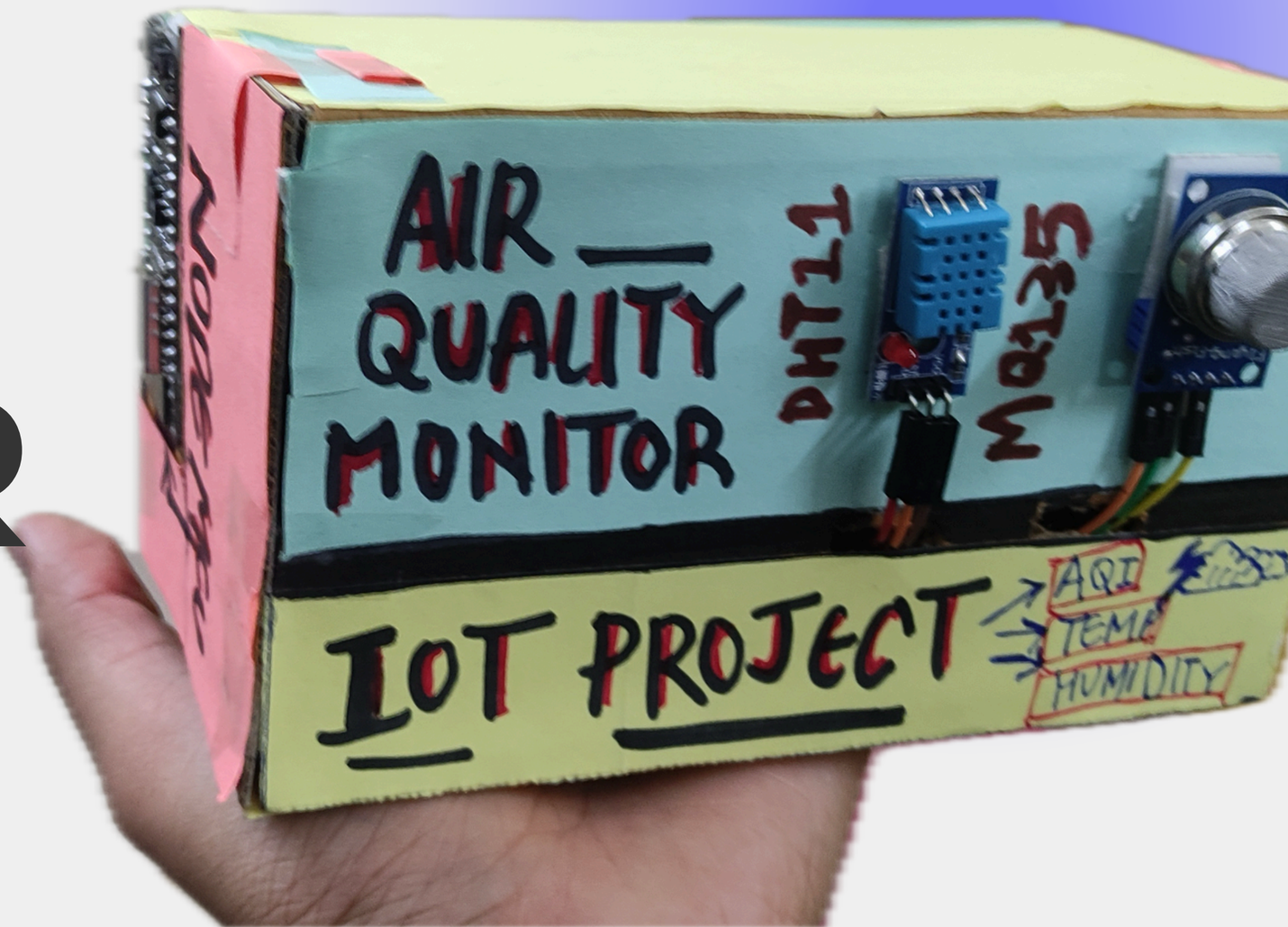
# AIR QUALITY MONITOR

GROUP 3



01

# PROBLEM

- Indoor air quality affects health, comfort, and productivity.
- People cannot detect harmful gas levels or humidity/temperature changes.
- Need for a low-cost, portable, real-time air monitoring solution.

