University of Hawai'i at Manoa SCEL

Acoustic Wind Sensor PDR Presentation

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Summary

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1. Overview of Block Diagram
2. Progress
3. Problems
4. Alternative Approach
5. Future Tasks

Block Diagram

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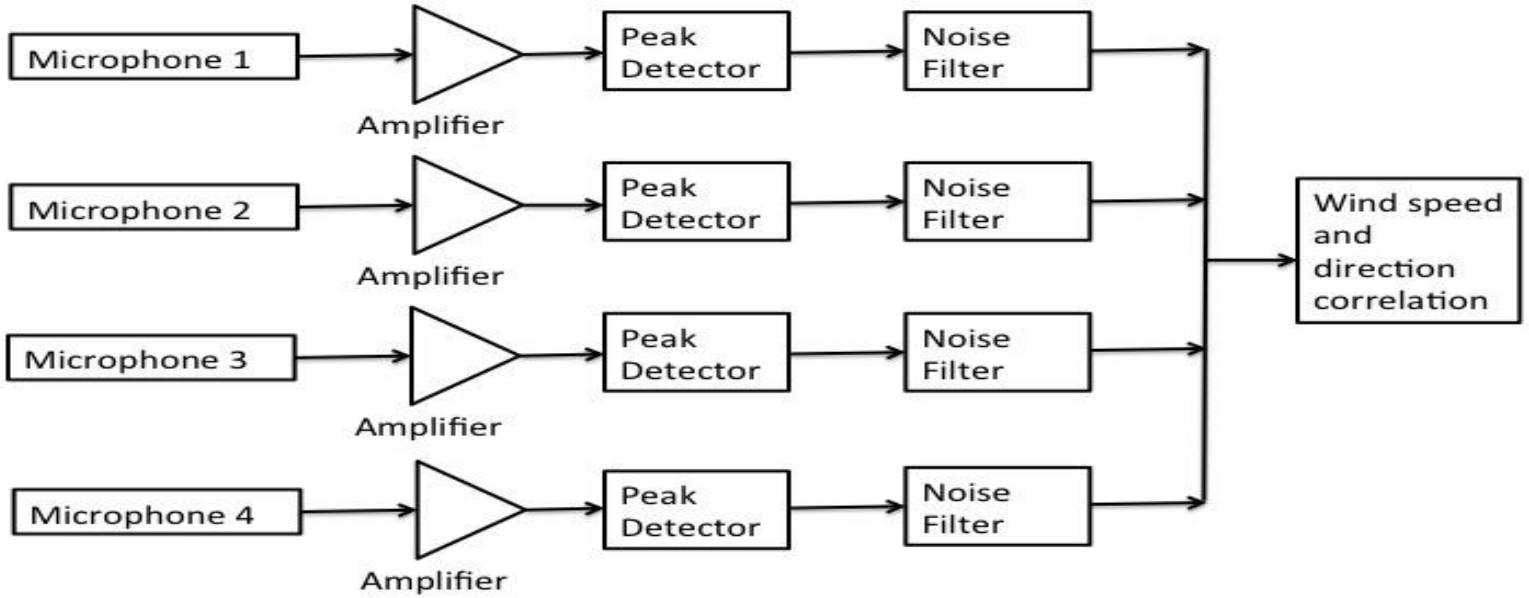

Block diagram for the acoustic wind sensor

Progress

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- Simple tests with new anemometer
- Trying to interfacing via MATLAB over RS-232

Omega HHF 802 Anemometer

Progress (cont.)

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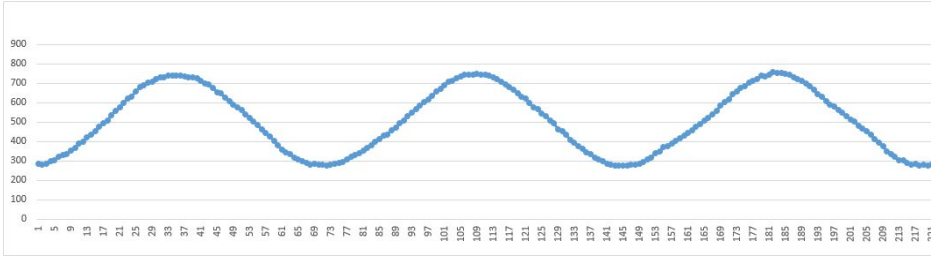
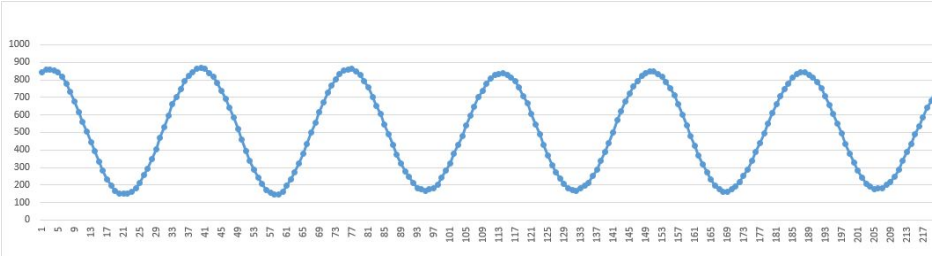
- Analog reading tests on the Teensy
- Contrasted waveform data from different frequencies using a phone to generate the signals
- No filtering used



