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Electronics Gadgets



Air Purifier



Digital Clock



Smart Mirror



LED Lamp



Search



INTRODUCTION

- Air purifiers help in removing contaminants from the air, making it safer to breathe, especially in polluted environments.

NEXT



WHAT'S INSIDE?

Metal Mesh

HEPA Filter

Activated Carbon Filter

Brushless DC FAN

Motor Driver Circuit

Microcontroller

Air Quality Sensor

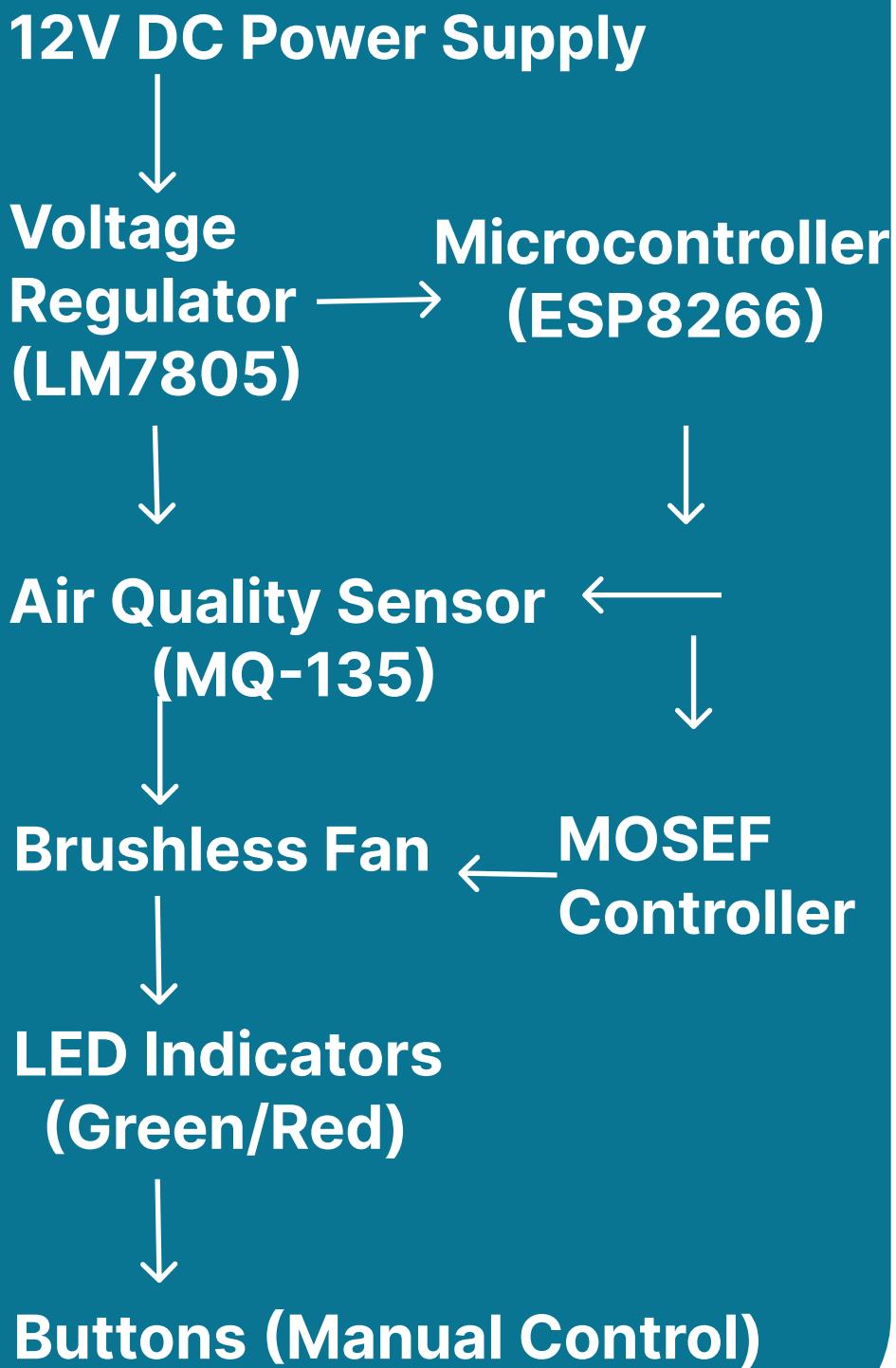
LED Indicators & Buttons

Power Supply

NEXT



BLOCK DIAGRAM



NEXT



C++ CODE

```
#include <WiFi.h>
#include <HTTPClient.h>
const int airQualitySensorPin = A0;
const int fanPin = 2;
const int greenLED = 5;
const int redLED = 18;
const int buttonPin = 4;

int airQualityValue = 0;
bool fanStatus = false;
const char* ssid = "your_SSID";
const char* password = "your_PASSWORD";

void setup() {
    Serial.begin(115200);
    WiFi.begin(ssid, password);
    while (WiFi.status() != WL_CONNECTED) {
        delay(1000);
        serial.println("Connecting to WiFi...");
    }
    Serial.println("Connected to WiFi");

    pinMode ( fanPin, OUTPUT );
    pinMode ( greenLED, OUTPUT );
    pinMode ( redLED, OUTPUT );
    pinMode ( buttonPin, INPUT );

    digitalWrite ( greenLED, LOW );
    digitalWrite ( redLED, LOW );
}
void loop() {
    airQualityValue =
analogRead(airQualitySensorPin);
    Serial.print("Air Quality: ");
    Serial.println(airQualityValue);

