

Smart Vents with Air Quality Monitor

Background

Prolonged exposure to poor quality air can lead to respiratory problems, heart disease, and cognitive decline. This is a major issue that plagues dungeon dwelling engineers and creators across the world.

Objective

Design an air vent unit capable of monitoring ambient air quality and automatically (de)activating its fans to optimize airflow. The unit should dimensionally fit standard air vents.

System Requirements

- Air Quality Sensor
- Simple Display Screen
- Buttons for Toggling Settings
- Dual 120mm Fan System
- Battery Powered
- Micro USB Charging Port
- Smart Home Wi-Fi Connectivity (optional)



Existing similar product for reference

Timeline

1. Finalize Proposal
2. Component Selection and Acquisition
3. Validation on Evaluation Board
4. Design and Assemble PCBA
5. Prototype and Testing
6. Finalize and Complete Deliverables

Deliverables

- Schematic(s) with bill of materials
- Mechanical drawings and CAD models (if any)
- System test report
- Working prototypes (both the development board and the custom PCBA)
- Any and all supporting documents, software, hardware, etc.

Note: Meetings will be conducted via Discord or some other similar platform. Project Manager is located in Southern California but will visit the team as necessary for the progress of the project.