Final Project

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1. Explain how the thermostat supports the peripherals used in the project. Make sure that you have included all the required details from the scenario in your report. You should discuss each of the three outlined hardware architectures, including TI, Microchip, and Freescale.
   1. The three different hardware architectures that I will describe come from three different companies. The first is the one I used for this project. Texas Instruments had all the supporting peripherals needed in a microcontroller to complete the thermostat. This chip supported 38 pins, and according to Design News (D.N.S, 2017), can produce microcontrollers as cheap as $2. This will make for an inexpensive solution if you are intending to implement this project into a real-world scenario.

The next company I will be discussing is the Microchip company. This company has a wide range of microcontroller options (mcus, 2022). After I reviewed their products, it appears that they specialize in touchscreen inputs. In today’s world, where we enjoy touchscreen technology, this would make for a better product in today’s economy. They also support two different core architectures, ARM and MIPS. The only downside that this company has, is that they don’t offer products as cheap as Texas Instruments does. This would increase the product price when finished for market review.

The last company that I will review is the Freescale company. This company has the widest range of products that, in turn, have a wide range of uses. Their products range anywhere from 16 pins to 121 pins while only utilizing one type of core architecture, the ARM architecture. This company doesn’t specialize in one type of use over another, instead they appear to want to display everything for the users to choose from.

1. Explain how the thermostat connects to the cloud via Wi-Fi. Discuss all three architectures in your work.
   1. All three companies’ products can access the cloud via Wi-Fi. For the Texas Instruments, their newer products have the capability to access the cloud via broadband equipment that is built into the chips. Microchip also has this capability with their new microcontrollers. Freescale appears to have had this capability the longest. All three companies utilize broadband equipment that can access the internet, which in turn, allows them access to the cloud. Because all three companies can access the cloud, this shouldn’t be a deciding factor when deciding which company to purchase your microcontroller form.
2. Discuss the architecture’s Flash and RAM that supports the code. Include all three architectures in your discussion.
   1. Texas Instruments supports 1024KB of flash memory and 256 KB of RAM. Microchip supports between 8KB and 1MB of flash memory and between 32KB and 64KB of SRAM. Freescale supports up to 1MB of flash memory and up to 128KB of SRAM.

References

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