Final Project

For this final project our goal was to create a working thermostat that would control an HVAC system for someone’s house using GPIO interrupts, I2C, and UART. The reason we use GPIO was to control the system with the two button on our board. We used UART to connect to the various systems using wifi, and then from there I2C. The way we check the temperature with our system is using the onboard temperature sensor. This sensor is checked every so often to see if the HVAC system (turns red led light on) should turn off or not. It checks the current temperature to the user set temperature like you would with a regular thermostat. This can be changed with the button on the side of the board, the button on the left turns the temperature down and the button on the right turns the temperature up.

Now to compare the 3 different boards. Our first board is the board we are using for the class which is the Texas Instrument SimpleLink CC3220s. This board support Wi-Fi connectivity and has 256KB of ram, plus external flash memory. Having not used any of the other board this will probably be the board I select as the “best one” considering it is the board I have the most experience with and it supports all of the features needed for this project. The next board is the SAM-IOT WG board from microchip part number EV75S95A. This board is very similar to the TI board, having Wi-Fi capabilities, the buttons LED’s and temperature sensors, as well as 32KB of SRAM and 256KB of regular flash ram. Finally the NXP NXH3675 is the only board I could find from them that would specifically handle this. It has 5 buttons and 2 groups of LEDs. It also has audio capabilities but that would not benefit this project in the slightest.  
  
References

*Sam-IOT WG development board | microchip technology*. (n.d.). Retrieved February 27, 2023, from https://www.microchip.com/en-us/development-tool/EV75S95A

*NXH3675 evaluation kit – bluetooth 5.3 AOBLE certified*. NXP Semiconductors. (n.d.). Retrieved February 26, 2023, from https://www.nxp.com/products/wireless/bluetooth-le-audio/nxh3675-evaluation-kit-bluetooth-5-3-aoble-certified:NXH3675-EVK

*CC3220S*. CC3220S data sheet, product information and support | TI.com. (n.d.). Retrieved February 26, 2023, from https://www.ti.com/product/CC3220S?keyMatch=&tisearch=search-everything&usecase=partmatches#features