**Module 7-1 Project**

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CS-350-10935-M01 Emerging Sys Arch & Tech

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August 22, 2024

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The project involves developing a smart thermostat prototype using a TMP006 temperature sensor to read room temperature, an LED to indicate heating status, and two buttons to adjust the set temperature. The data is sent to a server via UART. This initial prototype focuses on low-level functionality, but the ultimate goal is to connect the thermostat to SysTec’s cloud-based analytics software using Wi-Fi.

The TI architecture, such as the CC3200 or CC3220, offers integrated support for I2C, GPIO, and UART, making it compatible with the TMP006 sensor, LED, and buttons. It also includes a built-in Wi-Fi module, which simplifies cloud connectivity. The Flash and RAM provided by TI's architecture are generally sufficient to handle the application, ensuring reliable performance and future scalability. The microchip’s architecture supports the required peripherals and can be equipped with either an integrated or external Wi-Fi module. This flexibility allows for customization based on specific needs. The Flash and RAM available in Microchip’s architecture are robust, making it a viable option for handling the software requirements of the thermostat. The Freescale's architecture provides similar support for the necessary peripherals and can achieve Wi-Fi connectivity either through integrated or external modules. The Flash and RAM capacities of Freescale’s architecture are comparable to the other options, ensuring it can support the application’s demands.

After comparing these three architectures, the TI option stands out as the most suitable choice for SysTec’s needs. Its integrated peripheral support, built-in Wi-Fi, and sufficient memory make it an efficient and reliable solution for the next phase of the thermostat project. By selecting TI’s architecture, we can ensure a smooth transition to cloud connectivity while maintaining the core functionalities established in the prototype.