



# Mobile Wind Power Generator Designed For Simple and Rapid Deployment

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## Project Scope

The primary objective of this project is to design a competitive wind power generator system that's more economically cost effective than traditional wind power generation methods. In order to cut expenses, the project will focus on reducing the material cost and complexity of construction often associated with transporting massive blades to a build site.

## Key Goals

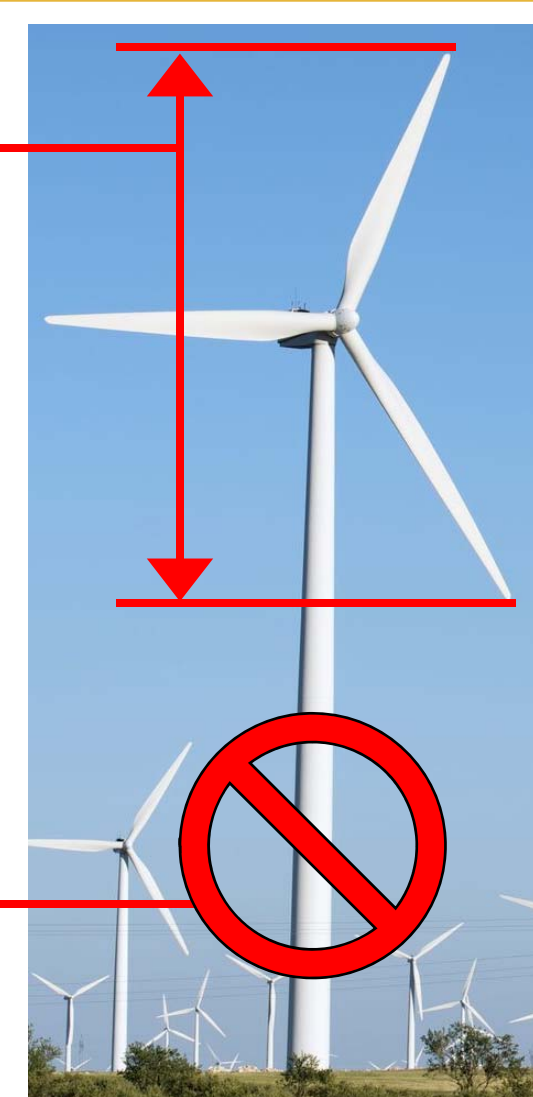
- Catalog engineer a glider capable of autonomous flight in oscillating sustainable patterns while attached to a grounded tether.
- Convert oscillating flight motion into electrical power.
- Iterate flight paths based on environmental disturbances (ie: wind speeds)

## Background

Conventional wind turbines have become popular within the past decade as the demand for alternative power generation methods continue to rise. As true with every product, the more it is used the more likely issues are to be discovered. The demand for more powerful and large wind turbines has begun to hit an upper limit where the cost required to produce these behemoths are no longer worth the return value. Due to the high reliability in wind power, a strong demand for innovation exist on the market to design a more cost effective product. This can be done largely by reducing the material amount required and construction time per product.

Massive wingspan in varying altitude results in inconsistent wind speeds and efficiency issues

Oversized structural support required



## Constraints

- (1) Weight Power Ratio: 25 W/lbs
- (2) Total Weight: Under 200 lbs
- (3) Power Generation: 5 kW/hr
- (4) Price Range: \$2,000
- (5) Maximum Flight Altitude: 400 ft
- (6) Maximum Winds: 40 mph

