

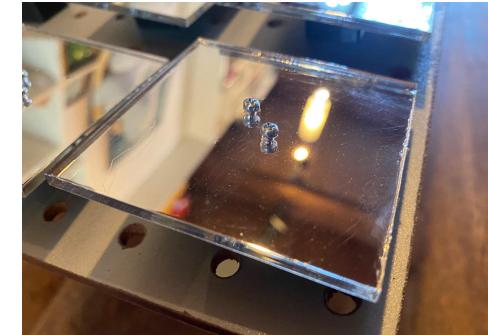
Project MEER:ReflEction Benchtop Solar Concentrator Updates

Mohan Hathi

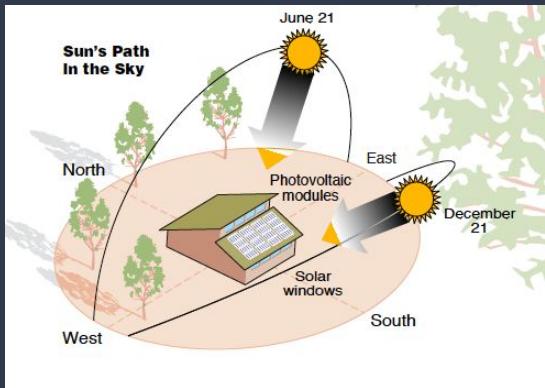
Reflector Version 2.0

Version 2.0 - Testing

- 4 PM, haze
- 6" focal point (poor set up)
- 220F temp
- 50 mirrors



Focusing System Brainstorming



Sun moves in arc:

- Azimuth angle
- Elevation angle

1. Change height of four corners using lead screws



2. Circular (curved) track (with elevation adjustment)



3. Equatorial platform



4. Simple rotation and tilt



Focusing System Design

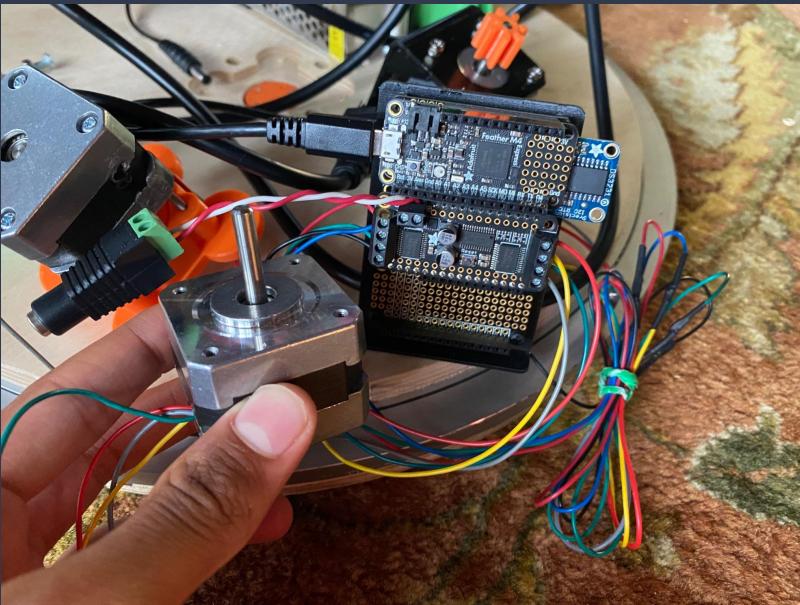


Focusing System Components



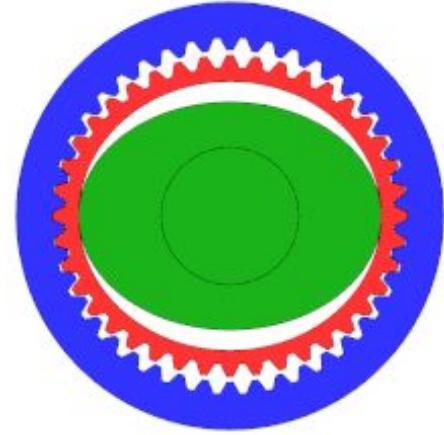
Focusing System Movement (R)