1 kHz waveform



2 kHz waveform

Problems

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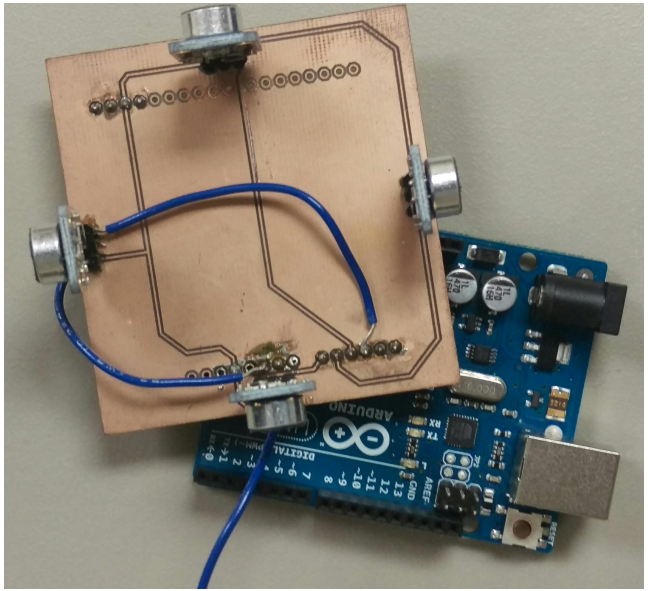
- Arduino Implementation not working
- Cannot communicate with anemometer via RS-232 using MATLAB or Python
- Dealing with excess noise



Alternative Approach

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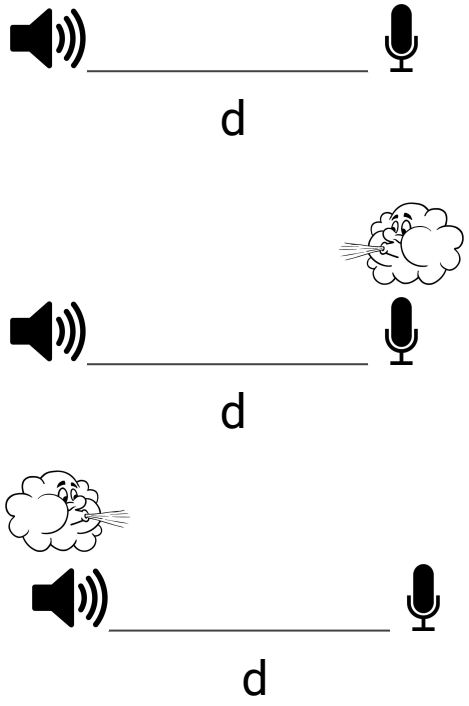
- Speed of sound = 346 m/s
- Having wind will either increase or decrease this speed
- Use difference in propagation delays to calculate speed of wind



Alternative Approach

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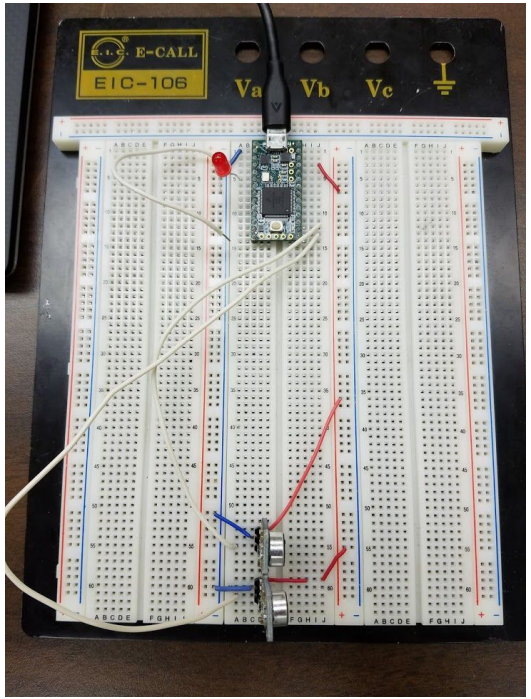

