

# Solar Tracking Structure Design

Mid-point Presentation  
Team 18

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# Overview

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# Introduction

- Sponsored by: Dr. Tom Acker
- Project Description: Design and build solar tracking structure
- WERC: A Consortium for Environmental Education and Technology Development competition
- Participants in competitions: different universities
- PV cells operate at maximum efficiency when pointed directly at the sun. But, solar tracking can be expensive and require a lot of maintenance.

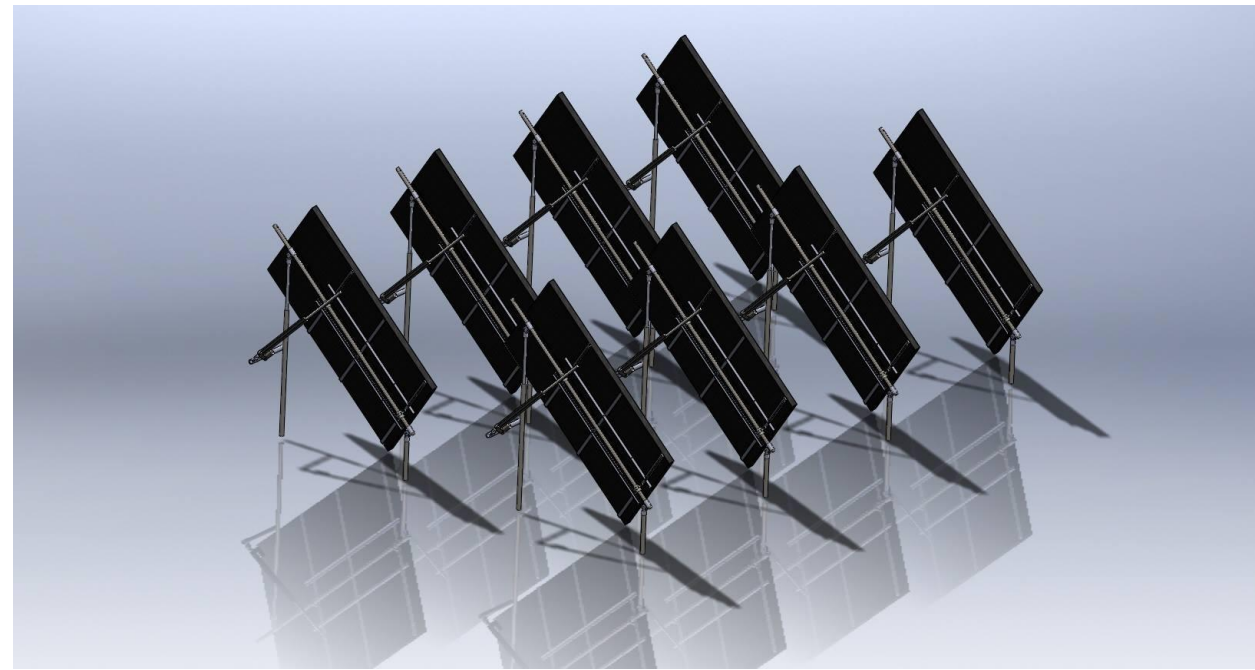
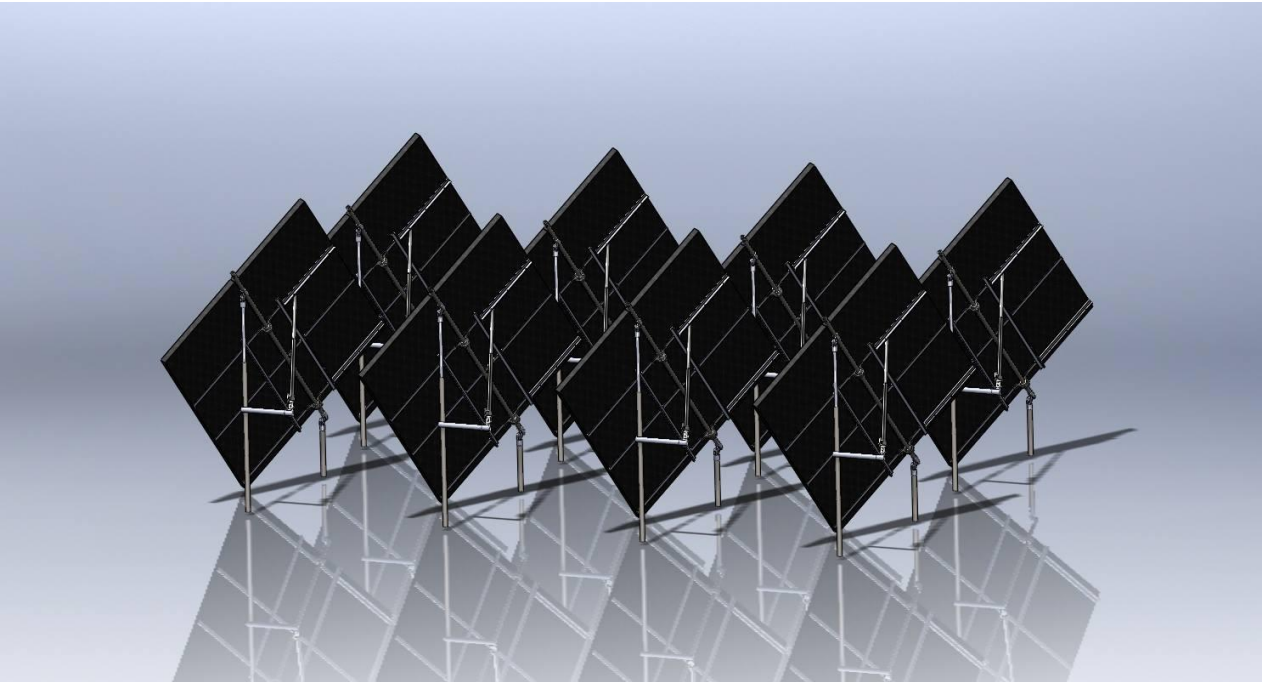
# Goal Statement and Objectives

