SOLAR OUTDOOR AIR PURIFIER AND AIR QUALITY MONITOR

Pollution has rocked the world with skyrocketing pollution levels. Though the long-term solution to the pollution problem lies in finding and minimizing pollution sources, we need to bring the current pollution levels under control by the time. The best way of controlling pollution is by using air purifiers.

The main controlling device of the project is arduino.MQ-135, MQ-6, LCD display and relay through air purifier inter faced to the arduino. Arduino will continuously read the air quality from sensors and will be display on LCD and upload them into the blynk mobile application through ESP8266 WI-FI module. User can access this device from anywhere in the world and based on that user will control the air purifier from blynk app. Here works as a switch to ON/OFF the air purifier based on the received signal from arduino. Solar energy is uses to charge the battery for through charging circuit and this battery power is used to run this air purifier.

The main objective of this project:

- ▣ Real time outdoor air quality monitoring and controlling system.

- ▣ By using this project, we can reduce the health problems.

- ▣ Real-time outdoor air quality monitoring system.

- ▣ Sensor based air purifier.

- ▣ Display the sensor data on LCD.

- ▣ Using MQ135 sensor and MQ-6 for monitoring air quality.

- ▣ Using SOLAR renewable energy.

- ▣ Monitoring the air quality parameters into the blynk mobile application through ESP8266 WI-FI module.

- ▣ Using ESP8266 WI-FI module to upload the data into the blynk app.

- ▣ Controlling air purifier from blynk mobile application.

- ▣ Using arduino UNO to achieve this task.

The major building blocks of this project are:

- ▣ Power Supply.
- ▣ Arduino UNO Microcontroller.
- ▣ LCD display.
- ▣ MQ-6.
- ▣ MQ135.
- ▣ Filter.
- ▣ Relay.
- ▣ Solar.
- ▣ Charging circuit.
- ▣ Battery.
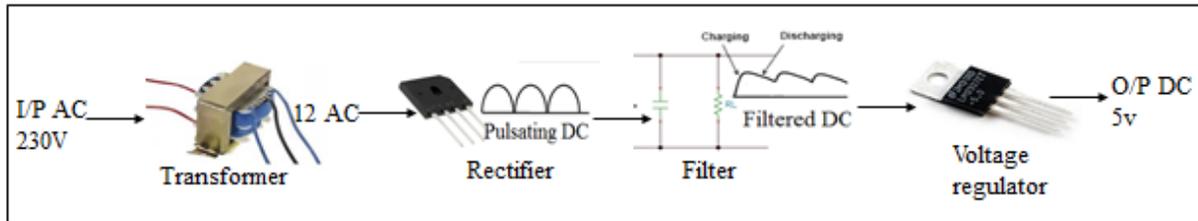- ▣ ESP8266 WI-FI.

Software's used:

1. Embedded C programming.
2. ARDUINO IDE STUDIO COMPILER for dumping code into Micro controller.
3. Express SCH for Circuit design.

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Regulated Power Supply:

Block diagram:

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Block diagram

solar → Charging circuit → Battery

Battery → Arduino UNO

MQ-6 → Arduino UNO

MQ-135 → Arduino UNO

Arduino UNO → Relay → Air purifier

Arduino UNO → LCD driver → LCD display

Arduino UNO → ESP8266 WI-FI — Blynk APP

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