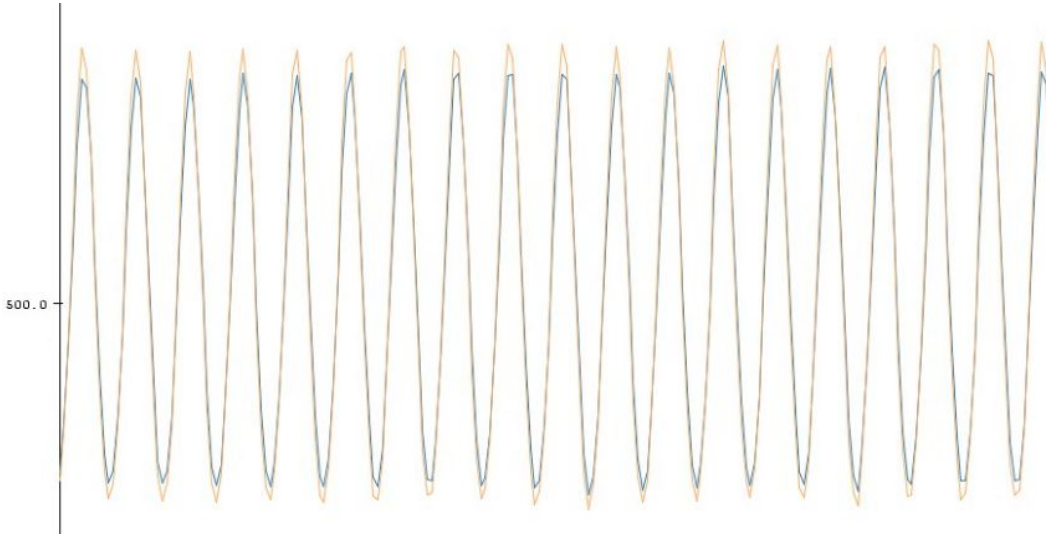

Alternative Approach

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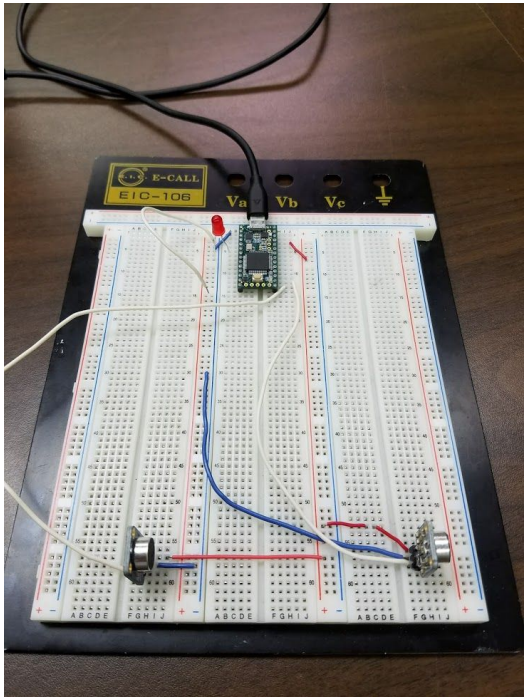

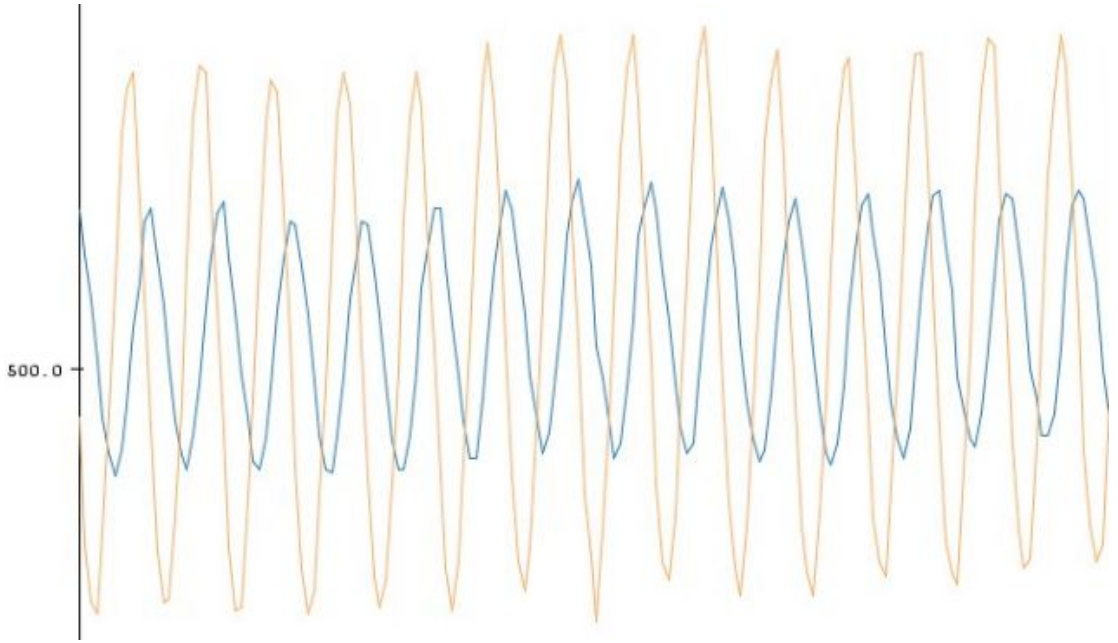

Future Tasks

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- Get the anemometer working with MATLAB
- Replicate Andy's test results to get a better understanding of his approach and verify his results
- Look into the alternative approach
- Design a housing/PCB

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Questions?