

# CAPSTONE: SEA SCANNERS

## MINUTES OF FIFTH INSTRUCTOR MEETING

A virtual meeting of the Sea Scanners team along with project instructors/advisors Dr. Herbert Hess and Dr. Feng Li was held on Friday, October 30, 2020 over the Zoom conference platform. Ethan Morris was the designated recorder.

The meeting began at 3:33 p.m. (PST).

Attendance was noted. All present members are listed below.

The team presented their Design Validation Plan (DVP) with Dr. Li and Dr. Hess and received feedback.

- The team determined the control system will be closed loop
- Dr. Hess asked how fast the antenna needs to align
  - The GPS readings are received at 1Hz each (~1 second)
    - Therefore, the system could only control 0.5 Hz at most
    - This gives the system a lot of bandwidth to work with
  - The team needs to add a requirement on the DVP for sampling and response
  - The system will have to wait about 1 second between GPS readings
  - The team stated that the antenna should align within 30 seconds
- Dr. Hess stated that there needs to be either feedback control or heat-sink material for thermomanagement
  - The team should discuss this in the DVP
- Dr. Hess asked how the team is going to describe waterproofing the housing of the system
  - The team could look into UL standards
  - The team could look at pressure differential
  - There should be a formalized description of this in the DVP
- Dr. Hess inquired upon the GPS coordinates
  - There needs to be an expression of the effectiveness of signal processing and data collection
    - There are two communications with our project:

- The GPS coordinates being sent to the control system
  - The data being sent by the barge antenna to the on-shore one
- Ask the client if the team could get real GPS data sets from the base for testing purposes
  - The other option could be getting a dummy set
- The team needs to be able to mimic the GPS system for testing since they cannot get the GPS equipment from the client

The Value Proposition was then presented and discussed upon.

- There should not be much technical detail in this document
- The instructors approve of this document

There was then some Q&A over the purchasing process with Dr. Hess.

- There has been a change in the purchasing process
  - Rather than take the request to Dr. Hess, Cade will need to send them to the department's senior design financial contact
    - This could be Brooke Dahmen, but Cade should check
- Dr. Li will send examples of formal order requests to the team
  - When the team wants to submit an order request, they should Dr. Hess revise it first

The team and instructors then discussed the upcoming Concept Design Review (CDR).

- This event is a review of the project progress
- The team should show how the problem they were given should be solved
  - The team must describe the problem first
- There must be support of the design plan through numbers and simulations
  - Control Flow and Data Flow Diagrams
  - Solidworks
  - Lots of diagrams
    - There will need to be a thermal design
- The team should use PowerPoint but also use other software to demonstrate simulations and calculations
- The DVP should be proven through the CDR
- The project schedule should be discussed
- The budget should be brought up
  - Show the budget spreadsheet
- If the team wanted to, they could present multiple options and compare them
- The team will use the Capstone Zoom Rooms for this event

Dr. Li and Dr. Hess left the meeting at 4:18 p.m. (PST)

The team discussed things to do over the next few days.

- The team will meet Sunday to start writing the control system algorithm and discuss week plans to prepare for the Design Review
  - The team will also solidify the date and time for the Design Review
- The team needs to have all of the documents and simulations done for the Design Review by next weekend

The meeting was virtually adjourned at 4:30 p.m. (PST).

Respectfully Submitted,

Ethan Morris

Member of the Sea Scanners Team

**Members Present:**

Sea Scanners Team

Dr. Herbert Hess

Dr. Feng Li