- Project Goal: To build a rigid and durable and design a system that maximizes amount of sun being absorbed while minimizing the cost of operation and maximizing the reliability.”
- Satisfy the client and stakeholder needs and requirements.

# Design



# Full Scale Design

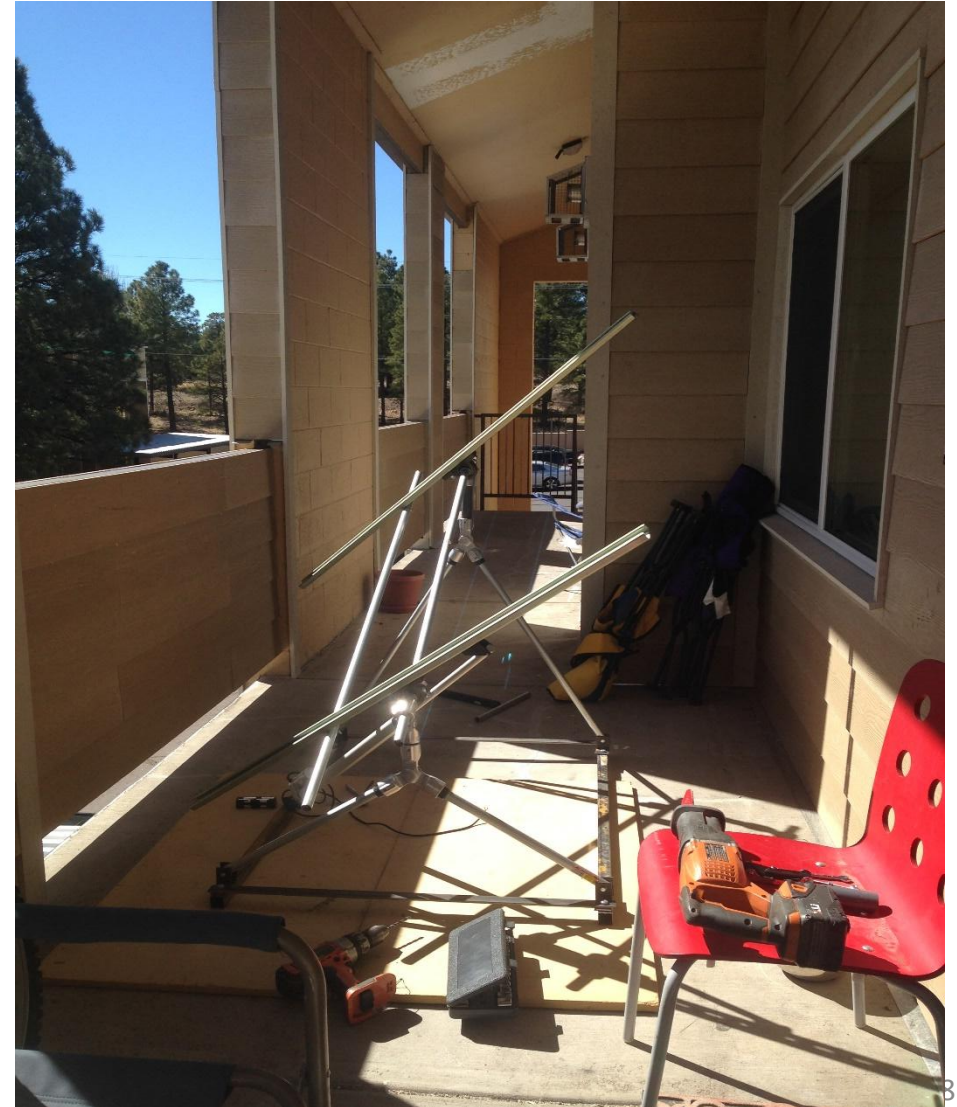


# Cost Analysis

Part	Price (\$)	Count	Total (\$)	Source
1" Pillow Bearing	11.25	2	22.5	VXB.com
18" Linear Actuator	99	1	99	ECO-Worthy
1" Elbow	17.74	2	35.48	Hardtofinfitem.com
1" Tee	36.99	2	73.98	Hardtofinfitem.com
120" 3/4" Conduit	3.87	2	7.74	HomeCo
36"x1/8" Flat Steel	8.21	2	16.42	Home Depot
Square Steel Tube	16.21	2	32.42	Home Depot
1 1/4" PVC Tubeing	2.35	3	7.05	Home Depot
Misc. Nuts and Bolts	10	1	10	Home Depot
60" U bar	16.09	1	16.09	Home Depot
36" Steel Angle	12.47	1	12.47	Home Depot
Total			333.15	

# Current Progress (Completed parts)

- The full scale structure has been built and assembled.
- The actuator has been test-fitted.





