Description

In today’s world, houses get more and more insulated. That brings up problems such as condensation damages to the building, high risk of asthma or allergies triggering, high concentration of volatile organic compounds and Radon Gas, which can be fatal even if small amounts are inhaled on daily basis. To oppose those problems, we need to find a way to control the air quality in our homes. We at First Airbenders aim to provide our clients with an automated air-conditioning system like no other. Our goal is to achieve an automatic climate environment that does not have the need of constant human regulation. That goal will be made possible by implementing wireless sensors that analyze different measurements in the air such as humidity, temperature, carbon dioxide and particle matter. Based on the measurements a ventilation box connected with a fan will decide if and how much it should ventilate the room to improve the indoor climate and air quality.

Functional requirementsКартина, която съдържа карта

Описанието е генерирано автоматично

Our system will be based around the various sensors we are going to implement. Every sensor will measure continuously, but it will send it’s value every 15 minutes or when a sudden spike in the measures occurs. Those sensors will be connected to a simulated ventilation box in C# on a laptop application, where an algorithm will calculate the state of the air quality and the needed actions to take depending on that state. Furthermore, a green and red LEDs will show if the value of the sensor is being used by the algorithm. The C# system will have the ability to increase or decrease the number of sensors connected to it. Additionally, the red LED will also indicate by blinking when the bi-directional communication between a sensor and the app is lost. All the values sent by the sensors will be stored in a log where they can be accessed by the user.

Non-functional requirements

**Performance and scalability: Due to the system being automatic and non-requiring of human regulation and interaction, the performance of the system and the information delivery time will be swift and will not annoy the user. The scalability of the system will not fall behind as well.**

**Portability and compatibility: The performance of the systems will prevent them from having a critical failures. Even then, we cannot know what could happen in every circumstance. So even if an error or a bug occur the user can connect with a maintainer, who will reboot the systems and remote fix the issue, even if the issue related to hardware stuff the maintainer will organizes an appointment with the user to solve this issue.**

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**Reliability, availability, maintainability: The performance of the systems will prevent them from having a critical failures. Even then, we cannot know what could happen in every circumstance. So even if an error or a bug occur the user can connect with a maintainer, who will reboot the systems.**

**Security: To establish a secure application, only the customer and a assigned maintainer will have access to the system files.**

**Usability: Our system will have no need of constant regulation from the user. The only thing that the customer will be able to do is manually change the speed of the fan.**