# OBJECTIVES

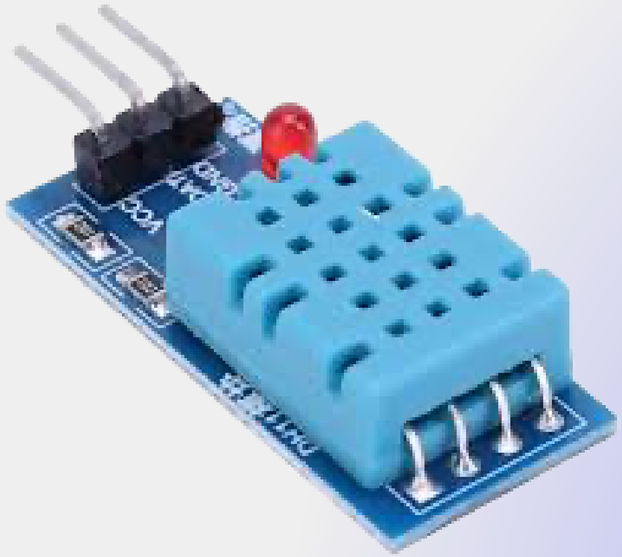
01. Measure temperature, humidity, and air quality in real time

02. Display data on Blynk mobile app, Serial Monitor.

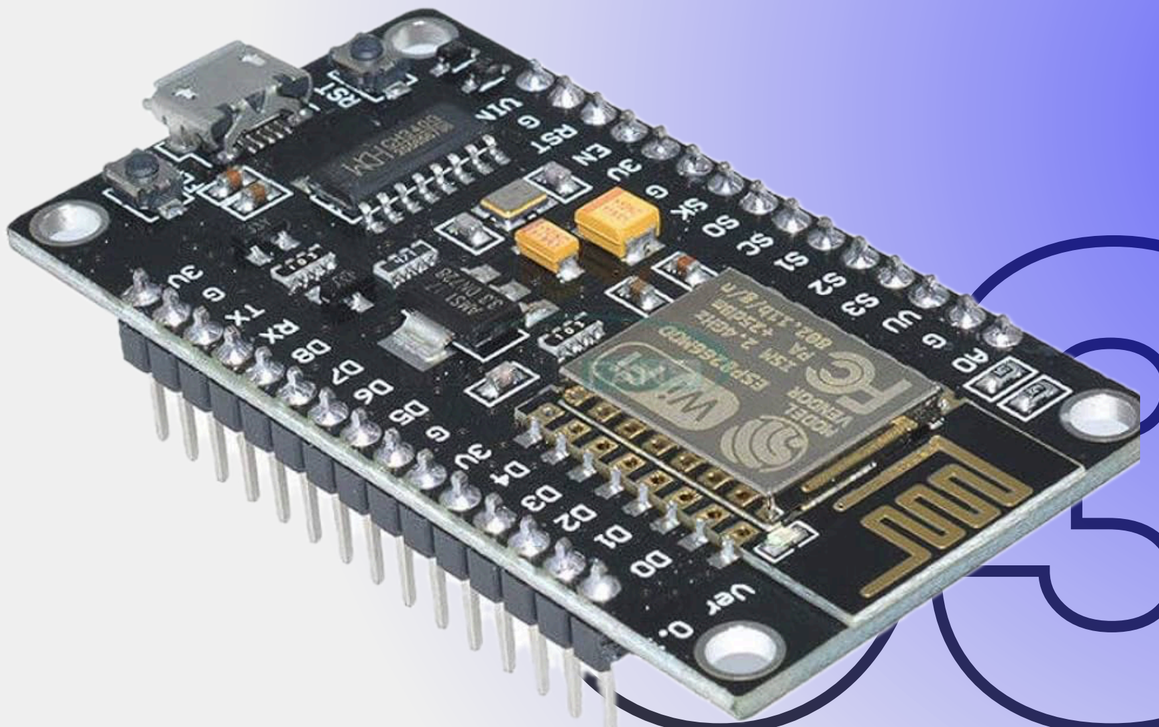
03. Enable remote monitoring using Wi-Fi + IoT.

