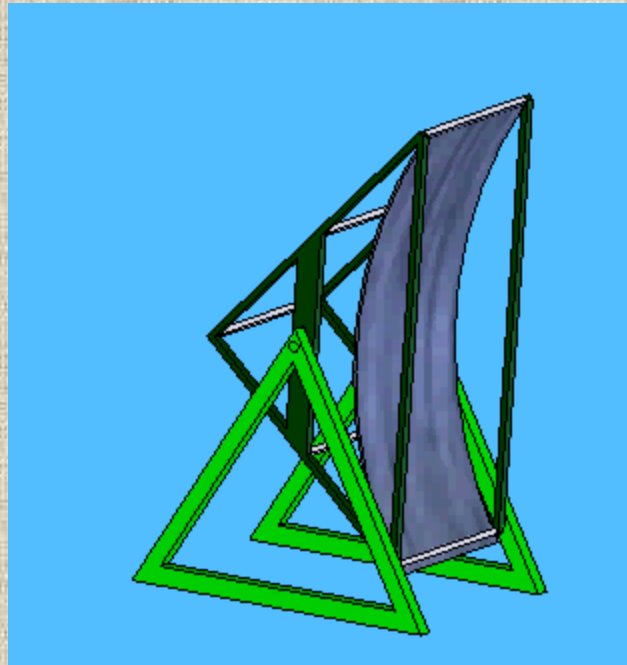


Solar Trough Sun Tracking System

A sketch model review



The Customer

Project link:

Matt Orosz

Target:

Bethel Business and Community
Development Centre (BBCDC)

