CPE477/ECG677 – Embedded Security & Machine Learning

Design Assignment

DO NOT REMOVE THIS PAGE DURING SUBMISSION:

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Github Repository link (root):https://github.com/MarioRod2050-unlv/Designs_STM32F401RE_NUCLEO_fall25.git

Youtube Playlist link (root):https://youtube.com/shorts/l1B1-19Vwpg?feature=share

Follow the submission guideline to be awarded points for this Assignment.

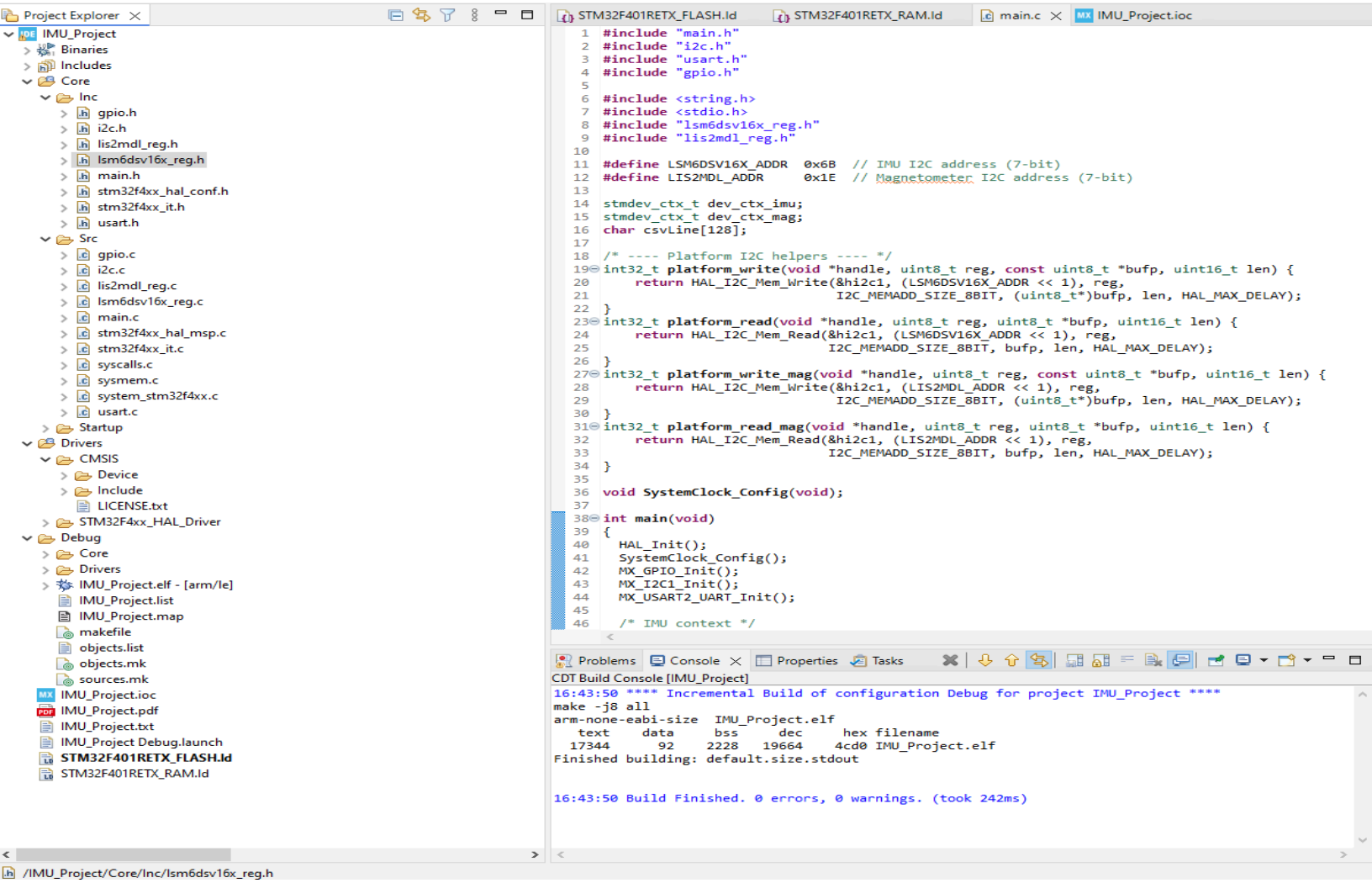
Submit the following for all Assignments:

