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**CS 350 Project Reflection**

The peripherals, GPIO, I2C, and UART, allow the thermostat to communicate by sending and receiving data. Through the UART the sensor can send data to a server over long distances. The GPIO peripheral allows the sensor to toggle an LED on or off, and it provides utilization of two buttons that can change the set point for the sensor. The I2C peripheral allows the sensor to read and communicate temperature data. RAM allows the sensor to store data, or variables, that the program is using while the unit is powered on. This type of storage is much faster than the ROM type. Flash memory is used to permanently store the program that runs when powered on.

TI provides microcontrollers of many varying styles. The SimpleLink CC3220S-LAUNCHXL microcontroller is perfect for the requirements. Another unit, CC3235x, has all of the requirements as well. There are two UART peripherals. The microcontroller has GPIO and I2C as well. This unit comes equipped with Wi-fi, RAM, and optional flash memory. The RAM comes at 256KB and the flash memory is 1MB. It does not have a temperature sensor though.

Microchip provides the WFI32 microcontroller. This unit is a match for the project requirements. The board has LEDS and a temperature with Wi-fi accessibility. The peripherals, GPIO, UART, I2C, are also available on the board. The dynamic memory, RAM, is 256KB in size and, the flash memory is an on-board external type with 32MB.

Freescale, now known as NXP, makes microcontrollers with temperature sensors and Wi-fi. One model is called ZigBee. This is an 8-bit microcontroller and does not possess the memory requirements. The peripherals, UART and I2C, are not on the board. This unit will not support the requirements of the project.

Each manufacturer provides temperature sensors with Wi-fi. Two of the providers can supply what we need to complete the goals of the project. NXP does not produce a microcontroller that is a good fit to the requirements.