

VI. Design Criteria: Explain how you plan to consider issues that apply to your project, in your design decisions. Choose two or three from the non-exclusive list below, depending on the application. Explain the relevance of the chosen criteria.

A. Economic

: upgrading the current wind tunnel using our system would be significantly cheaper than buying a new wind tunnel.

B. Power/Energy

: none

C. Ethical

: none

D. Health factors

: none

E. Safety

: Done

F. Sustainability

: none

G. Competitive edge

: none

H. Environmental

: none

I. Manufacturability

: none

J. Political

: none

K. Social

: none

L. Privacy

: none

M. Other

: (Added System Precision and Range)

### System Precision and Range

The system needs to be precise in the measurements performed while running the aerodynamic experiments against the objects as they can vary in weight in different orders. According to the director, Dr. Raúl Zapata, the measurement precision performed in the current version of the scale is in the order of hundreds of pounds (approximately 0.02 pounds or 10 grams). This could be over a range of 0 to 15-20 pounds.

## System Safety

The system will be used in an environment for testing aerodynamics, particularly in the wind tunnel located in the Civil Engineering building at the University of Puerto Rico at Mayaguez. The location of the current system is below the tunnel and it is attached to it (bolted). The current proposed design of the system involves using motors along with strings to perform the same function. Unless this design is changed later in the project phases, the design requires some form of casing or black boxing for some of these strings of the projects so as to prevent harm to humans in the testing area. This is for prevention purposes since the intention of the design will be for the experimenter to not have to intervene physically with the system.

System (Something - Waiting for Juan's memory and mine.)