ECE 153B Project Proposal

Overview:

This project proposal is for a temperature-controlled fan that changes to low, med, and high speeds depending on how hot the temperature is. The project will use I2C protocol with the TC-74 temperature sensor. Temperature data and fan speed will be displayed on a 16x2 LCD display through I2C and will be sent to a computer through the HC05 Bluetooth Module through UART protocol. Based on the temperature, PWM will be used to change a simple DC Brushless fan's speed. The user can also interact and manually change the fan speed by typing into the Termite terminal.
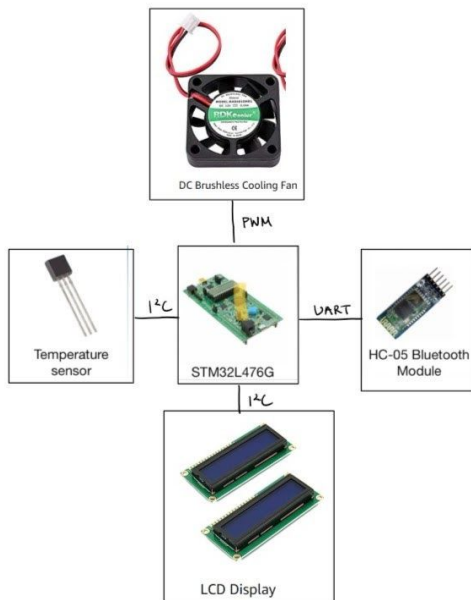
Peripheral:
- TC-74 Temperature Sensor
- HiLetgo HD44780 1602 LCD Display Module
- DC Brushless Cooling Fan, UCEC 4010

Serial Interface Protocols:
- I2C
- UART

Block Diagram:

Responsibility:

All tasks in this project will be the responsibility of Kim Dang.

Software Structure:
- Interrupt upon detecting temperature change to a different fan speed range
- PWM, or changing duty cycles, to control fan speed
- User interaction in terminal can lead to interrupt to set speed manually

Goals:
- Control fan speed with PWM
- Create interrupts based on temperature readings to change fan speed
- Display temperature and speed information on LCD
- Get temperature values and fan speed through Termite
- Disable automatic speed change and set speed upon user input through Termite

Link to project website: https://sites.google.com/view/ece153b-kimdang/home