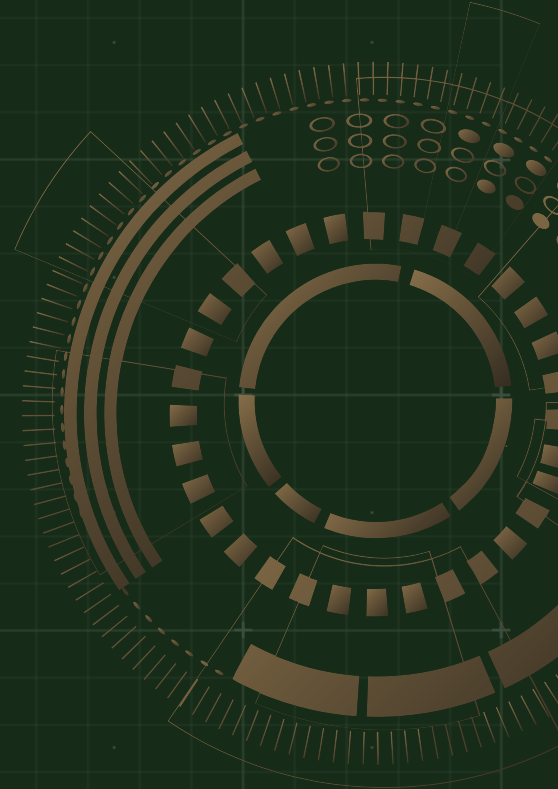


# Algorithm

1. Include NodeMCU Library, DHT Sensor Library and ThingSpeak Library
2. Declare D3 as dht pin
3. Declare Raindrop sensor input pin
4. Declare Raindrop sensor output led pin
5. Initialize variable to store the value coming from Raindrop sensor
6. Initialize Boolean to save rain status

## Setup:

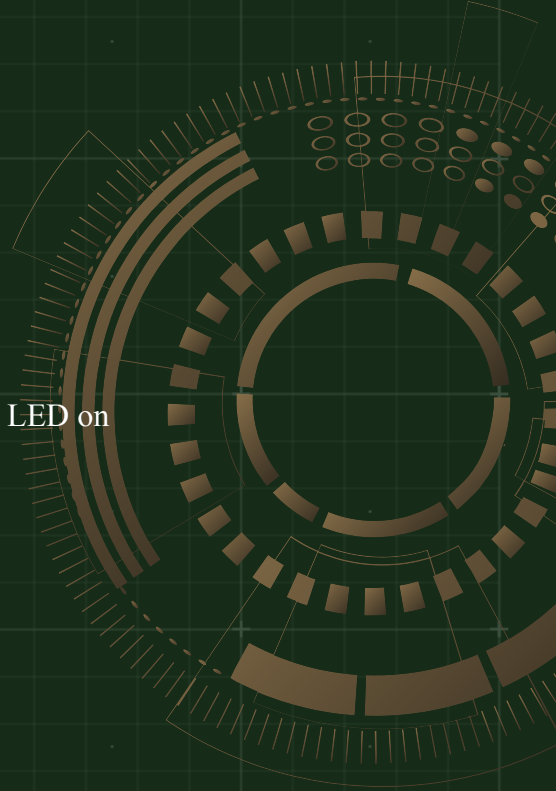
1. Set led pin as output
2. Initialize baud rate
3. Connect to WiFi using given id and password
4. Connect to dht sensor
5. Connect to ThingSpeak



# Algorithm

Loop:

1. Read Raindrop sensor value
2. Limit the range of values between 0 and 1023
3. Invert the range
4. If rain sensor value  $>$  threshold print rain detected and light the LED, set rain status as true
5. Else If rain sensor value  $<$  threshold, print on serial monitor that rain not detected, switch off the LED on board, set rain status as false
6. Reading and saving Humidity value
7. Reading and saving Temperature value
8. Printing these values on serial monitor
9. Send Data to thinkspeak





The background is a dark green grid with several circular, futuristic UI elements. In the top left, there is a small circular gauge with concentric rings. In the bottom left, there is a larger circular gauge with concentric rings. In the bottom right, there is a large circular gauge with concentric rings and labels: ONE, TWO, THREE, FOUR, FIVE. The text "Thank YOU" is centered in the middle of the grid.

**Thank**  
**YOU**