Robert Lulashi

Southern New Hampshire University

CS 350 10/20/2024

7-1 Final Project

Designing a thermostat requires several functions, reading room temperature, adjusting for a set point and displaying the information. To facilitate the requirements of being a thermostat, certain peripherals must be satisfied. The microcontroller must first be able to read the room temperature with I2C, control LEDs by GPIO that also handles interrupts through button presses (raise and lower set point), transfer data through the UART2, and lastly has the compacity to connect to WIFI. These are all met by the TI CC3220S-LaunchXL microcontroller. A potential competitor that meets all requirements would be the PIC32MM0032GPL020 from Microchip. This product seems to meet all requirements including wireless connectivity allowing access to the cloud. There is also a selling point in that the price is lower than similar products (PIC32MM0032GPL020). NXP has merged with Freespace and there does not appear to be any microcontrollers that meet all requirements.

With this information, there are only two comfortable options to decide from. I will be sticking with the TI microcontroller only because I have more experience with it as opposed to the microcontroller from Microchip. Either option will satisfy requirements and if code was tested on the microcontroller from Microchip there may be a different opinion formed.

References:

Texas Instruments (n.d.). Tool, CC3220S-LAUNCHXL. https://www.ti.com/tool/CC3220S-LAUNCHXL

Microchip (n.d.). PIC32MM0032GPL020. <https://www.microchip.com/en-us/product/PIC32MM0032GPL020>

Microchip (n.d.). Products, Microcontrollers and Microprocessors. <https://www.microchip.com/en-us/products/microcontrollers-and-microprocessors/32-bit-mcus>

NXP (n.d.). Products, OM-SE051ARD-W https://www.nxp.com/products/security-and-authentication/authentication/development-board-for-edgelock-se051w-secure-element:OM-SE051ARD-W