PETER'S UPDATED LEARNING REFLECTION

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Objective

Over the past month, I have engaged in developing a course focused on programming embedded systems, with a particular emphasis on teaching Arduino basics. Through this process, I have gained meaningful insights into how to structure and deliver content effectively for learners at the introductory level. I created a syllabus, assignments, and accompanying documentation that detail my teaching approach, including my thoughts and the rationale behind my choices. To support the learning experience, I provided working code examples, all of which are available on my GitHub and directly linked to corresponding video demonstrations hosted on my YouTube channel. This integrated approach—combining written materials, practical code, and visual demonstrations—has significantly contributed to improving my ability to teach Arduino concepts in a clear, engaging, and accessible way.

Why am I doing this?

While working code may not be "wrong," I believe there is always room for growth and improvement. One of my goals is to encourage others to expand their skills by exploring alternative approaches to solving problems. There is often more than one way to achieve a result, and reflecting on our choices helps us become better programmers. In my teaching materials, I intentionally avoid overwhelming beginners with complex terminology or overly detailed explanations. Most of my code examples and documentation focus on simple, accessible concepts that help learners build a solid foundation.

Also, I emphasize the importance of reflection in programming—questioning not just how something works, but why we choose to write code a certain way. Personally, this approach has helped me improve as a developer. Although I may know how to achieve a result, I now ask myself whether there might be a more efficient, flexible, or elegant solution. On my GitHub, each example often takes a slightly different approach to demonstrate the wide range of possibilities within embedded programming. In the coming months, I plan to continue expanding this collection with more code and videos to showcase additional concepts and teaching strategies.

Documents

The purpose of these documents is to support learning and make embedded systems education accessible to the general public. I have made them freely available on GitHub because I believe that education should be open and inclusive. The materials include a sample syllabus, suggested assignments, and reflections on how and why I structured the course the way I did. One of the documents also explores the different languages used with Arduino. While I haven't recommended a specific language, most of the example code in my GitHub repository is written in C++ with some use of assembly. As I continue to expand the content, I plan to include examples in a broader range of languages. This will help illustrate the unique strengths of each language and further enrich the educational value of the documentation.

What are my weak points?

One area I recognize as a weakness is developing videos for my YouTube channel. While I believe I am doing a decent job, I would greatly appreciate more feedback from a wider audience to help me improve. Unfortunately, I lack consistent, constructive guidance, and it has been challenging to find a mentor or coach to assist me with growing and refining my YouTube presence. Despite this, my passion for teaching coding and embedded systems motivates me to keep creating these videos. Through them, I hope to continue sharing knowledge about programming and Arduino with learners around the world.

Where to go from here?

There are many different aspects to develop in this mock class, and my personal goal is to progress beyond just meeting the class outcomes. For instance, I plan to create more example code and explore additional programming languages to encourage learners to experiment with different tools. This will enrich the teaching materials and provide a broader perspective. Additionally, I want to improve my videos and how I present both code and hardware. This would enhance my YouTube channel and help me build stronger connections within the embedded systems community. Ultimately, I believe there is always room to learn and grow, and I am committed to continuously improving in these areas.

Resources

My goal is to help people in the journey of developing software and hardware skills. The links below are my resources for anyone's use.

YouTube: https://www.youtube.com/channel/UCOv_iZCx4CW5Y9S8YzXDdgg

GitHub: https://github.com/Vaughan-Peter?tab=repositories

LinkedIn: https://www.linkedin.com/in/peter-vaughan-997478239/

E-mail: otherhalifaxprojects@gmail.com

Arduino Website: https://www.arduino.cc/