Module Two Journal

Justin Smith

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To refresh, non-volatile memory is a type of memory that retains stored data even when the device is powered off (Vivekanandan, 2023). With this said, it is easy to understand why this type of memory is so important within an embedded system. For one, space is typically limited within an embedded system. Furthermore, embedded systems will often have a need to store needed information that will still be available if the system is powered down.

Now, a desktop system will still have a need for non-volatile memory, but the information that is stored will differ slightly from that stored within an embedded system. Desktop systems may store specific application data, operating systems, and user data/files. Embedded systems will often retain more system related tasks within this type of memory. One example of this is a bootloader. This could be a program that is specifically responsible for loading the system. It would also contain configuration settings, firmware, and data logs. So, in short, an embedded system will utilize non-volatile memory for more system specific commands and data to ensure that the system will continue to operate when the power has been cycled.

One of the main differences between a desktop and embedded system is the need for human interaction (GeeksforGeeks, 2024). A desktop system is user focused, with an intuitive UI system that requires user commands to function. An embedded system will often not require human interaction to function unless specific input is required. While there may often be less tasks being completed within an embedded system, they will usually be fine-tuned to a specific functionality. Due to this, they will often use less power and will be less complex than a desktop system.

Some of the previously mentioned differences speak to the benefits of an embedded system. Since they are fine tuned to specific functions, they often excel at them. They also manage to do this with less memory needs, less power consumption, and much less physical space. They also have a strong focus on their stability and reliability. Many of these systems are performing critical tasks, so this is really important!

*References:*

* *Vivekanandan, M. (2023, September 21). Non-volatile memory (NVM). LinkedIn.* [*https://www.linkedin.com/pulse/non-volatile-memory-nvm-madhavan-vivekanandan*](https://www.linkedin.com/pulse/non-volatile-memory-nvm-madhavan-vivekanandan)
* *GeeksforGeeks. (2024, February 29). Difference between computer and embedded system. https://www.geeksforgeeks.org/difference-between-computer-and-embedded-system/*