EE 4910 WEEKLY REPORT: 9

4/21/2026 - 4/27/2026

Group number: 06

Project title: Developing a Cost Effective NIR VIS Spectrometer

Client &/Advisor: Avishek Das & Manojit Pramanik

Team Members/Role: Ryan Majstorovic, Evan Tamer, Dawson Posekany, Samar Gill

Weekly Summary

This past week, the team's primary focus was on presentation preparation and documentation. The team reviewed and refined the PowerPoint presentation that will be delivered to a faculty panel on Monday 5/4/26, walking through it with Avishek to gather his feedback and input. Avishek provided feedback requesting that the slides include photos of the physical components and that any changes in component selection be reflected in the updated presentation.

On the hardware side, the team has working STM32 code that successfully reads sensor data from the CCD, and this has been confirmed with oscilloscope measurements. Laser diodes for calibration and testing have been placed in their focusing housings. Avishek is currently working on ordering the higher wavelengths needed to extend coverage up to 1000 nm.

In addition, the team has been working on the design document and is preparing to complete a revision before submitting the final version. Several known bugs and optimizations, including integration time adjustment, have been intentionally deferred to prioritize end-of-semester deliverables; these will be addressed as second semester goals.

Past week accomplishments

Samar: Initial setup of the microcontroller was working. Timers still need to be adjusted (see Pending Issues).

Evan: Prepared for faculty presentation and worked on the design document.

Ryan: Worked on final presentation review and design document structure and formatting.

Dawson: Reviewed and tested GUI code made by Ryan. Updated project website and documents.

Pending issues

1. Several known bugs, including adjusting the integration time, have been put on hold while the team focuses on end-of-semester presentation preparation. Integration time adjustment and other remaining bug fixes will be carried over as second semester optimization goals.

Individual contributions

NAME	Individual Contributions	Hours this week	HOURS cumulative
Ryan Majstorovic	End of semester documentation	5	67
Dawson Posekany	GUI testing, website + documentation	6	55
Samar Gill	Initial microcontroller setup working; timers still need adjustment.	6	45
Evan Tamer	Slides for faculty panel and design document	6	53

Comments and extended discussion

We need to investigate software acquisition for 3DOptix software it seems the cost for a student plan is ~$35 a month we need at least one month and then possibly needing more during the second semester.

- Update: We did not investigate this any further we have shelved the optics design for the CCD to be semester 2 along with any additional improvements.

Planned Tasks for the next couple of weeks:

1. ~~4/7/26 – Begin optics testing with components available in the lab.~~
   ~~4/7/26 – Continue working on microcontroller timers.~~
2. ~~4/13/26 – Begin testing with optical housing once delivered. Continue software and timer refinement.~~
3. ~~4/20/26 – Full optics bench testing with delivered housing. Continue calibration and software refinement.~~
   a. ~~Update: Unfortunately we weren't able to do bench testing due to desktop interface design review and building the calibration device.~~
4. 4/27/2026: we reviewed the full presentation and setup meeting times for later in the week for additional review before the meeting with Manojit.
   a. 4/28/26 Meeting for the full presentation review.
   b. 4/30/26 Meeting with Manojit to discuss the presentation and plan for faculty review
   c. Additional meeting should be scheduled for design doc review and completion

Plans for the upcoming week

Samar: Configure the timers given the design specifications on the github.

Evan: Work on end of semester documentation and plan for the rest of the projects run time, including summer goals.

Ryan: Work on formatting and presentation of the design documents and presentation. Ensure proper standards of formality and ensure documents follow logical steps.

Dawson: Preparing documentation for end-of-semester presentation and assignments. Continue GUI Testing and Optimization research.

Samar, Evan, Ryan & Dawson: The full team will begin optics testing using components already available in the lab. The team will also continue refining the microcontroller timers while waiting for the ordered optical housing to arrive.