

708167 - WEC Dynamics and Control

Week 43

1. Eric Martin
 - a. Developed basic data ingestion pipeline for the data set the buoy has been collecting.

Week 41

1. Rich Henthorn
 - a. mainbuoycontroller ROS-ification kickoff

Week 32

1. Rob McEwen
 - a. Sent a package of code and instructions to Umesh, so that he can prepare his wave-prediction Matlab algorithm for conversion to C/Matlab API.
 - b. Will convert this to C and test in Matlab when he responds

Week 31

1. Rob McEwen
 - a. Converted the first wave-prediction function from Matlab to C code linked back into Matlab with their API.
 - b. Verified that it produces the correct results.

Week 27

1. Eric Martin
 - a. Bi-weekly meeting
 - b. Phone call scheduling with Dale Griffith

Week 26

1. Eric Martin
 - a. Radar data assessment

Week 25

1. Eric Martin
 - a. Bi-weekly meeting

Week 22

1. Andy Hamilton
 - a.

Week 21

1. Eric Martin
 - a. Developed sample LCM realtime parsing code example for Dale
 - b. Very Close on decoding the radar data packets

Week 16

1. Eric Martin
 - a. Attended 2 meetings, trying to get offline data analysis set up.
2. Rob McEwen
 - a. Merging my wave-crest location Matlab code with Umesh's sea-surface-elevation prediction Matlab code.
 - b. Will clearly define inputs and will produce a plot showing the predicted elevation against that measured by the AHRS.
 - c. Umesh will need to work on this after me to consolidate and configure his code.

Week 15

1. Rob McEwen
 - a. Will clean up Matlab code and investigate conversion to C/C++ real-time.

Week 14

1. Eric Martin
 - a. Trying to convert Umesh's code

Week 13

1. Eric Martin
 - a. Diagrammed WBS for software efforts needed prior to deployment.
2. Rob McEwen
 - a. Cleaning up Matlab script in preparation for conversion to C/C++ code.

Week 12

1. Eric Martin
 - a. Revising SW dev plan, and meeting with group.

Week 11

1. Rob McEwen
 - a. Wrapped up wave-crest-location estimates using simple method. Sent results to the team.

Week 10

1. Rich Henthorn
 - a. DOE grant work scheduled to heat-up in 3Q 2021
2. Eric Martin
 - a. Developing a plan for software efforts.
 - b. Prepping for a pier test for next week.
3. Rob McEwen
 - a. Implementing another technique to detect wave crests suggested by Mathworks applications engineer.

Week 9

1. Rich Henthorn
 - a. Bumpy ride building ROS 2 on 32-bit ARM controller
 - b. Team decided that moving to a 64-bit Ubuntu RPi 4 controller was worth a try
 - c. ROS 2 installed on RPi 4 and our WEC skeleton nodes built tested
2. Eric Martin

- a. Failed build of ROS on the TS7970
3. Rob McEwen
 - a. Experimenting with the Computer Vision toolbox on a free trial. Will meet with a Matlab application engineer tomorrow for further advice on wave speed estimation.

Week 8

1. Rich Henthorn
 - a. Working thru issues while building ROS 2 on target system
 - b. Target system is arm32 requiring us to build from source
 - c. Installed dependencies now building ROS packages
2. Eric Martin
 - a. SBC moved into the lab, added to the can network

Week 7

1. Eric Martin
 - a. Moving sbc into the lab

Week 6

1. Francois Cazenave
 - a. Helping with PTO tests
2. Rich Henthorn
 - a. ROS 2 research
3. Eric Martin
 - a. Meeting last Friday, we're still in data analysis, but the realtime driver is getting near time for it to become defined.

Week 5

1. Eric Martin
 - a. Building out TS7970 with ubuntu for ROS install

Week 4

1. Eric Martin
 - a. Getting an image of Ubuntu onto the spare TS7970 for ROS Eval
2. Rob McEwen
 - a. Investigating feasibility of Optical Flow algorithms to compute incoming wave speed.
 - b. Obtained free 30-day trial of Matlab computer vision toolbox suite.

Week 2

1. Rob McEwen
 - a. Continuing to improve the wave crest identification algorithm and Matlab code.
 - b. Estimating wave arrival time using distance-to-the-wave-crest, wavelength, and the dispersion relation.
 - c. Integrating the Ahrs data. The objective is to compute the measured arrival time and check the above estimate.

Week 1

1. Rob McEwen

- a. Developed prototype code in Matab that detects wave crests from radar data using the Hough transform, an image processing technique.
- b. Can now estimate wavelengths of approaching waves. But this process is noisy and needs further adjusting and filtering.
- c. Testing this now on existing data. It looks promising.
- d. Will now use this data to estimate wave arrival times.