

# Dual Solar and Wind Generator

## Objective

The Dual Solar Wind Generator project aims to focus on the integration of power collection from two distinct sources with the goal of efficient energy generation and storage in a dedicated battery system.

## Key Targets

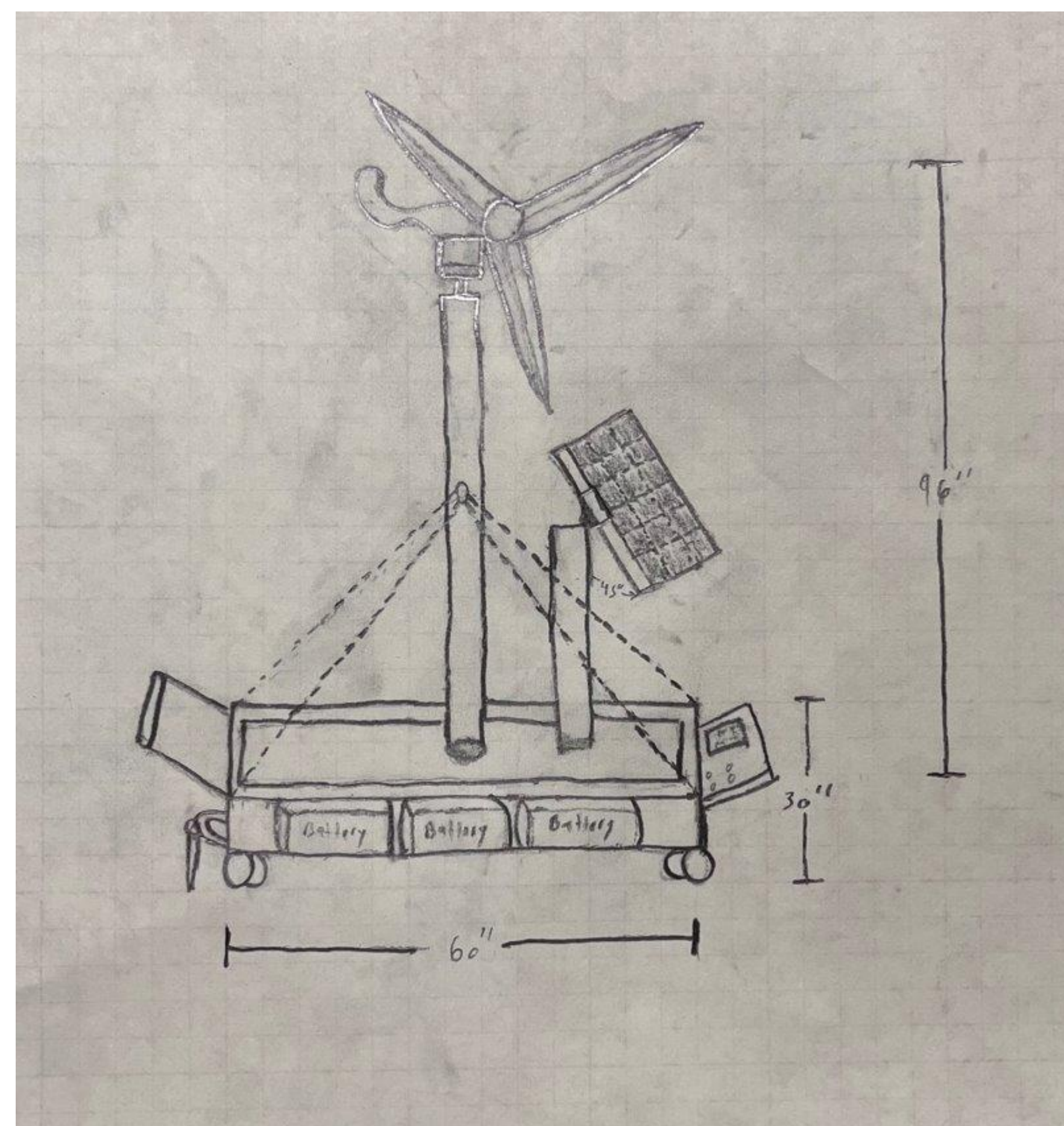
- 100 W power generation
- 10% max electrical losses
- 5 Year Durability
- 45 mph max wind speed
- 50 m portability

## Assumptions

- Device will be placed outside
- Sufficient solar and wind energy are provided
- Device will be used properly

## Selected Concept

For this project, the team will go with a sunflower-based design, with a solar panel that can track the sun like a sunflower. This design will also have a horizontal lift type wind turbine that is extendable to provide simplicity in transport. The design will be housed on an industrial cart used to provide portability to the design. On the cart the energy storage system and electrical components for the design such as an AC/DC converter will be housed. To provide further support to the design, the team will use guide wires to support the extendable wind turbine with stakes that can be inserted into the ground at the design's corners, along with brakes on the wheels.



## Challenges

- Dual Solar and Wind energy capture
- Maintaining structural integrity during use
- AC to DC conversion
- Maintaining position after placement
- Solar position tracking
- Building the dual axis solar mount

## Future Work

- Final Design
- Energy Analysis
- Force Analysis
- Programming
- Stress/Strain
- Construction
- Structural Simulation and Testing