Efficient Systems in Solar Panels for CubeSat

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CubeSats are small, affordable satellites, making them desirable for use in academic and observational studies. Due to their reduced size, these satellites depend exclusively on solar panels as their direct energy source, which requires strategic positioning of the panels. In this project a CubeSat prototype was constructed whose structural design within the subsystem of solar tracking and panel positioning permitssatisfactory functioning of the other satellite subsystems (control, communications and deployment) and their programmed operations. As opposed to other CubeSats, this prototype proposes a drop-down system (from the flexometer) and a linear positioning of panels that allows for greater energy efficiency due to its dual axes solar tracking system. Additionally, the positioning of the panels allows for greater cargo space, an important characteristic in satellites. The prototype was constructed according to industrial aerospace security regulations, and reusable materials were used in its production. This represents a new development in the CubeSat design as well as lowered costs and improved efficiency. The next project phases are the optimization of the drop-down system to avoid disturbances in the satellite's orbit, and the improvement of the other subsystems.

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