IOT ENABLED AIR PURIFIER

Pragada Durgaprasad[1], R. Ajay[2], S. Prasanth[3]

[1-3]U.G Scholar, Department of Electronics and Communication Engineering KCG College of Technology, Karapakkam, Chennai(TN)- 600097, INDIA

ABSTRACT - *Able to create an IoT Enabled Air Purifier that purifies the air in a very efficient way and gives the real time analysis of the carbon monoxide and the lpg gas level concentrations in the air at that place and can be operated from anywhere in the world. Our IoT Enabled Air Purifier has a lot more things to improve. For further and deeper research, they can put more functionalities in our IoT Enabled Air Purifier like putting an additional sensor so that we can able to measure other important gas concentration and also an another sensor which is being used inside is used on the outside (at the device outlet) gives us a way to determine the efficiency of the device.*

1. INTRODUCTION

The present day living situation of a human being gone worse because of the increased air pollution. Here are several causes leading to the increase of air pollution on among them is industrialization. Because of this increased pollution the humans are facing several health problems and the average life expectancy is keep reducing. For this problem many companies invented small portable air purifiers which are primarily used for air purification in the home office. Our Indian brands like Honeywell, Philips etc., are providing this type purifiers for a price ranging from 8000INR to 23000INR. There is an American based company called Dyson air purifiers which is providing air purifiers for the same purpose with better efficiency and its price is ranging from 29000NR to 35000INR. Our Purifier can provide the functionalities that dyson's are providing with a reduced cost and similar efficiency Our system is also equipped with IOT which means it can provide real time analytics regarding air quality in the surroundings and can be operable from anywhere.

2. LITERATURE SURVEY

Air purifiers mate your family is breathing clean The EPA estimates that the indoor air is two to five times dirtier than outdoor air — and sometimes up to 100 times dirtier. A good air purifier keeps all of us healthy. Air purifiers remove unpleasant odors. You love to cook, but your weekly fish fry makes the house smell like, well, fish. Air purifiers don't only clean the air, they also help get rid of unpleasant and burnt food odors Air purifiers trap airborne allergens released by pets. You may love your pet, but your furry friend releases pet dander, fur and other airborne allergens into the air in your home not to mention the smells! Air purifiers help combat these allergens by trapping them before they settle into your home. Air purifiers help neutralize smoke. Smoke stinks. Whether it's a family member who smokes or your love for a roaring fireplace making your home smell dingy, by cycling the air in the room repeatedly through internal filters, the air purifier helps remove up to 99 percent of these airborne pollutants. Air purifiers combat seasonal allergens. Seasonal allergies are a problem for many people. Air purifiers help to keep the allergens that make breathing uncomfortable out of your home. Air purifiers stop sickness and germs from spreading. Worried about catching your children's flu? Your spouse's cold? The HEPA air purifiers with UV bulbs capture and neutralize up to 99.97 percent of the airborne germs that you want to avoid. Air purifiers keep your lungs healthy. Consistent exposure to dust, pollen, dander, and the other airborne particles can cause long-term breathing and health issues for you and your family. Using an air purifier in your home gives you the confidence that your lungs can be healthy for years to come. Air purifiers fit everywhere. They come in a variety of sizes and it will have a variety of features that will keep the air healthy in any room of the house.

