4-2 Journal: Best Coding Practices

By: Onasis McCuien

Embedded systems are unique systems that are designed for a specific purpose. For example, a smart watch. A smart watch has a specific operating system that will allow you to see the time, date, temperature, monitor heart rate, blood pressure, steps taken, etc. These things are embedded into the smart watches operating system. You can only view those options that are programmed into that devices operating system.

Now that we have somewhat of a basic understanding of embedded systems, and what applications they are typically used for, lets talk about how engineers develop the code for these embedded systems. In any code, like java, C, C++, Python, etc. You want to develop the code so that it is easy to follow. Your Architecture should be easy to follow for others. It should not be complicated code written just so that you can try and look good. Your code should be structured and outlined with comments so that other programmers can easily identify what you were trying to do with your code. You don’t want lengthy code. You want to write code that is very concise. Make sure that you incorporate good naming conventions in your code writing. Make sure that your code is modular. In other words, write your code in legible sections. Keeping it simple, and testing your code as you go, which is part of the scrum methodology, will help you to become a better programmer all together. The “KIS” methodology, “Keep it simple”, is the best advice anyone in any field can utilize.

Let’s address some of the issues associated with embedded systems. Embedded systems, even though they do a lot, typically have limited memory associated with them. This is due to the simple fact that embedded systems are designed for a specific purpose, and the allocated memory is just enough for the internal operation that the operating system was designed for. Another issue is security. Embedded systems are also subject to being interrupted. They can be hacked just as well as any other operating system. Anytime that code is associated with something, it can be hacked. A best practice to try and address this issue is to incorporate security protocol earlier in the coding process.