Greenhouse Controller using Microbit

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Introduction

The smart greenhouse is a revolution in agriculture, creating a self-regulating, microclimate suitable for plant growth through the use of sensors, actuators, and monitoring and control systems that optimise growth conditions and automate the growing process.

The global smart greenhouse market was valued at approximately USD 680.3 million in 2016 and is expected to reach approximately USD 1.31 Billion by 2022, growing at a CAGR of around 14.12% between 2017 and 2022.[1]

We plan on creating a prototype of a greehouse controller with the knowledge that we gained through the course which can be controlled with a mu bit

Institution of Civil Engineers(2020,November 04).
Https://www.designingbuildings.co.uk/wiki/Smart_greenhouse

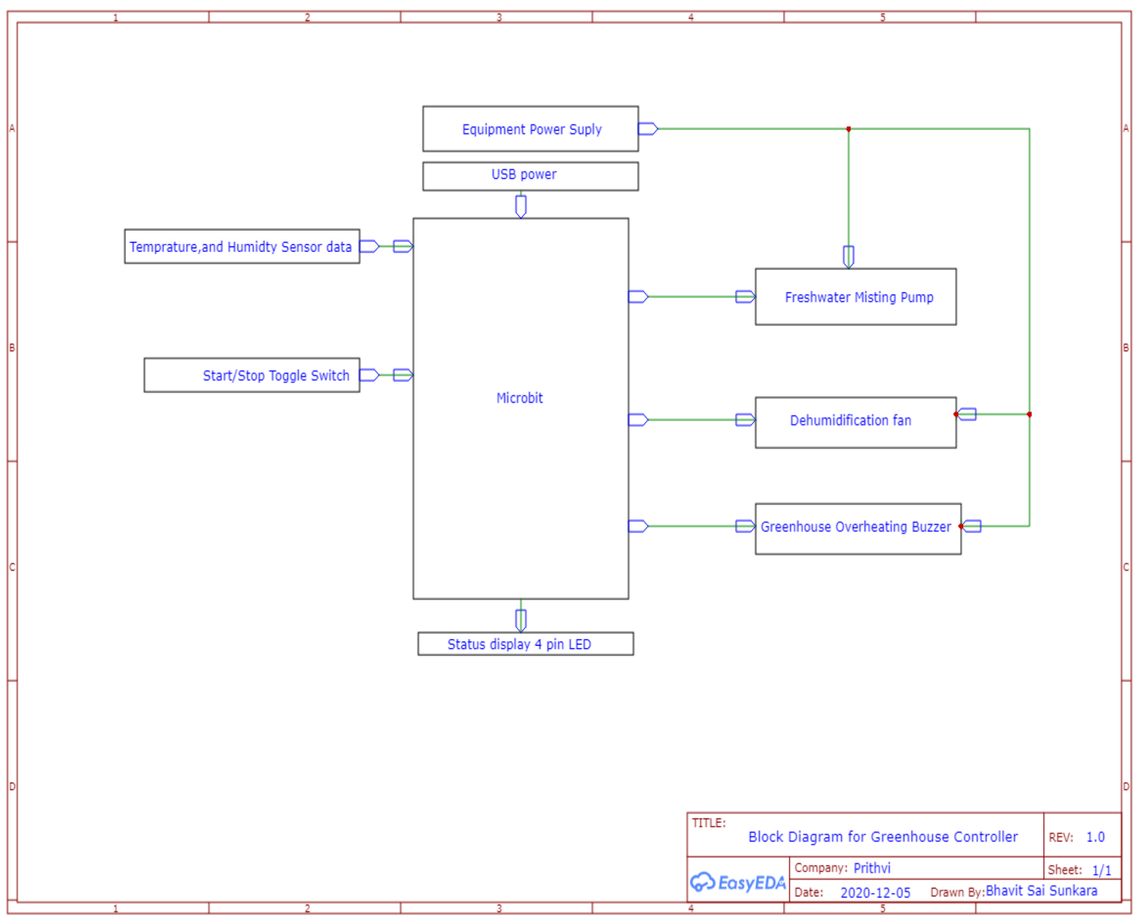
Objectives

- Using the skills learned in ECE 210 to create a green house controller that can be controlled with a MicroBit.
- Using proper procedure to build a final circuit:
- Draw a Block Diagram
- Draw a Circuit Diagram
- Create a Flow Chart

