

Cleveland State University

EngagedScholarship@CSU

Undergraduate Research Posters 2017

Undergraduate Research Posters

2017

P2: Construction of Weather Station for Measuring Wind using a Hovering Drone Network

Adam Stead

Cleveland State University

Mark Travis

Cleveland State University

Rishi Maheshwari

Cleveland State University

Follow this and additional works at: https://engagedscholarship.csuohio.edu/u_poster_2017



Part of the [Mechanical Engineering Commons](#)

[How does access to this work benefit you? Let us know!](#)

Recommended Citation

Stead, Adam; Travis, Mark; and Maheshwari, Rishi, "P2: Construction of Weather Station for Measuring Wind using a Hovering Drone Network" (2017). *Undergraduate Research Posters 2017*. 60.

https://engagedscholarship.csuohio.edu/u_poster_2017/60

This Book is brought to you for free and open access by the Undergraduate Research Posters at EngagedScholarship@CSU. It has been accepted for inclusion in Undergraduate Research Posters 2017 by an authorized administrator of EngagedScholarship@CSU. For more information, please contact library.es@csuohio.edu.



Construction of A Weather Station for Measuring Wind using a Hovering Drone Network

Washkewicz College of Engineering

Student Researchers: Adam Stead, Mark Travis, and Rishi Maheshwari

Faculty Advisor: Wei Zhang

Abstract

Our research aims to build and test the effectiveness of the Sparkfun® Weather Station in its ability to record meaningful data while streaming to a remote device in real-time. This is motivated by our plans to utilize a hovering-drone system to collect meteorological data, such as wind speed, wind direction, humidity, pressure, and temperature. This data is essential to evaluate the wind profiles of a given area and assess available wind resource. The weather station was first calibrated by comparing measurements of the cup anemometer against a standard pitot tube in the lab. We found that the measured wind speed from the cup anemometer needs to be corrected with a factor of 1.4 as wind speed is below 4.5 m/s, but no correction is needed beyond. Overall, the easily-upgradable Sparkfun® Weather Station has been found to be an effective and inexpensive way to collect meteorological data wirelessly. The next step of this research is to incorporate the weather station into the hovering drone to enable measuring wind using a hovering drone network.