Portable Wind Turbine

Team 15

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Project Objective

To create a lightweight, portable wind turbine that can be easily operated by any user to provide power in remote locations.

Project Constraints

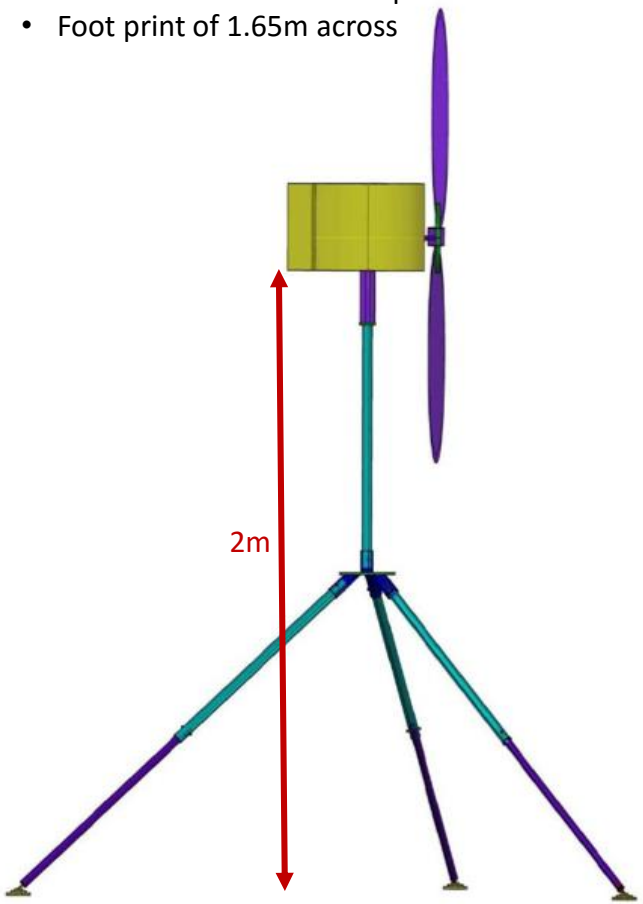
- Turbine height of approx. 2m
- Operate using 4m/s winds
- Lightweight (Target of <80lbs)
- Power output to charge small device
- Budget of $2,000
- Use off-the-shelf blades and alternator

Electrical System

WindBlue Power DC-540 alternator used to charge internal battery through WindyNation TrakMax 30L charge controller/diodes.

Turbine Base

- Telescoping leg and neck sections of 28in
- Legs/neck connect to joining plate with pins
- Feet screw into threaded inserts in leg tubing
- Stable on tilted surfaces up to 15°
- Foot print of 1.65m across

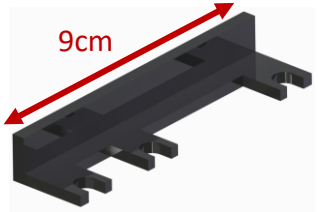


Attachment Systems

Portability combined with easy assembly and disassembly requires quick, efficient methods of removing the nacelle and the blades of the turbine. Special methods were developed for this purpose

- Steering wheel Quick Release system adapted to join nacelle to base
- Allows easy removal from mounting shaft
- Mounting shaft fit into bearings to allow for free rotation with changing wind directions

- Steel clip-style bracket to secure each blade to the hub
- Clips will backed by foam to reduce vibration in blades
- Allows easy removal of all 3 blades



Website:
http://eng.fsu.edu/me/senior_design/2016/team15/