

Voice Controlled Air Purifier, IOT based monitoring, Bacteria Killing and Sleep Assist

Have you ever wondered about the quality of the air you are breathing, or maybe, why you sometimes feel sleepy in the office or tired in the morning even after sleeping all night? Poor air quality can lead to many negative health effects as well as can cause tiredness, headaches, loss of concentration, increased heart rate and so on. Monitoring the quality of the air may actually be more important than you realize.

The main aim of the project is designing an air quality monitoring system using IOT and Arduino UNO which is controlled by the user from android mobile using Bluetooth technology. This device has two air quality sensors. We are using PM2.5 or particulate matter in the air with diameter of around 2.5 microns. The MQ135 gas sensor can detect gases like Ammonia (NH₃), sulfur (S), Benzene (C₆H₆), CO₂, and other harmful gases and smoke. DHT11 is used to detect the temperature and humidity. This system consists of Bluetooth module. Based on sensor data user can control the Air filter and UV light through voice by using Bluetooth android mobile application. This system uses speaker which gives the voice output if the sensor data exceed threshold value. Here relays work as a switch to ON the UV light and filter. The status of the project will display on LCD module. This device consists of IOT technology to monitoring the sensor data into the thingspek cloud through esp8266 wi-fi module long with date and time. To achieve this task microcontroller loaded program written in embedded C language.

The main objective of this project:

- Real-time indoor air quality monitoring system using IOT.
- Using IOT technology to upload the sensor data into the thingspek cloud.
- 24hours continuously monitoring.

- Abnormal voice alerts using speaker.
- Display the sensor data on LCD.
- Using MQ135 sensor and PM2.5 for monitoring air quality.
- Using DHT11 sensor for monitoring temperature and humidity.
- Using BLUETOOTH technology to control the air purifier.
- Using Arduino UNO to achieve this task.

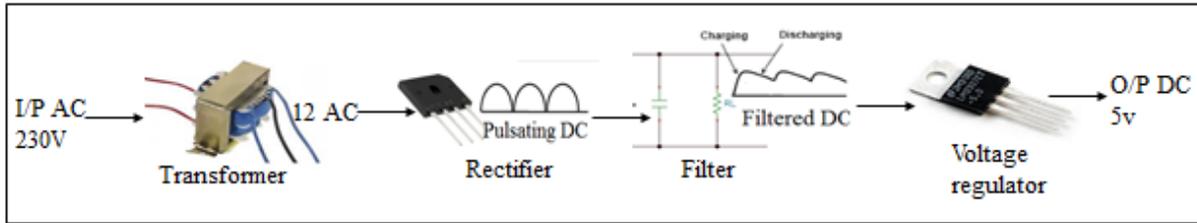
The major building blocks of this project are:

1. Power Supply.
2. Arduino UNO Microcontroller.
3. ESP8266 WI-FI Module.
4. LCD display.
5. PM 2.5.
6. MQ135.
7. DHT11 temperature and humidity.
8. HC-05 Bluetooth module.
9. Voice module through Speaker.
10. UV light.
11. Filter.
12. Relays.

Software's used:

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

Regulated Power Supply:



Block diagram:

Block diagram

