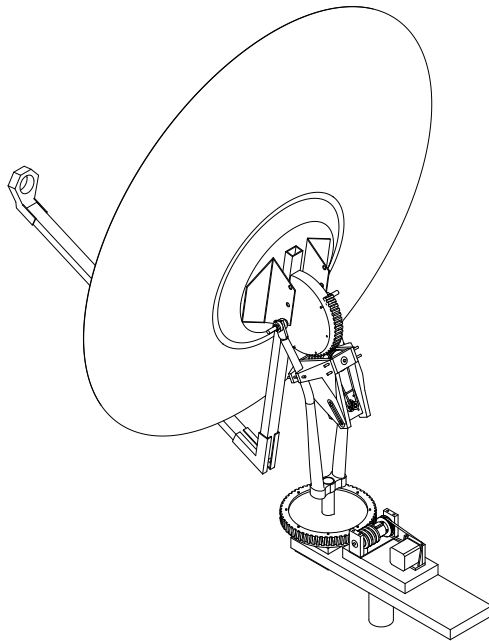
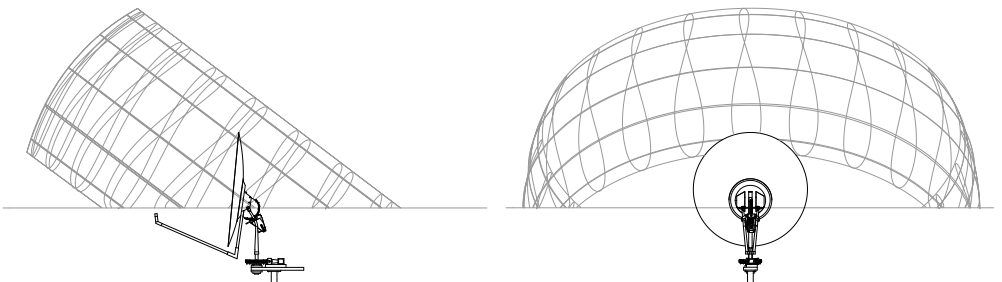


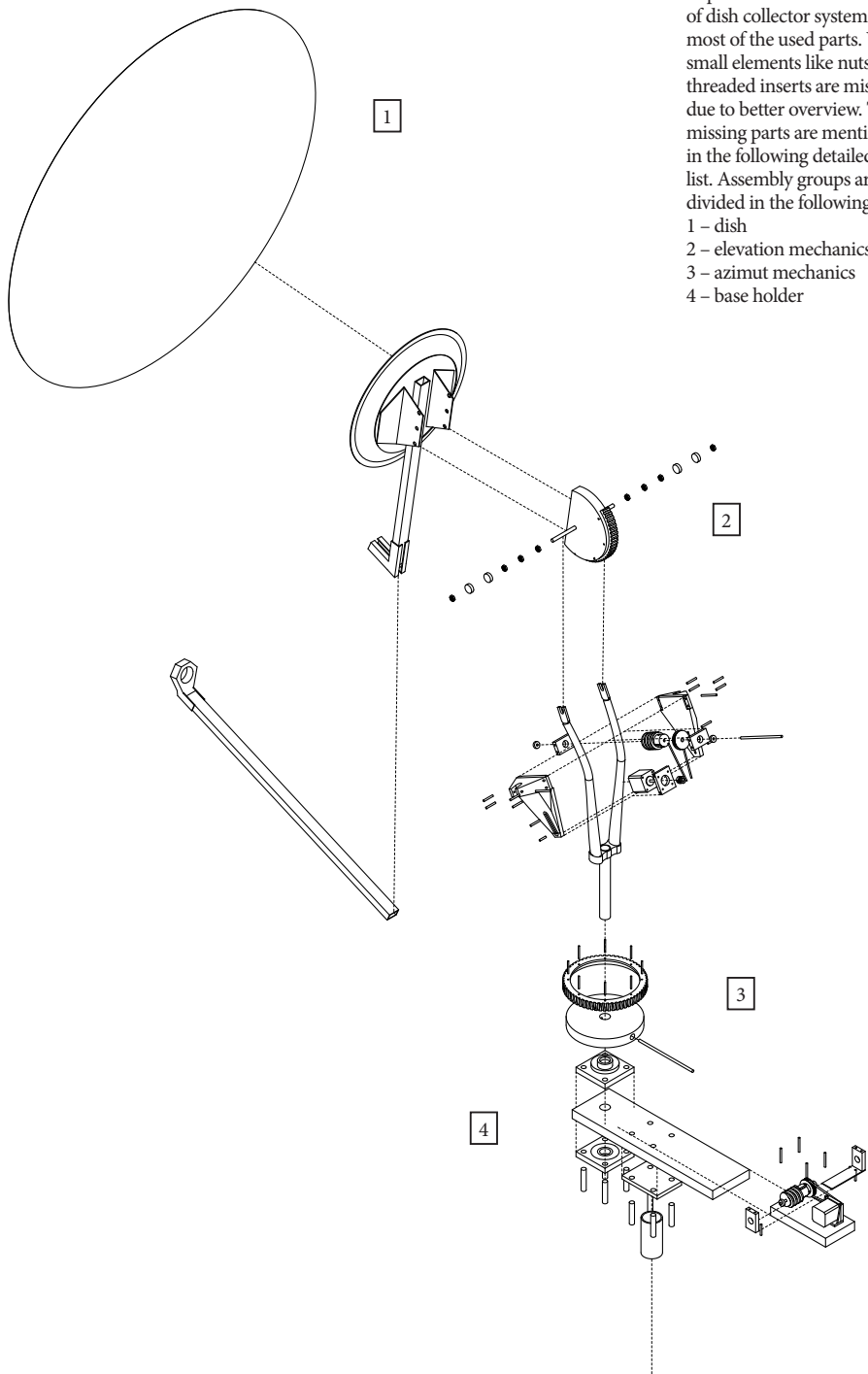
Evolution of gear.