    if (airQualityValue < 300) {
        digitalWrite(greenLED, HIGH);
        digitalWrite(redLED, HIGH);
        fanStatus = true;
    } else {
        digitalWrite(greenLED, LOW);
        digitalWrite(redLED, HIGH);
        fanstatus = false; }
    if ( digitalRead(buttonPin) == HIGH) {
        fanStatus = !fanStatus ;
        delay(200); }
    if (fanStatus) {
        analogWrite(fanPin, 255);
    } else {
        analogWrite(fanPin, 0); }
    delay(500);
}
```

NEXT



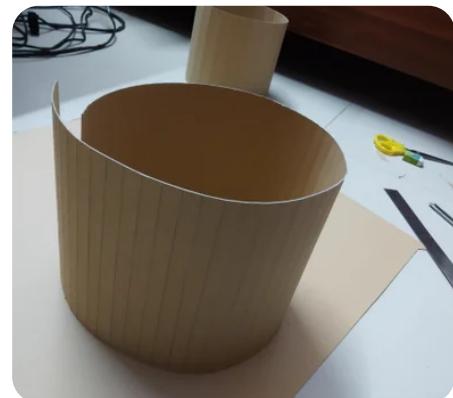
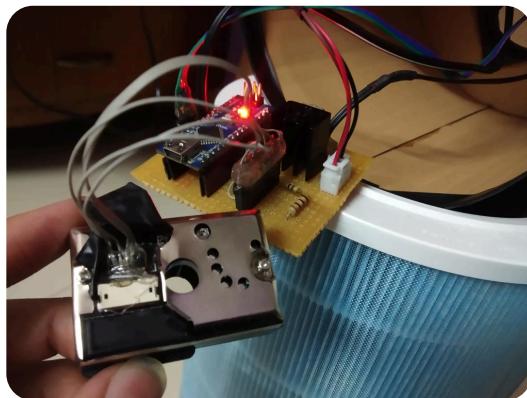
TESTING & Calibration

1. Power on the device & check if it powers up.
 2. Check sensor reading in the Serial Monitor.
 3. Verify that LED indicators are working based on the air quality.
 4. Test the fan operation, both through automatic air quality control & manual button control.
 5. Test filter effectiveness by observing the air quality improvement.
 6. For ESP32,test Wi-Fi connection & remote control features.
 7. Perform safety checks for overheating & proper protection.
 8. Run the device for an extended period to test long-term functionality.
- Calibration : To calibrate the sensor, expose it to a known air quality level for 30 seconds").

NEXT



Final Product



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CONCLUSION

- This DIY air purifier successfully improves air quality using a combination of sensors and fan control.

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