Electronics:



Rotation/azimuth control

- Interface directly into center of lazy-susan
- Harmonic drive
 - Large gear reduction in small space
 - No backlash
 - High gear ratio

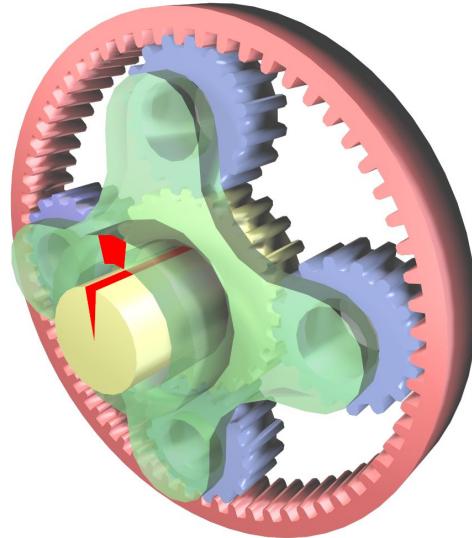


Focusing System Movement (R. cont)

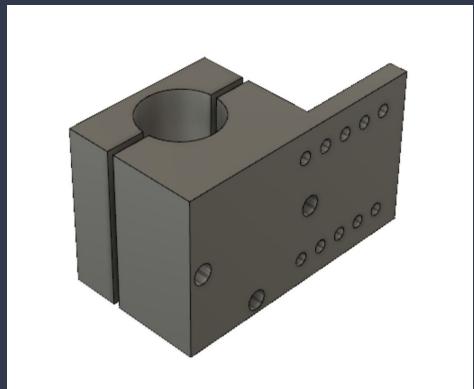


Planetary gear

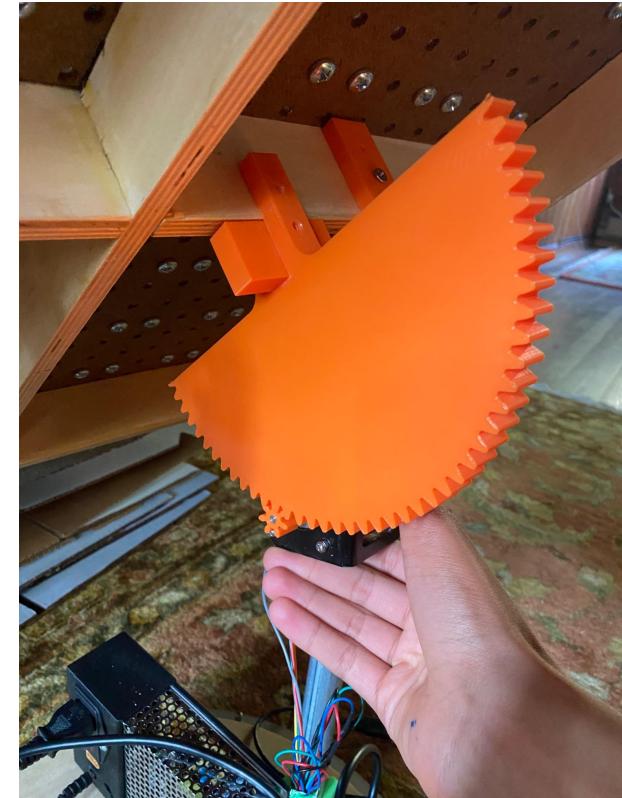
- Easier to 3D print
- Reliable
- Lower gear ratio



Focusing System Movement (T)



Tilt/elevation control



Next Steps

- Finish final assembly of movement system
 - Had to re-make some components to improve rigidity
- Test outdoors with code (which is already written)
- **Goal: working prototype by Friday to test with solar furnace and solar thermal evaporator**

Questions?