Lesotho, South Africa

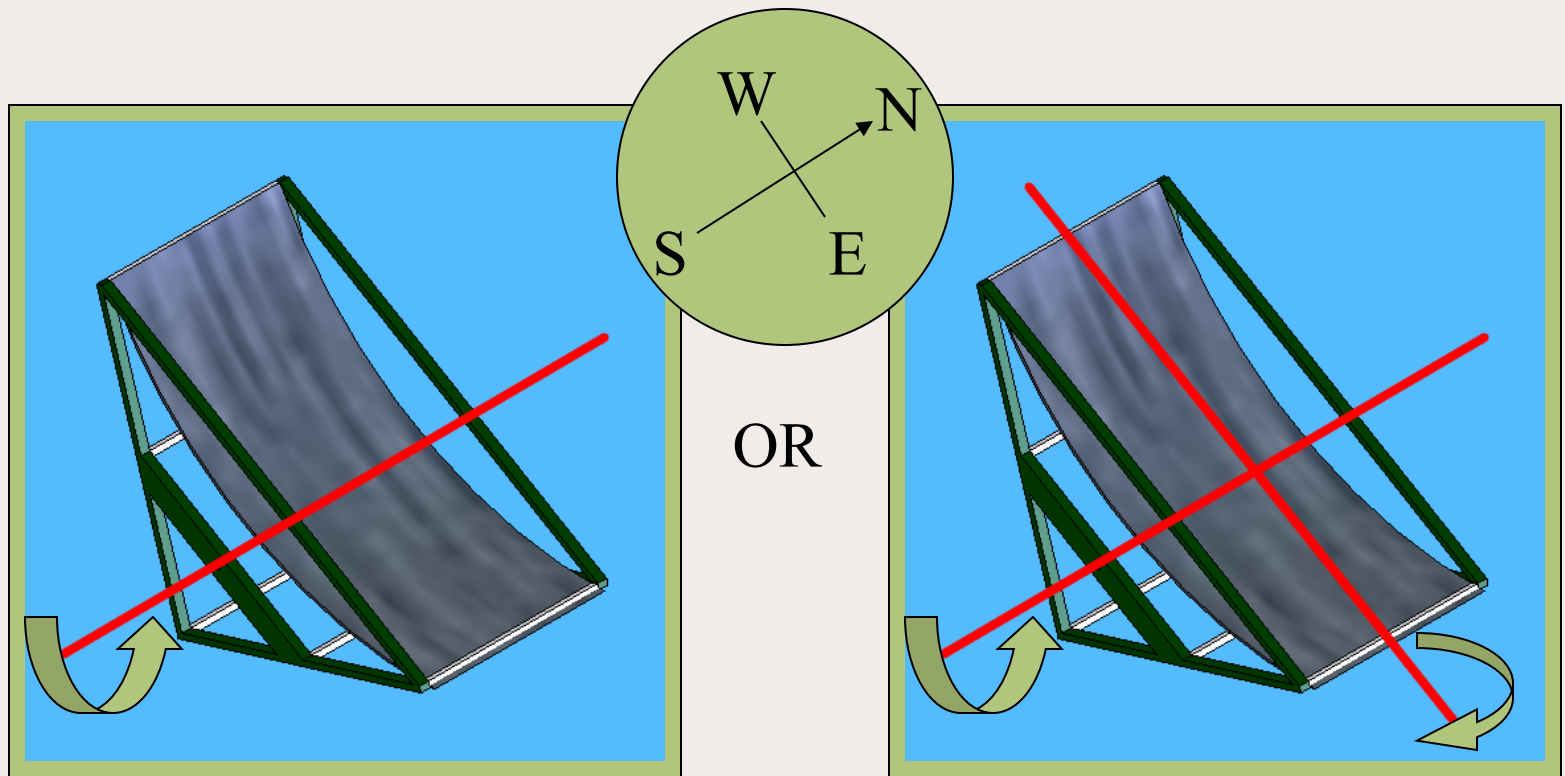
The Challenge

- Matt said,
“It would be kinda cool to see this thing track itself across the sky”
- Solution Neutral Problem Statement:
“Maximise the amount of solar energy captured during a given day”

Design requirements

1. Maintain aperture perpendicular to sun
2. Resilience against weather
3. Cost less than \$1 per day to run
4. Fabricated on-site, using local resources
5. Use easy to understand technology

Design choices: # of DOF



Design choices: Mech. Vs. Elec.

Mechanical:

Pro's

- Human power source

Con's

- Pressurised system
- More moving parts
- Adjustability
- Poor tracking

Electrical:

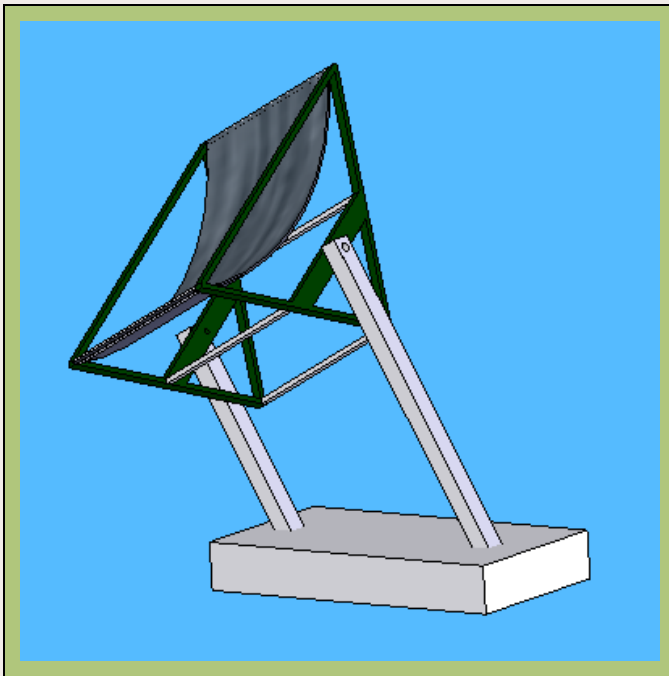
Pro's

- Long motor life
- Simple design
- Accurate tracking

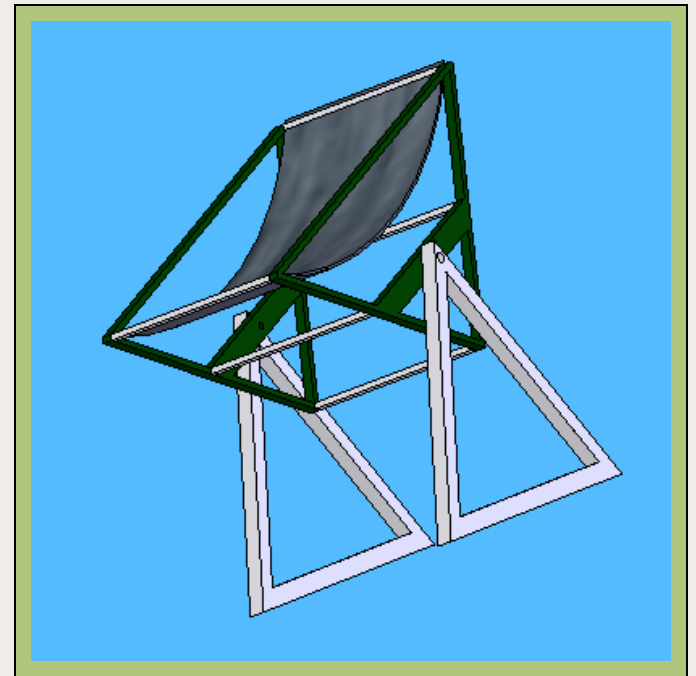
Con's

- Requires 12V source

Design choices: Support Frame



OR



Our proposal

Key Technologies:

- Light sensors
- Simple control circuit (741/555's)
- DC electric motor
- Solarsoft TM

Technical feasibility

- Wind loading
- Snow loading
- Structural rigidity
- Power requirements of motor
- Parts availability
- Approximate costing