Solar Panel with Abbe Prisms

The solar panels can be covered with a special glass with a structure having a configuration of the Abbe prism, which ensures a constant deviation of light by 90 degrees.

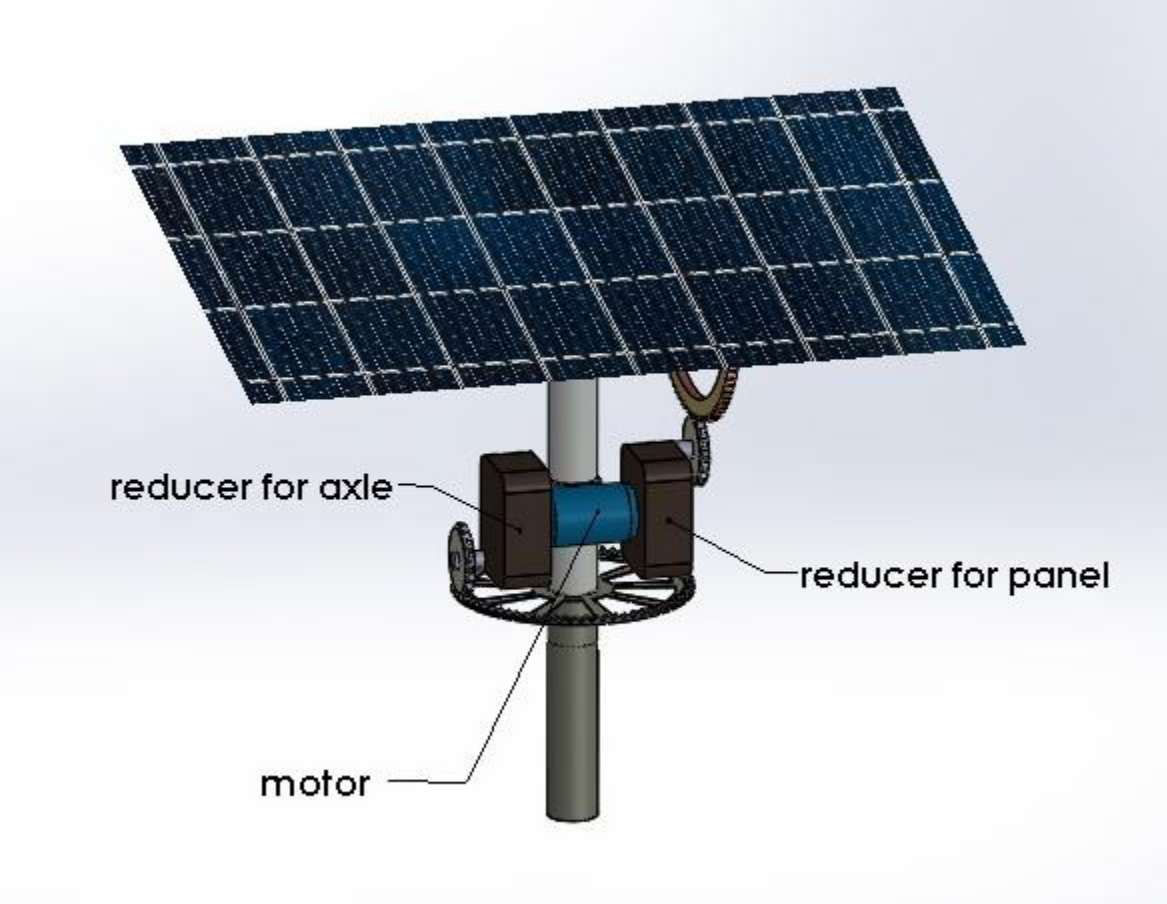
More specifically, Abbe's prisms will be packed into a configuration of multifaceted pyramids – approximately.

Abbe's prisms do not heat or burn solar panels, unlike magnifying lenses that they wanted to use several years ago.

If the Abbe prisms will be too expensive, the orientation of the solar panels can be realized with a new system that is 2 times more ergonomic than the existing ones.

Based on materials available on the Internet, the designs of solar trackers have two motors. One motor rotates the axis, the other motor adjusts the tilt of the panel.

In the presented design, both functions are performed by one motor through two mechanical gearboxes. The action of the gearboxes is controlled by the same sensors used in the case of the two motors, but the control circuit is changed.



