Vertical Axis Wind Turbine Manufacturability

Team 6
Colin Reed, Dominic Shackle (team lead), Olaoluwa Awoleke, Samuel Downs, Michael Barreto

Clinic Advisor
Dr. Thomas Shepard

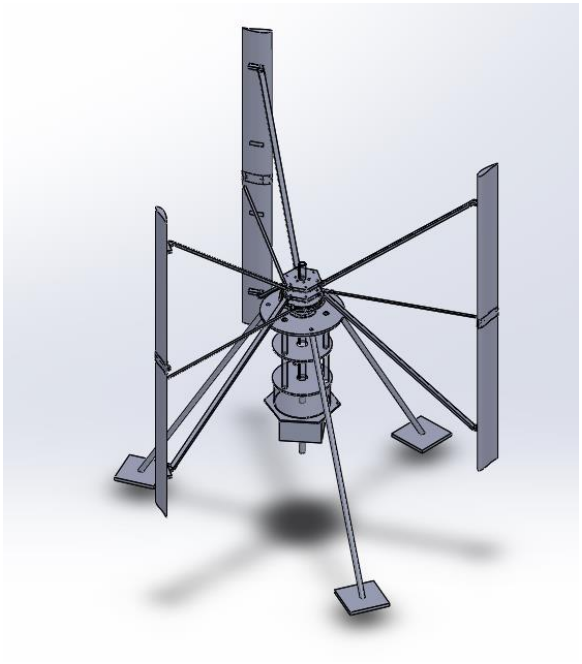
Industry Representatives
Steve Fuchs and John Alexander

Project Summary

Our project aims at producing a unique solution to wind power generation. It utilizes AF Energy's pitch actuation concept to maximize generated power. This turbine is designed for applications where large-scale turbines are not practical, such as disaster relief and remote military bases. AF Energy envisioned an innovative vertical axis wind turbine with increased power production, durable parts, and low start-up speed.

Design Goal

AF Energy wanted a more robust and efficient design as compared to the prototype design from last year's AF Energy senior design team. The turbine was to have a 3x improvement in overall efficiency as compared while the previous design, while still implementing pitch actuation.



Design Constraints

- Implement blade pitch actuation.
- 3x efficiency increase (from previous team) with an objective of 500 watts of power production at 25 mph.
- Rotation must be dynamically stable.
- Must fit inside a Tricon 1 container (parts must be easily assembled in the 7 ft tall container).
- Be constructed within a budget of $3000.