3. BLOCK DIAGRAM

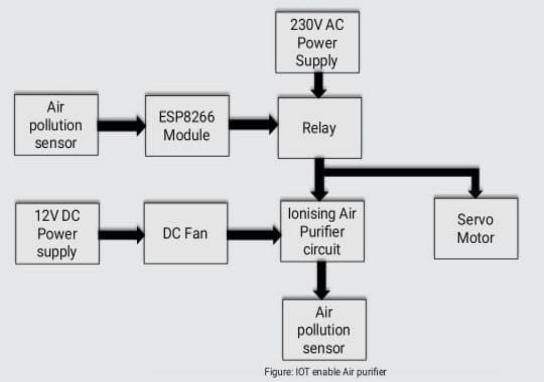


Figure: IOT enable Air purifier

3.1 MQ9 SENSOR

MQ-9 gas sensor using gas-sensitive materials with lower conductivity in clean air tin oxides (SnO2). High and low temperature cryogenic loop detection mode (1.5V heating) to analyze carbon monoxide sensor, conductivity increases with the increase in the concentration of carbon monoxide gas in the air, high temperature (5.0V heating) analyze of combustible gases methane, propane and cryogenic cleaning adsorption of stray gas. Changes in the conductivity can be converted to an output signal corresponding to the concentration of the gas using a simple circuit. MQ-9 high sensitivity to carbon monoxide, methane, liquid gas sensor, this sensor can detect a variety of carbon monoxide and the flammable gas is a suitable for a variety of applications.

3.2 NODE MCU

MCU is an open source firmware for which open source prototyping board designs are available. The name combines "node" and "MCU" The term strictly speaking refers to the firmware rather than the associated both the firmware and prototyping board designs are open the firmware uses the Lau scripting language.

It holds many types of projects, such has Due to source availability for project, users need to select the modules relevant for their project and build a firmware tailored to their needs. Support for the 32- bit ESP32 has also been joint. The working hardware typically used is a circuit board functioning as a dual in-line package (DIP) which integrates a USB controller with a smaller surface-fixed board having the MCU and antenna. The choice of the DIP format allows for easy module on circuit boards. The design was initially was based on the ESP-12 module of the ESP8266, which is a Wi-Fi SoC integrated with a Tensilica Xtensa LX106 core, widely used in IoT applications.

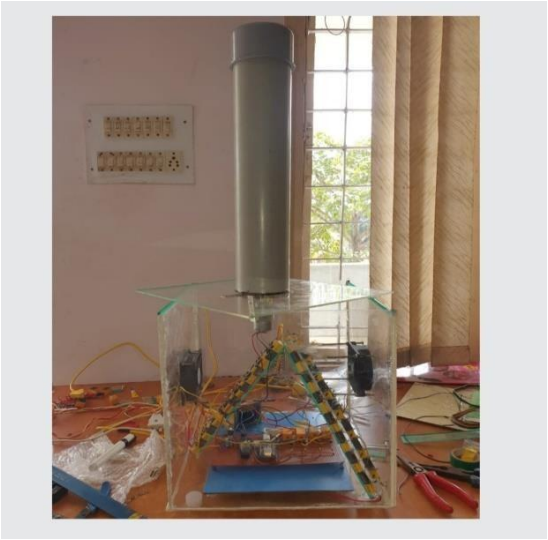
4. RESULT

IoT enabled air purifier works efficiently and helps in healthy living by providing purified air.230V ac supply is given to the power supply circuit and it is converted to 12vdc and 5v dc.12vdc is used to drive the dc motor and to all the 4 relays .And the 5vdc is used to drive the NODEMCU. The dc motor rotates and the dc fans inlets the air and it works as it is programmed in the NODEMCU. The whole system is connected to the mobile phone via internet using an online cloud portal called blink cloud

5. CONCLUTION

Air filtrations are frequently recommended as a component of environment control practices of patients will allergic respiratory diseases. Studies multiple introversions, including air filtrations as methods to improve outcome in the treatment allergic respiratory diseases. Residential air filtration can be provided by WHF via homes have system, prices or combinations of both . Appliances to filter the SPZ also have been developed.

6. FUTURE SCOPE



With the correct libraries and codes used we were able to merge the codes, we have also made the components to work as one with a process that work the way we wanted to. After a series of troubleshooting and code editing, we were able to create an IoT Enabled Air Purifier that purifies the air in a very efficient way and gives the real time analysis of the carbon monoxide and the lpg gas level concentrations in the air at that place and can be operated from anywhere in the world. Our IoT Enabled Air Purifier has a lot more things to improve. For further and deeper research, they can put more functionalities in our IoT Enabled Air Purifier like putting an additional sensor so that we can able to measure other important gas concentration and also an another sensor which is being used inside is used on the outside (at the device outlet) gives us a way to determine the efficiency of the device.

7. REFERENCES

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