Axionometric view of dish collector system.



Side and back view of dish collector system with sun altitude chart. The movement of the dish needs to cover 0-61° vertical (elevation) and 50-310° horizontal (azimut). The slops show the yearly sun changings at the same daily time.



Exploded axonometric view of dish collector system with most of the used parts. Very small elements like nuts or threaded inserts are missing due to better overview. The missing parts are mentioned in the following detailed parts list. Assembly groups are divided in the following:

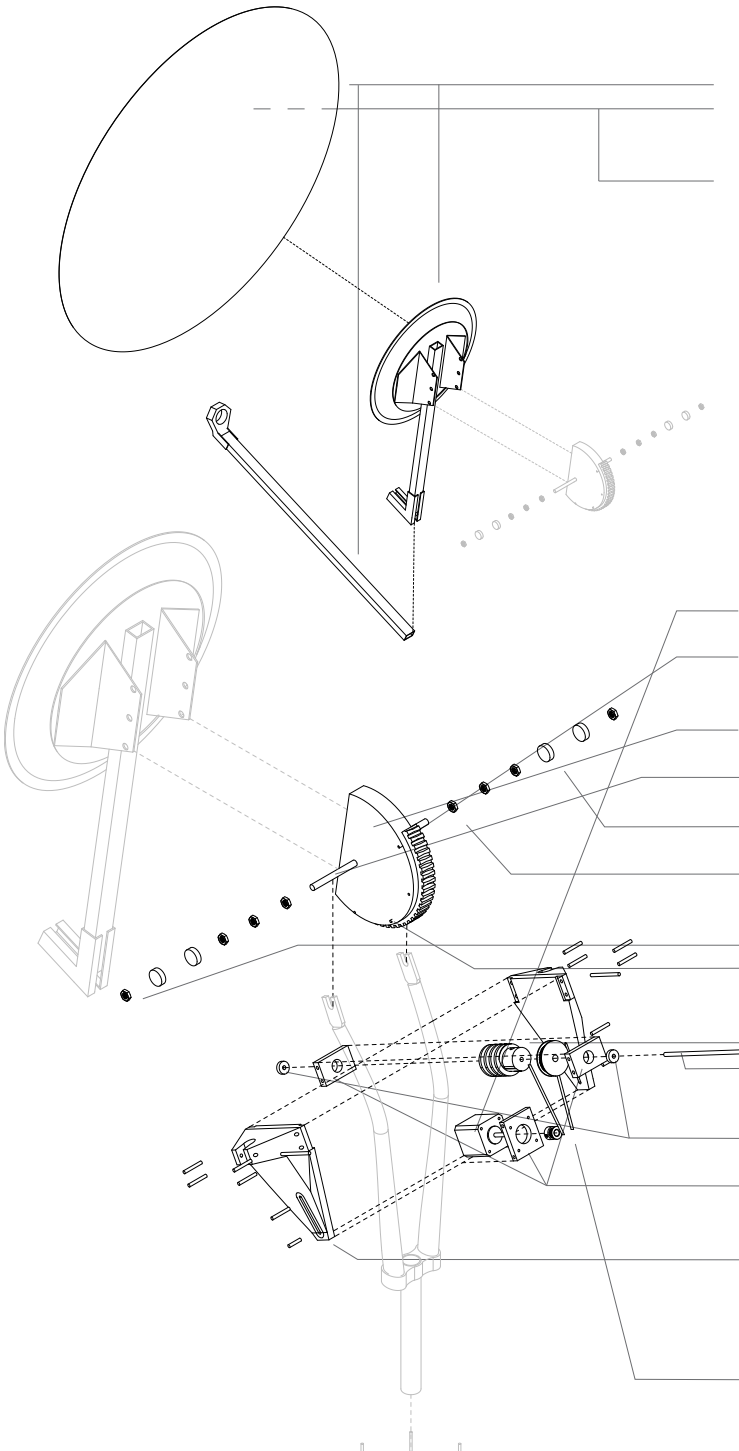
- 1 – dish
- 2 – elevation mechanics
- 3 – azimuth mechanics
- 4 – base holder