02

# Components Used



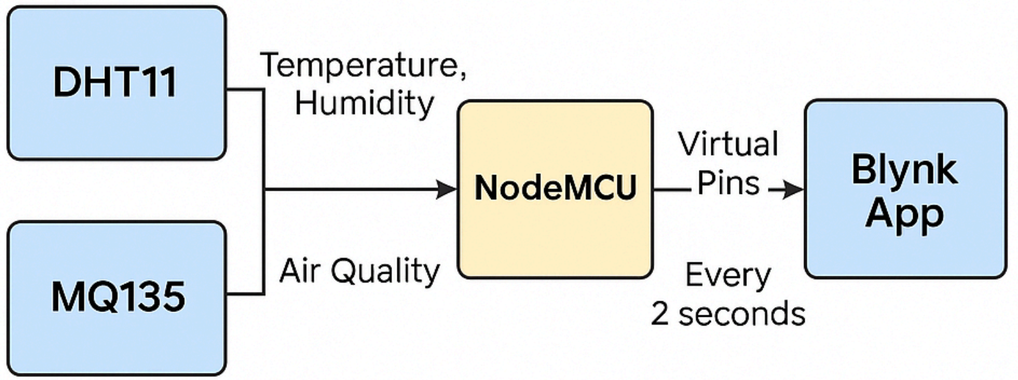

- ESP8266 NodeMCU – Wi-Fi microcontroller
- DHT11 – temperature & humidity sensor
- MQ135 – air quality sensor (gases, pollution)
- Jumper wires, USB cable.



04

# SYSTEM-ARCHITECTURE

- NodeMCU collects sensor data
- Sends real-time values to cloud (Blynk).
- User monitors everything on phone



# Working Principle

06

- DHT11 measures temp/humidity → digital output
- MQ135 gives analog air quality value
- NodeMCU reads both sensors
- Sends data to Blynk via Wi-Fi