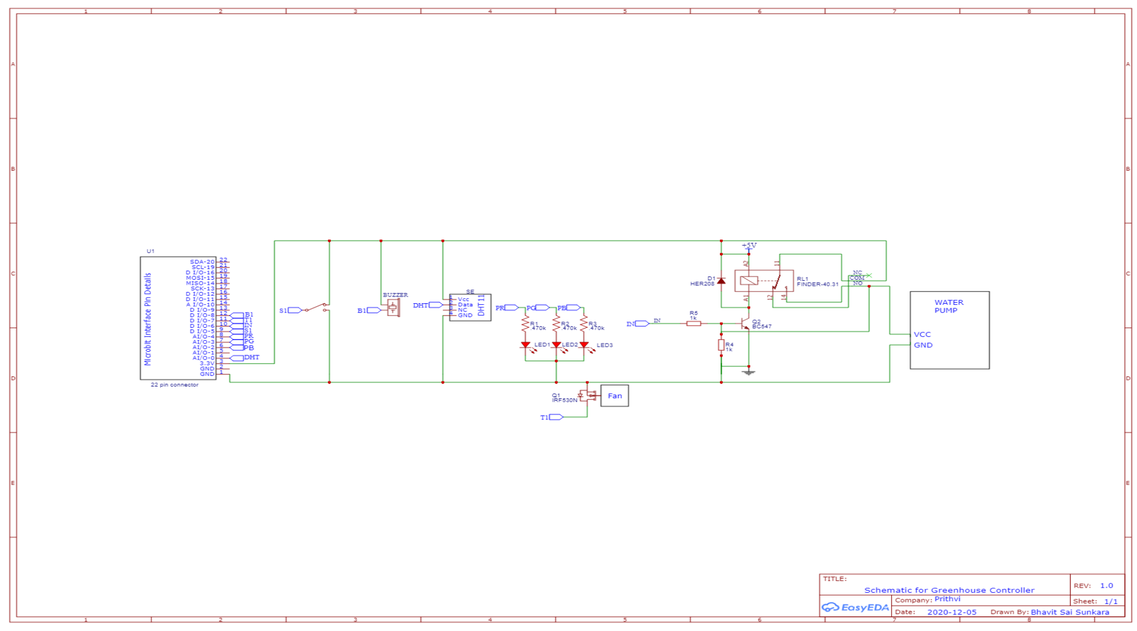
- Using Basic Electrical Systems to mimic the functions of a green house controller:

1. Using a misting pump to decrease temperature and increase humidity.
2. Using a Fan as a dehumidifier.
3. Using Humidity and Temperature Sensor to find out the temperature and humidity.
4. LED signals to represent various states.

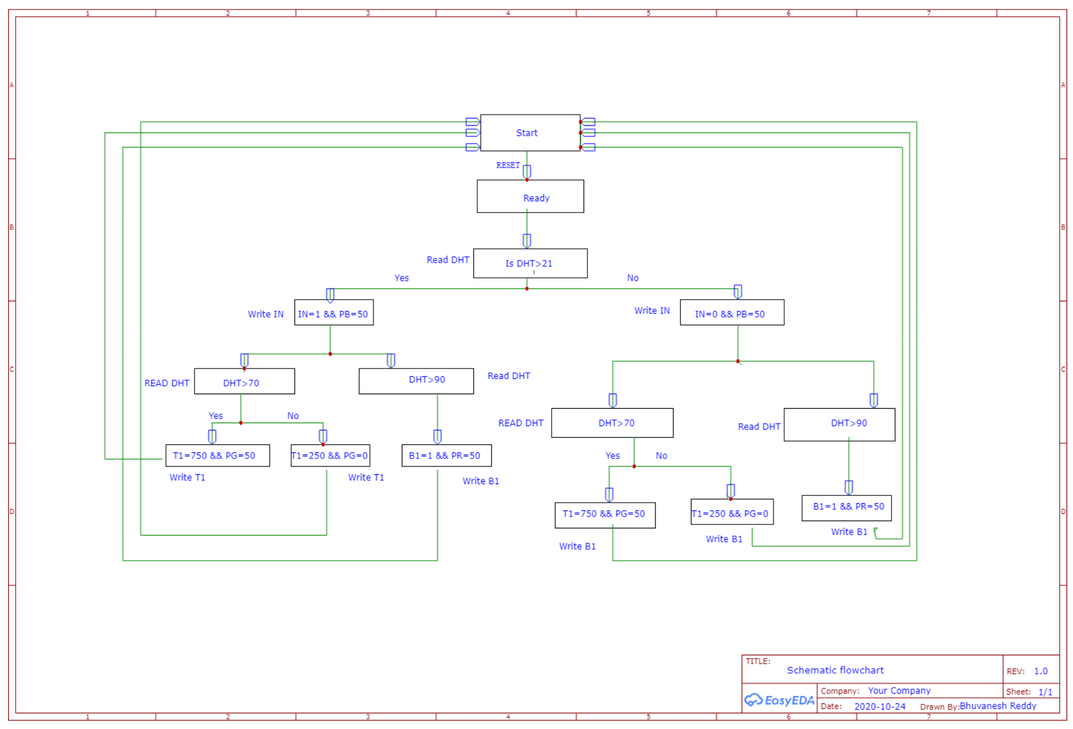
Block Diagram



Circuit Diagram



Flow Chart



Results

- Fully functional Green House Controller powered by a MicroBit and a 12 V electricity source.
- Led lights to display the various states happening.

Conclusions

We were very content with the results that we achieved through this project. We understood the basics behind the working of a greenhouse and the process that is to be followed before creating an actual working circuit. We got a chance to apply our learning from the topics that we learned throughout the semester. Due to the limited resources, we had we were not able to build the actual circuit , if given the chance we would love to build the actual circuit.