# Current Progress (Completed Parts)

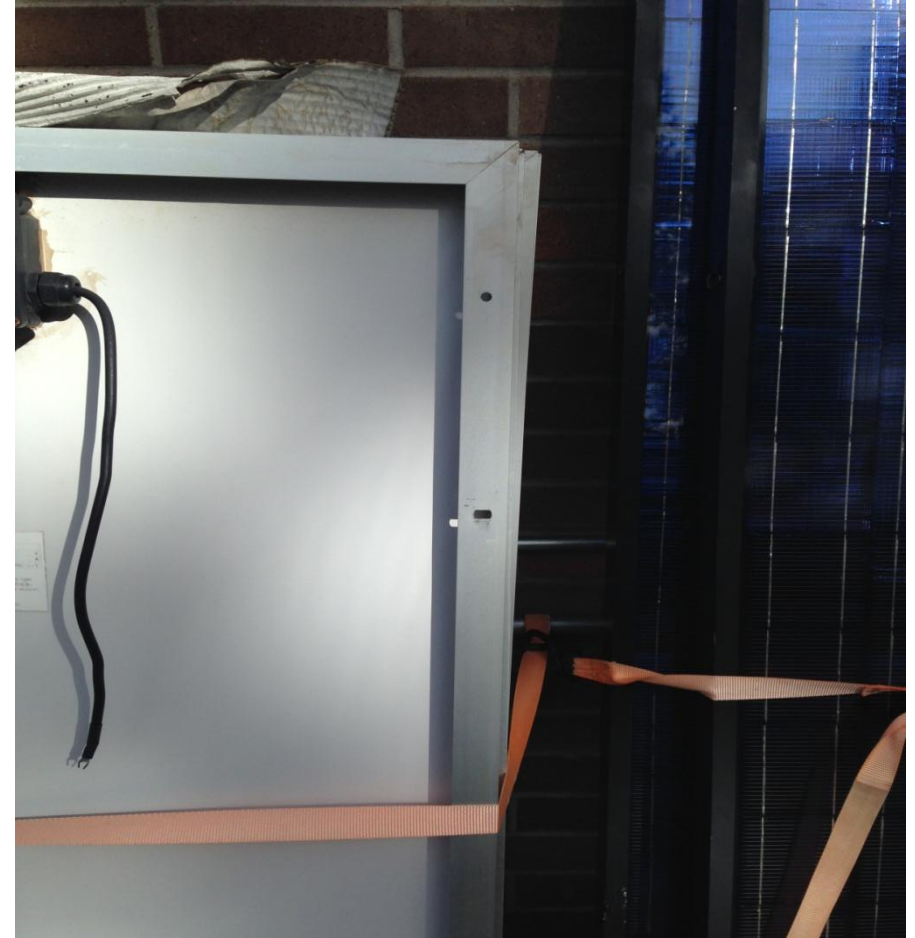


# Current Progress (Completed Parts)



# Current Progress (To be completed parts)

- The case cover box for the electrical control system
- The electrical connection between the solar panel, actuator, and the electrical box

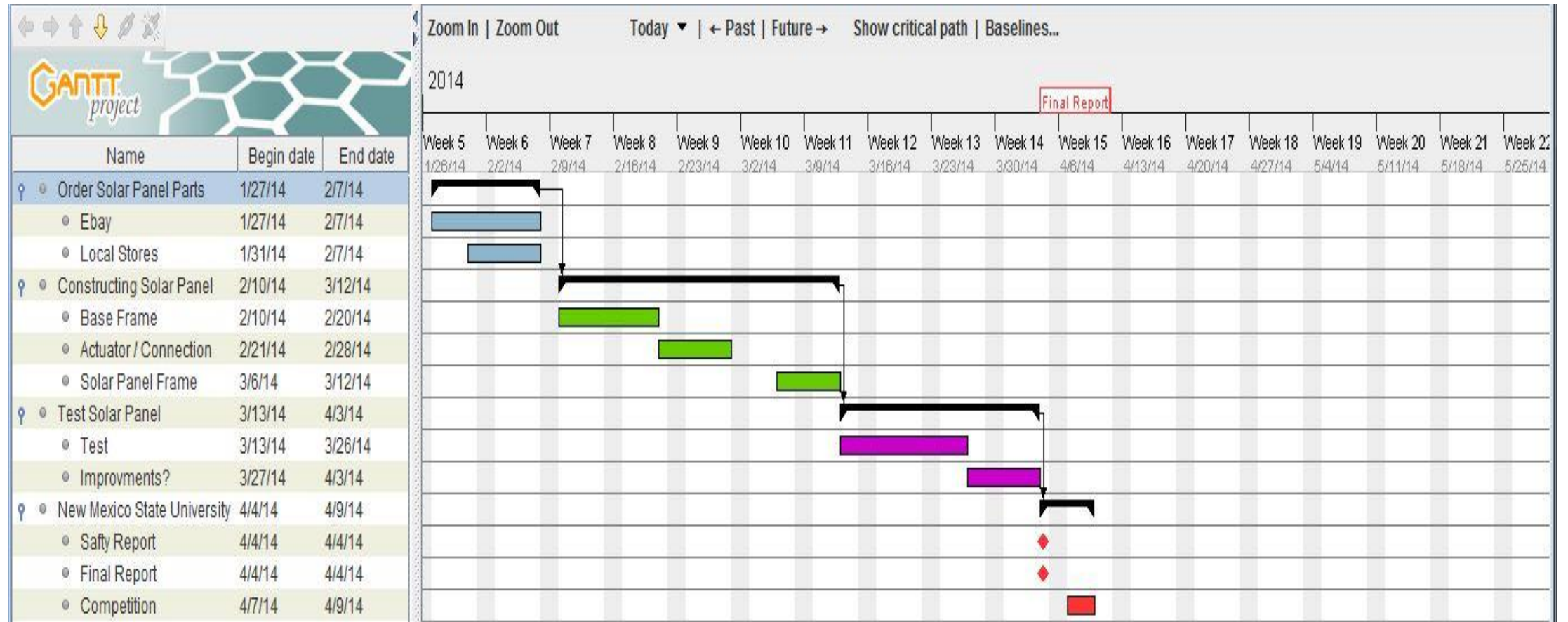


# Testing

- The frame can withstand at least 150lbs of force
- The actuator has been tested to locate the most efficient position.



# Project Plan



# Conclusion

- All required parts have been obtained.
- The base frame and solar panel frame connectors are complete.
- The solar panel frame still needs to be constructed.
- Base frame and solar panel frame connection have been tested with a weight of roughly 150lbs.
- The actuator has been tested to locate the most efficient position.
- Full scale testing will start with the completion of the solar panel frame.

Questions ?