# SOFTWARE & CODE

Exploring creativity

**01** Arduino IDE

**02** Libraries DHT, Blynk.

**03** Blynk dashboard with virtual pins (V1, V2, V3)

**04** Timer used for periodic data sending

**05** Wi-Fi connectivity for live access

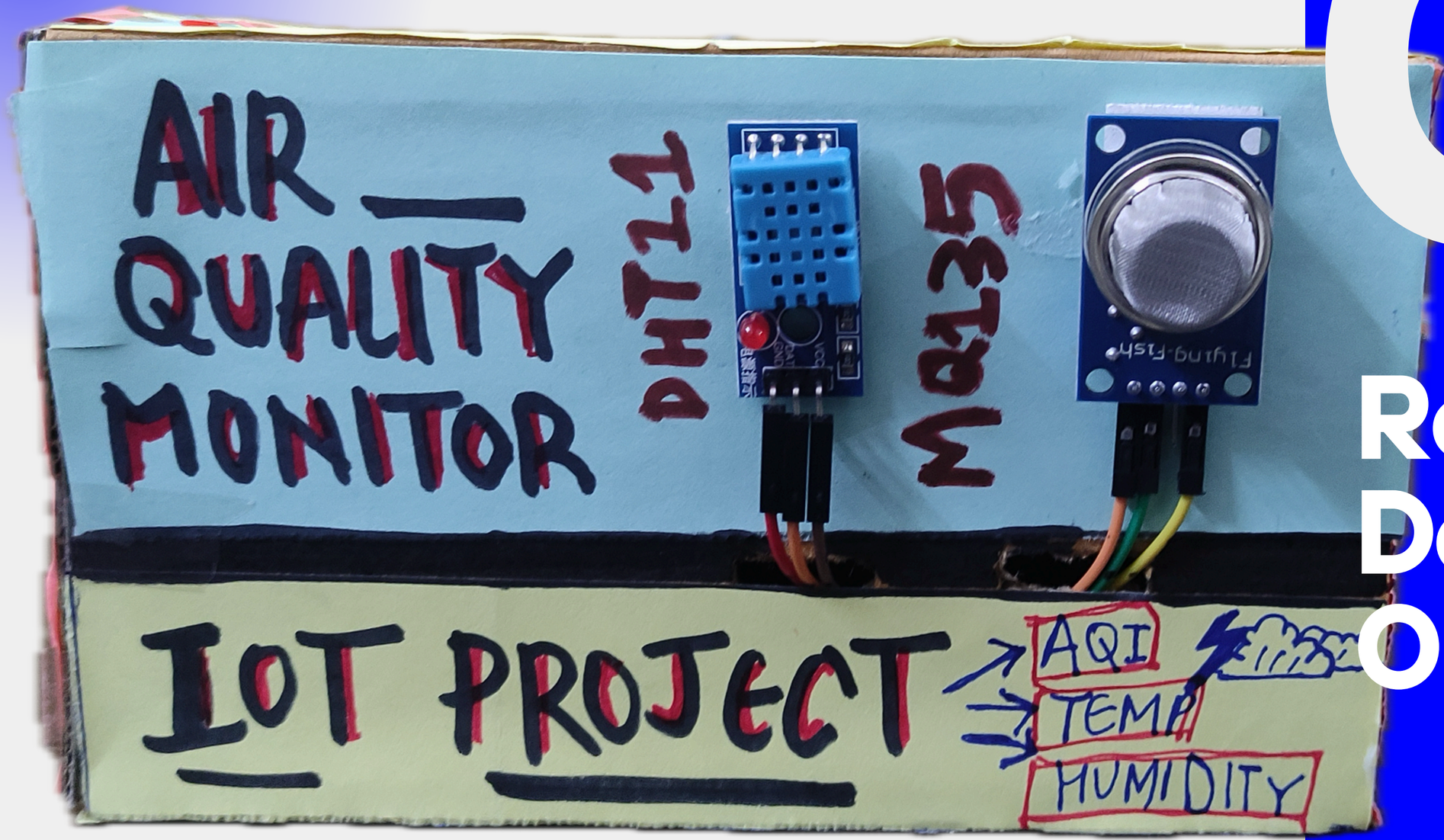
```
void sendSensorData() {
  float h = dht.readHumidity();
  float t = dht.readTemperature();
  int airValue = analogRead(MQ135_PIN);

  // Interpret air quality roughly
  String quality;
  if (airValue < 200) quality = "Fresh Air";
  else if (airValue < 400) quality = "Normal";
  else if (airValue < 700) quality = "Poor";
  else quality = "Very Bad";

  // Print to Serial Monitor
  Serial.println("========================");
  Serial.print("Temp: "); Serial.print(t); Serial.println(" °C");
  Serial.print("Humidity: "); Serial.print(h); Serial.println(" %");
  Serial.print("Air Quality: "); Serial.print(airValue); Serial.print(" -> ");
  Serial.println(quality);
```

# 08

# Results & Demo Output



# Results & Demo Output

09

## SERIAL MONITOR

```
Humidity: 72.00 %
Air Quality: 262 -> Normal
========================
Temp: 21.30 °C
Humidity: 72.00 %
Air Quality: 262 -> Normal
========================
Temp: 21.30 °C
Humidity: 72.00 %
Air Quality: 261 -> Normal
========================
Temp: 21.30 °C
Humidity: 72.00 %
Air Quality: 262 -> Normal
========================
Temp: 21.30 °C
Humidity: 73.00 %
Air Quality: 262 -> Normal
```

## BLYNK.io DASHBOARD

10

# Applications

- Home air quality monitoring
- Indoor pollution detection.
- Smart home automation
- School/office environment monitoring

11

# Conclusion & Future Scope

Conclusion:

- Successfully built a low-cost IoT air monitor
- Displays real-time air parameters on multiple platforms
- Portable and accurate for indoor use

Future Scope:

- Add $CO_2$/PM2.5 sensors
- Add alarm/notifications
- Add battery power
- Create a dedicated mobile app

# Thank You

## GROUP-3

SHIVENDRA BHARDWAJ

SHIVANSH CHAUDHARY

SHIVANSH MISHRA

SHIV KUMAR