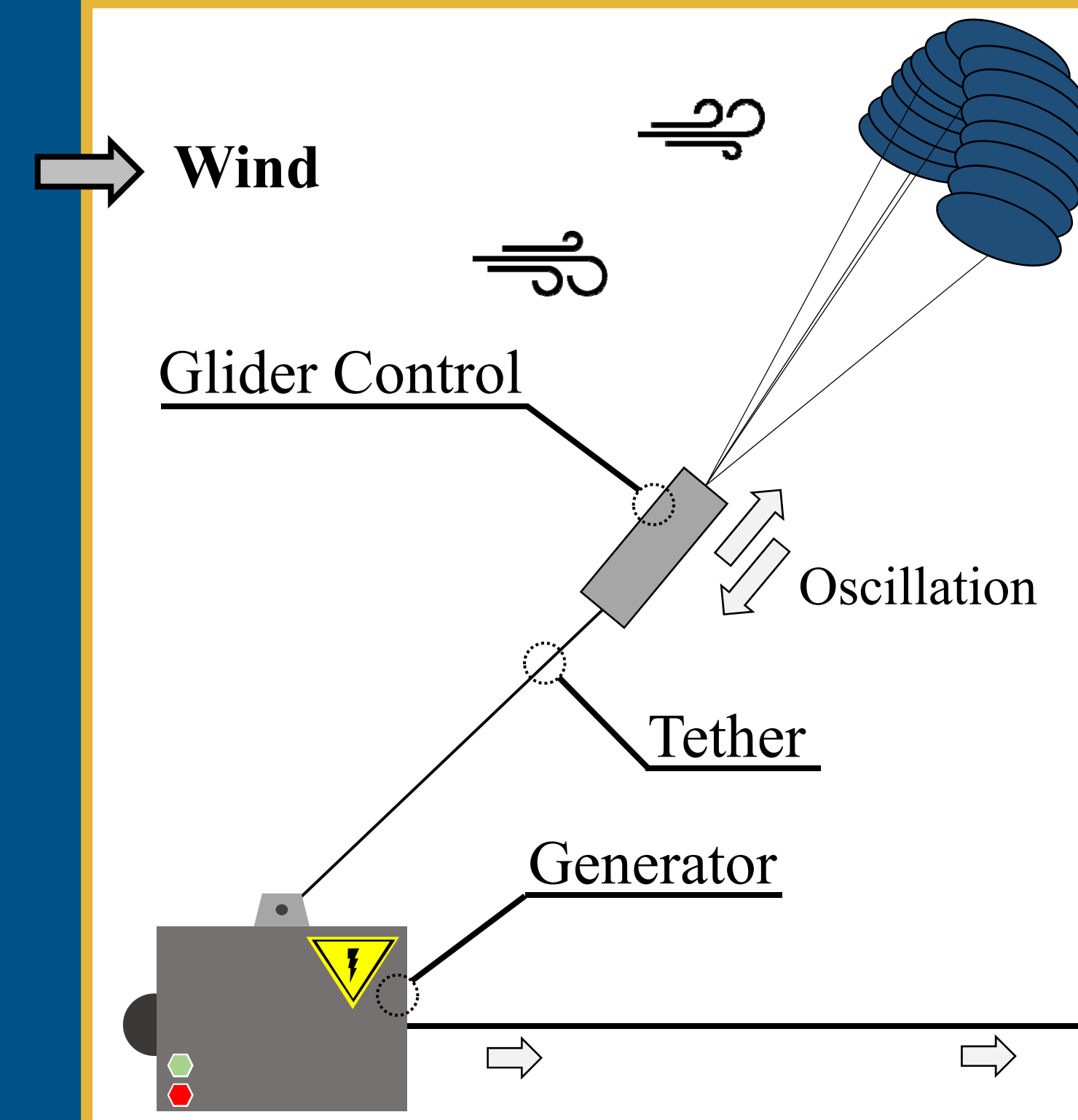
## Acknowledgments

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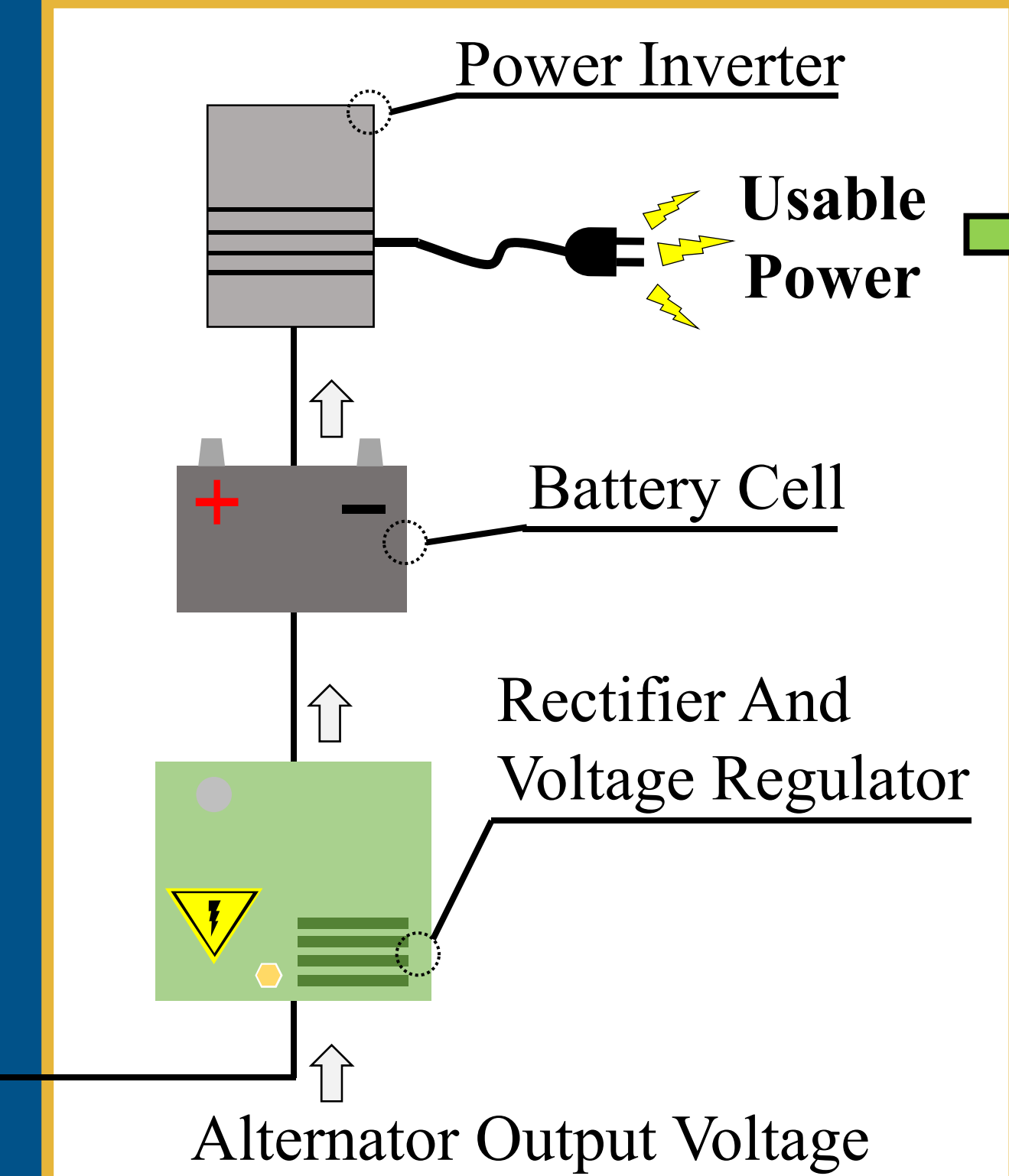
## Future Plans

