**Project Report**

The thermostat prototype according to the project specification requires a microcontroller with support for GPIO, I2C, and UART peripherals. GPIO is required to indicate the temperature state (heat on or off) of the thermometer through LED and to adjust (increase or decrease) the temperature set-point for the thermometer by GPIO interrupts on two buttons. I2C is required to read room temperature from a temperature sensor. UART is required to display or output the thermometer status (room temperature, set point, heating state, and seconds) to simulate data to be sent to the server.

Concerning the peripheral requirements for the thermostat prototype, TI has the **CC3220 SimpleLinkTM Wi-Fi® LaunchPadTM**, Microchip has the **WFI32E02UC**, and Freescale(now NXP) has the **88MW32X 802.11n Wi-Fi**®**Microcontroller SoC**. All three hardware architectures use wireless network communication to facilitate the transfer of thermostat data to the cloud. They all also have enough Flash and RAM capacities to support the thermostat code: TI’s **CC3220**series provides 256KB of RAM with the **CC3220SF** including 1MB of Flash, Microchip’s **WFI32E02UC**provides 320KB and 1MB Flash, and NXP’s **88MW32X**provides 512KB RAM and support for flash devices including 32KB SRAM cache.