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***Explain how the thermostat supports the peripherals used in the project***

The thermostat project makes use of the I2C interface on the CC3220SF microcontroller by loading the included TI drivers for the I2C and then sampling the temperature every second. Combined with the I2C interface, the GPIO is also loaded and uses button detection and callbacks to control a set target temperature. Heating status is simulated and communicated to the user through the use of a GPIO LED indicating whether the heat is currently on or off as the LED is on or off respectively. Finally, information about the current temperature, target temperature, heat status, and microcontroller uptime is sent through the UART interface to simulate sending this data to a server via WiFi.

***Explain how the thermostat connects to the cloud via Wi-Fi***

Since this project was a proof-in-concept prototype and in initial stages, data is not actually sent via WiFi but through the UART interface. Later phases of the project will include sending the thermostat data to a server through the cloud using the built-in WiFi provisioning capabilities of the microcontroller’s subsystem. Such WiFi usage may require WLAN, Socket, NetApp, and Transceiver commands.

***Discuss the architecture’s Flash and RAM that supports the code***

The project code keeps in mind the low availability of memory and uses a minimal allocated amount. This particular microcontroller, the CC3220SF SimpleLink WiFi, has 1024 KB of on-chip flash memory that is used for application code, which allows the SRAM to be used soley for read-write data rather than having both share the same memory such as with the CC3220 microcontroller.

**References**

*Wi-Fi Fundamentals: Getting Started with the Network Terminal Example*. Ti developer zone. (n.d.). Retrieved February 17, 2023, from <https://dev.ti.com/tirex/explore/node?node=A__AMzPbJVUqTVltdG.w2wpOg__com.ti.SIMPLELINK_ACADEMY_CC32XXSDK__wg2mfY3__LATEST>

*CC3220 SimpleLink™ Wi-Fi® and Internet of Things*. (n.d.). Retrieved February 17, 2023, from https://www.ti.com/lit/ug/swru465/swru465.pdf?ts=1655993244690&ref\_url=https%253A%252F%252Fwww.ti.com%252Fproduct%252FCC3220MODA