Assembly group 1:
dish

- ▷ satellite dish (second hand)
- ▷ sandpaper / grinder (see polishing process in the photo story)
- ▷ oil or wax for surface protection (not yet tested)

Assembly group 2:
elevation mechanics

- ▷ 1 stepper motor + cables 1mm² (ebay)
- ▷ elevation worm gear, needs to cover at least 61° (3D-printed)
- ▷ elev. base plate 25mm plywood (used)
- ▷ threaded rod as elev. axis 8mm inox (hardware store)
- ▷ 4* bearings 8mm (608ZZ, ebay)
- ▷ nuts M8 low height (hardware store) to fit inside the bike fork
- ▷ nuts M8 normal height
- ▷ screws to attach gear to plate 2,5x20mm TX8 (all hardware store)
- ▷ worm screw (3D-printed)
- ▷ threaded rod + nuts for wormgear axis 5mm inox (hardware store)
- ▷ 2* bearings 5mm (624ZZ, roboterbausatz.de)
- ▷ 3* connection plates wormgear axis & stepper motor (3D-printed)
- ▷ 2* main elevation mechanic holder (3D-printed)
- ▷ threaded screws & insets for 3D-printed parts M4 (hardware store)
- ▷ pulley gears + belt (ebay)



Assembly group 3:
azimut mechanics

- ▷ bike fork as azimut axis
25mm steel (dead bike from basement) 1 stepper motor + cables 1mm² (ebay)
- ▷ main azimut worm gear, needs to cover at least 260° (3D-printed)
- ▷ elev. base plate 25mm plywood (used)
- ▷ screws to attach gear to plate 2,5x20mm TX8 (all hardware store)
- ▷ worm screw (3D-printed)
- ▷ threaded rod + nuts for wormgear axis 5mm inox (hardware store)
- ▷ 2* bearings 5mm (624ZZ, roboterbausatz.de)
- ▷ nuts M5 normal height (hardware store)
- ▷ 3* connection plates wormgear axis & stepper motor (3D-printed)
- ▷ ground plate azimut mechanics 25mm plywood (used)
- ▷ threaded screws & insets for 3D-printed parts M4 (hardware store)
- ▷ pulley gears + belt (ebay)
- ▷ 1 stepper motor + cables 1mm² (ebay)
- ▷ 8mm threaded rod to fix axis mechanics to bike fork + nuts (hardware store)

Assembly group 4:
base holder

- ▷ main plate 25mm plywood (used), upgrade to steel
- ▷ 50mm pipe intake with flange / connector to ground or wall
- ▷ 2* flange bearings for collector system (UCF205, ebay)
- ▷ 4* M10 bolts + nuts for flange bearings

