RAJSHAHI UNIVERSITY OF ENGINEERING & TECHNOLOGY

Software development project – II

Project proposal report

Submitted By

MD. MASRUR SAQIB
Roll: 1803141
Section: C
Department of Computer Science and Engineering
Rajshahi University of Engineering & Technology
E-mail: md.masrursaqib@outlook.com

Submitted To

Sadia Zaman Mishu
Assistant Professor
Department of Computer Science and Engineering
Rajshahi University of Engineering & Technology
E-mail: sadia@cse.ruet.ac.bd

Details

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Project Name

SMART AIR PURIFIER

Smart Air Purifier

IOT BASED PROJECT

OVERVIEW

1. Project Background & Descriptions

In our country air pollution is one of the biggest problems. Though the dust count in our houses is smaller than that of outside, still it is very unhealthy sometimes hazardous for everyone (According to the US Air quality Index). The smart air purifier is an electric Air purifier which works automatically by Arduino Command and manually by Android applications. It measures the dust of a room using PMS 5003 dust sensor and runs the purifier by the dust count of a room. When the dust level decreases it stops automatically. Besides one can control this using his own android device. There is a DHT11 sensor which can measure room temperature and humidity and a MQ-03 sensor which can measure LPG, CH4 etc. So, the device can alert the user whenever the temperature or humidity increases or decreases from normal level. Also, the device can detect gas leakage which can alert the user before any hazard occur. The device is made by low-cost materials to make this available in every house. In addition to monitoring the Air Quality, the device can send Air quality data through internet and a web dashboard can show the data to the user for understanding the different parameters and taking necessary actions.

2. Project Interface

This project interface is a customized handmade air purifier with an Arduino, ESP32 (Wi-Fi board) and some other parts like sensors etc.

3. Previous Features

Currently the system has following features:

- Ability to detect Air pollution.
- Ability to keep the air dust level in a balance.

- Feature that can save the electricity by turning off the device when the air is clean.
- Feature that can control the device using Android device.
- Feature that can show the Air dust level by LCD monitor and Android Application.
- Feature that can detect gas leakage inside a house
- Feature that can detect room temperature and humidity
- Ability to alarm the user when the air pollution rises.
- Ability to send and store data in web databases
- A web dashboard that can interact with user and show necessary parameters.

4. Implementation plan

- The protocol here being used to transfer data to IoT dashboard is HTTP. Instead of HTTP we can use IoT based protocols like MQTT to reduce data uses and power consumption.
- There are no security features in the device and the dashboard can be easily hacked or manipulated. We can use hashing techniques to improve security in data transmission and log-in system in web dashboard.
- The overall 3D structure of the device can be optimized and remade for more effective purifying.
- The dashboard can show the parameters with more graphical info for the better understanding from user side. Graphs can be continuously updating.

Approved By Date