
EE/CprE/SE 492 Status Report 5

03/13/2025 - 04/02/2025

Group number: ***sdmay25-33***

Project title: ***Interactive Embedded Systems Learning using the Prairie Learn Framework***

Client &/Advisor: ***Phillip Jones***

Team Members/Role:
Rachel Druce-Hoffman — Notetaker
Justin Cano — Technical Lead
Joey Krejchi — Quality Assurance
Caden Otis — Project Manager
Devin Alamsya — Consultant

- **Past week accomplishments**
    - Joey: I was overseas for the entire break and did not work on the project. The next week, I developed the three parts of HW9 question 4 and got that to a functional level. The previous team had left these problems completely unfinished so I basically started from scratch on the autograding. I was able to follow the some questions in HW10 made by Mitch as examples to get that running. The first question asks the user to initialize the timer, the next question defines the handler, and the third question asks the student to create a stopping algorithm. Each question runs the student code in the autograding container along with a correct code snippet and compares the output.
    - Caden: During spring break, I was able to get problem HW7_5A fully randomized. This means the problem now chooses a UART at random (UART1 - UART7) and also chooses whether the picked UART enables receive interrupts, transmit interrupts, or both. To generate the correct solution, I had to convert the ‘CPRE288-GPIO.cpp’ file into a python file called ‘gpio.py’ so that server.py could use it, but the new python file made it really easy to find the correct bitmasks for the GPIO registers based on which UART the problem was using. I also looked through documentation that the previous teams didn’t create, and made a list brainstorming potential documentation items that the team should complete before the end of the semester. The next week, I worked on creating documentation for how one would go about autograding different types of questions in PrairieLearn, such as multiple

choice, textbox, and C-programming questions. For each section of the documentation, I made sure to provide images/visuals to easily demonstrate its corresponding text. I also made a small section talking about autograding ARM assembly questions and redirecting the readers to existing documentation that the previous team made already.

- Devin: I looked through the things that I have worked on throughout the semester and brainstormed what things need to be documented. I also looked back at the previous team's documentation to see where things may need to be improved or redone. This week I had to fix the memory map question as I forgot that I needed to flip it to have the highest memory address at the top and the lowest memory address at the bottom. Worked on creating documentation for drawing a multiplexer in PrairieLearn using pl-drawing. Want to give future teams both text to read and visuals in the form of pictures inside of the written documentation. I also worked on creating documentation for creating a memory map in the desired format we had talked about.
- Rachel: I adjusted my Python script so that the input values that are unlikely to change (ie course ID, list of students) can all be contained in one file. Values that will change each time (ie homework ID) will still need to be provided each time. This streamlines the process for the instructor. I made a writeup for setting up a Canvas test page. I made a writeup for our Beta Test plans for the next group to use as a starting point for their plans. I created a README for my script explaining how to use it, and I created a writeup for it. I went to make the video for the student instructions, but there is a bug with the production server when I click “add course” so I will make the video when that is resolved. Wasn’t able to accomplish anything due to illness.
- Justin: Did some research into the error I was getting with Microsoft SSO and believe I may have found a solution. In order to test it, I need to get certain information from our azure AD which you did not provide in your initial email to me. I do not have access to azure AD, so I will hopefully get you to send me the correct information. This week, after doing more research into the error Prairielearn was giving if you were to try and access our course, I believe it may be caused by Microsoft SSO not working. It seems to be expecting the account to be a Microsoft account rather than a google account which is causing the error. Since we’re still waiting for a response from ISU Service Now, I spent the rest of my week updating documentation with everything I’ve had to do to get this working so far.

- **<u>Pending issues</u>**
  - Get correct information from azure ad page for our project.
  - Waiting for response from Dr. Rover on how/when to go about testing
  - Figure out how to print a message in the submission comments if the students’ code doesn’t compile due to forbidden functions (H2_Q5)

- **Individual contributions**

NAME	Individual Contributions	Hours past 2 weeks	HOURS cumulative
Caden Otis	Fully randomized problem HW7_5A and incorporated the CPRE288-GPIO.cpp to get the correct answers based on the chosen UART. I also brainstormed a list of documentation items that should be worked on for the rest of the semester. Made documentation to explain how to autograde different types of questions in PrairieLearn.	11	52
Rachel D-H	Edited and debugged script. Created readme file and 3 documentation writeups. Wasn't able to accomplish anything due to illness	6.5	43.5
Justin Cano	Did research into the issue I was having with microsoft SSO.	10	45.5
Joey Krejchi	I was overseas for the entire break and did not work on the project. Made the three parts of HW9 Q4 functional and autogradable.	8	45
Devin Alamsya	Brainstormed documentation. Fixed memory map. Worked on documentation for randomized multiplexer creation and creating a memory map.	8	43

- **Plans for the upcoming week**
    - Joey: I will make tweaks to last week's questions and comment on the code I wrote. will then do the final HW9 question and move on to another homework.
    - Caden: For next week, I plan on writing documentation (most likely extending off of Devin's documentation) to describe more of the randomization process and provide further examples of randomization that we've incorporated. Within this documentation, I will also mention the CPRE288-GPIO.cpp/.h files to make it easier to autograde questions that involve randomizing different aspects of the GPIO registers.
    - Devin: For this upcoming week I will continue to edit and improve the documentation that I've completed. I also want to add on to the documentation of previous years teams that show new teams how to set up PrairieLearn. Adding documentation of running PrairieLearn locally on a mac (apple chip) could be helpful so if someone finds themselves with those specifications, they don't try to mess around with a VM too much before figuring out what works best. I would also like to look at improving the old team's documentation on homeworks and questions.
    - Rachel: I may revise the writeups I created this week. I will assist with other documentation and questions as needed.
    - Justin: Hopefully get a response from servicenow and get SSO working and the error fixed.

- **Summary of weekly advisor meetings**
  During our weekly advisor meetings, we have gone through our progress on the last several HWs that we are still working on. We have gotten several suggestions from our advisor on what we should change, and we have implemented those changes into the HWs themselves. We have also discussed with our advisor documentation that we currently have and reviewed the quality of those documentation items, as well as brainstorming any other documentation items that we should create before the end of the semester.