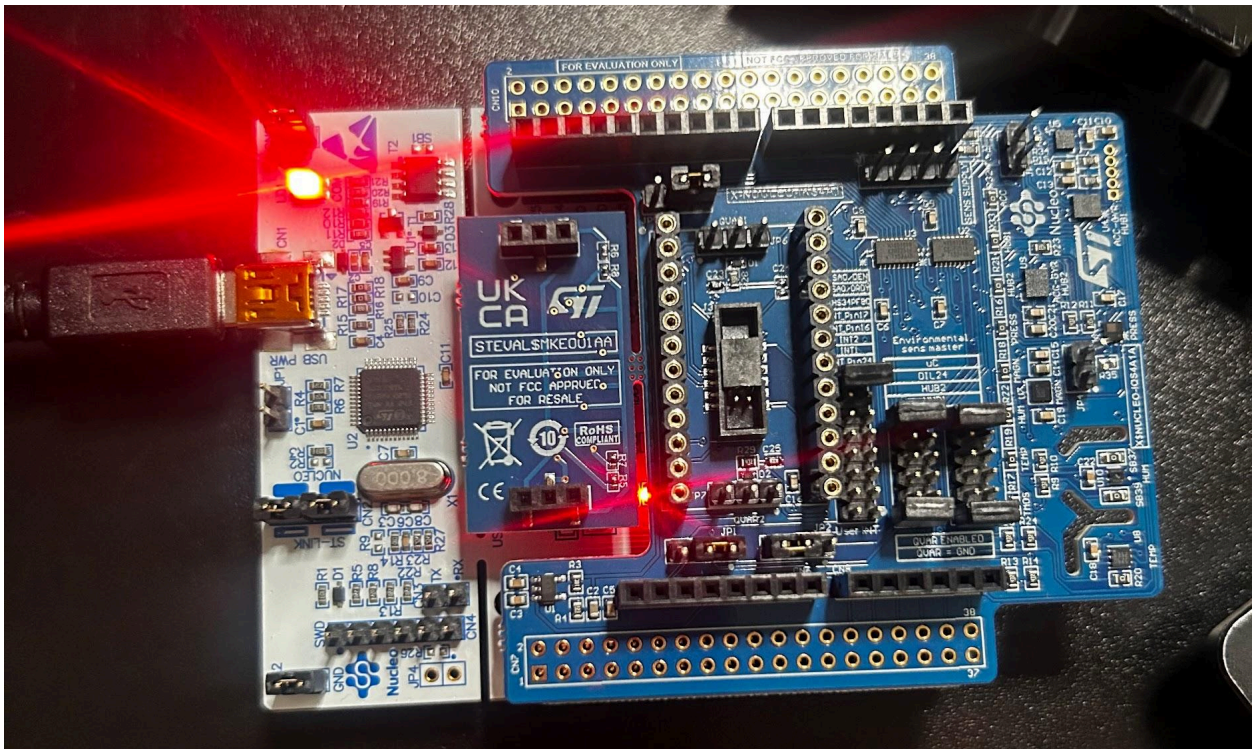
1. No base code is provided
2. Create a private Github repository with a random name (no CPE477/677, Lastname, Firstname). Place all assignments under the root folder, sub-folder named Assignmentn, with one document and one video link file for each lab, place modified c files named as main.c.
3. If multiple ‘c’ or ‘h’ files or other libraries are used, place these files inside the folder.
4. The folder should have a) Word document (see template), b) source code file(s) with other ‘c’ and ‘h’ include files, c) text file with youtube video links (see template).
5. Submit the pdf file in canvas before the due date. The root folder of the github assignment directory should have the documentation and the text file with youtube video links.
6. Organize your youtube videos as playlist under the name “EMBSEC&ML”. The playlist should have the video sequence arranged as submission or due dates.
7. Only submit pdf documents. Do not forget to upload this document in the github repository and in the canvas submission portal.

1. Goal: Explain what is explored in this assignment and what was accomplished?

The goal of this assignment was about learning how to connect the STM32F401RE board with the X NUCLEO IKS4A1 shield to read motion and magnetic sensor data. I was able to configure the accelerometer, gyroscope, and magnetometer, then stream their raw values through UART in a CSV format. I was able to get the board to keep sending out live sensor data that I could easily log and check out.

2. Screenshots of the IDE, physical setup, debugging process – Provide screenshot of successful compilation, screenshots of graphs, etc.





Video demo:https://youtube.com/shorts/l1B1-19Vwpg?feature=share

3. Declaration

I understand the Student Academic Misconduct Policy - http://studentconduct.unlv.edu/misconduct/policy.html

"This assignment submission is my own, original work".

Mario Rodriguez