

HVAC Assignment

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Writeup Template

You can use this file as a template for your writeup if you want to submit it as a markdown file, but feel free to use some other method and submit a pdf if you prefer.

Model HVAC Project Goals

The goals of this project are the following:

- * Using fischertechniks and ROBOPRO, build a prototype HVAC system to maintain a certain tolerance of temperature
- * A light should indicate whether the fan or the lamp is on
- * A control panel should count the number of seconds the fan or lamp has been on
- * Fully comment all functions within the flowchart program

Rubric Points

Design Constraints: To ensure all design constraints were implemented we made sure we knew every function that was needed. We added indicator lights, a control panel, and walls for maintaining temperature better.

Repeatability of Function: The build is easy to replicate. It uses only fischertechnicks, paper, and tape.

Design Constraints: We had to program the indicator lights so that they would change depending on if the fan or lamp was on.

Repeatability of Program: The program runs in a continuous loop and is adaptive. It is repeatable every time and changes its temperature setting automatically.

Physical Construction

1. Design Constraints - All design constraints are met and the prototype goes above and beyond.

My project includes the following elements to meet the design constraints:

- * Two lights to indicate whether the fan or lamp is on
- * Paper walls to ensure a controlled environment when maintaining temperature

2. Repeatability of Function - The build is repeatable 100% of the time.

My build includes fischertechnik components to ensure repeatability. For example,...

We used an analog part that changes value depending on the temperature. We were able to use this value to ensure that the program would always maintain temperature and repeat itself 100% of the time.

ROBOPro Programming Software

1. Design Constraints - All design constraints are met and the prototype goes above and beyond.

My project includes the following elements to meet the design constraints:

- * A variable function that tracks how long the lamp or fan has been running and at what power
- * A continuous loop so that the program can run automatically and repeat itself

Here are some pictures of my code:

2. Repeatability of Function - The build is repeatable 100% of the time.

My build includes certain loops and functions to ensure program repeatability. For example,...

We used loops to ensure that the program always repeats itself. By using two separate loops to create one loop, we were able to use an analog function that would either use the loop that heats the prototype or cools down the prototype. If it ever gets too hot or too cold it will use extra power to heat or cool it faster.

Here is where the code is implemented and integrating with my physical build:

The code integrates with physical build when it uses a different setting depending on the temperature inside of the physical build.

Output Video

You can find video of the automated HVAC system at this YouTube link:

youtube.com/watch?v=o7CekxN9O8s