The project is planning to begin in depth design analysis of the mechanical aspects of this design. The selected glider system will be refined and prototyped to allow for testing of optimal flight patterns. The generator will be further designed and assembled primarily focused to prove the capability of the glider system.

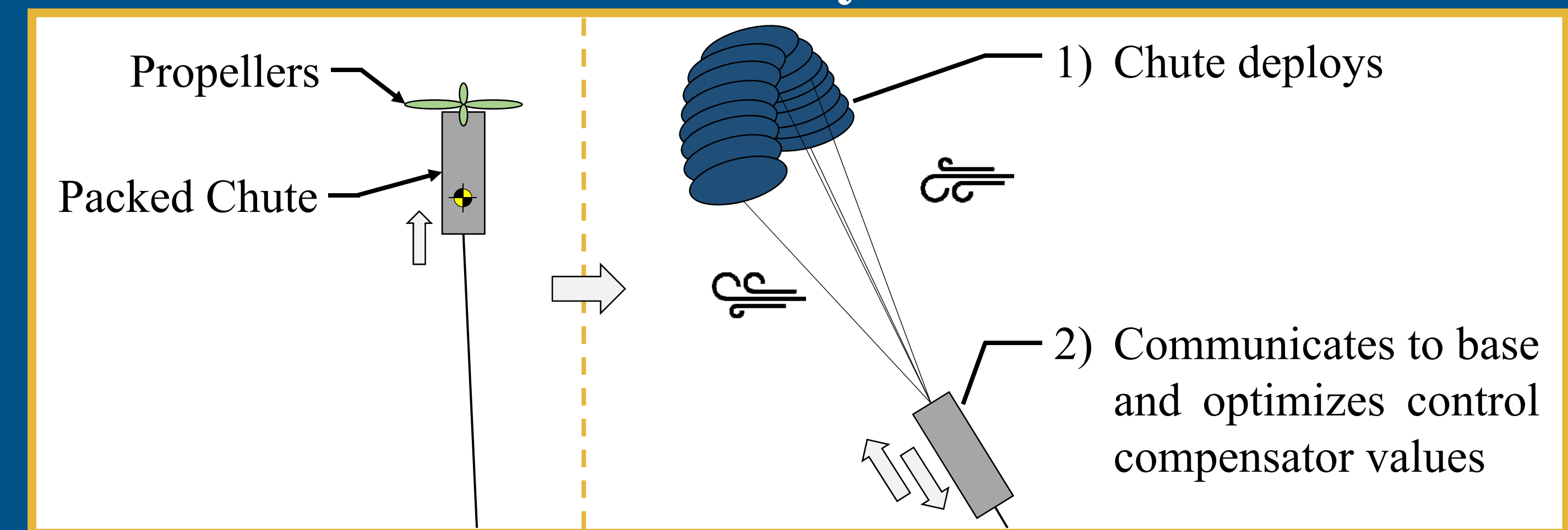
## Mechanical Systems



## Electrical Subsystems



## Glider System



## Generator System