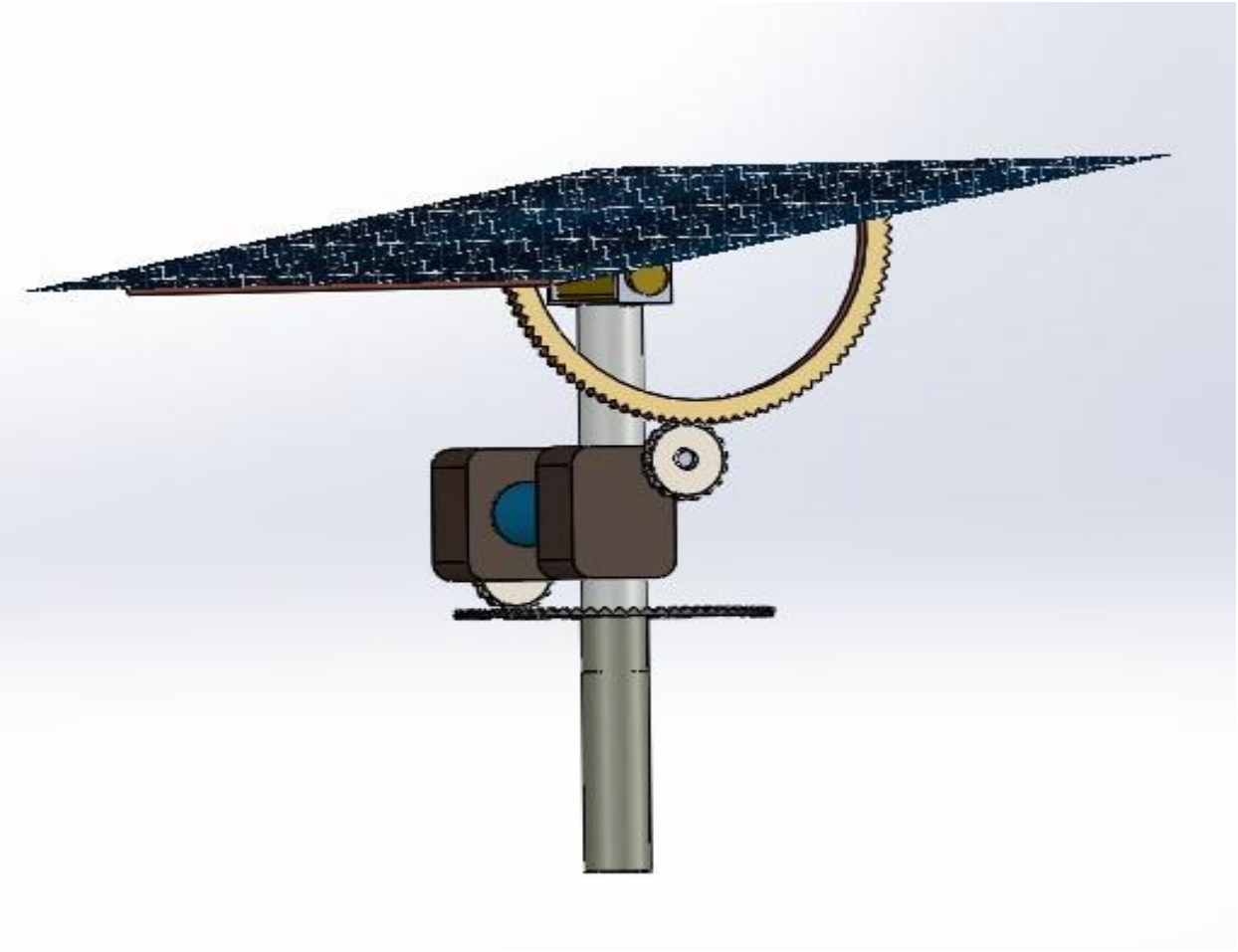
Although the regulation of these reducers can be purely mechanical based on the principles of the Antikythera mechanism

The figure shows only the general scheme of the proposed innovation. All other elements such as light or tilt sensors will be located as usual.

Gearboxes can work both simultaneously and separately. But with simultaneous operation requires a complex gear mechanism. So it is more preferable to work separately.

The lower pole with a large horizontal gear is fixed to the ground stiffly. Thus, the axis with the motor can rotate around it, acting on the horizontal ring gear by means of a pinion from the reducer.

And the adjustment of the tilt of the panel is carried out by means of another small gear from another gearbox.



This general principle - two movements by one motor - can have different technical solutions. For example, reducers can be not only mechanical, but also hydraulic.