Executive Summary:
- This project aims to create a compact, lightweight, and highly reliable antenna deployment mechanism that will be attached to the base of an Orbital 2U CubeSat.
- The mechanism must survive launch and orbital conditions and allow data to be relayed from the CubeSat to the ground station at UCI.
- We must ensure that we design a working mechanism that fits within the limited space provided to us on the 2U Cubesat.
- We incorporated our antenna deployment design with the solar panel team’s design.

Aluminum tape measure:
- The aluminum tape measure is a highly conductive material to accommodate 433Mhz for radio communication.
- The curved geometry of tape measures allows the antenna to be easily folded or rolled up into a small area but maintain rigidity once deployed.
- These antennas will be folded along the side of the Cubesat and tucked underneath the solar panels.

Nichrome burn wire:
- The nichrome wire heats rapidly when an electrical current is applied to it. The heated burn wire is able to burn through the pre-tensioned Vectran tethers or fishing lines that hold the antenna before deployment.

Base plate:
- The base plate is made of a sheet of Lexan Polycarbonate. This material is very sturdy and will be able to withstand the forces that are placed on it. Also, it gives us a better insight into how the CubeSat looks inside at all times due to its transparency.

Burn wire design:
- A ring of fishing line is attached to all four Vectran cables that hold the solar panels in place. The fishing line is also attached to a Nichrome wire that burns it. When the fishing line is burned through, all four solar panel tethers are released at once.

Future plan:
- Find ways to prevent the nichrome burn wire and the onboard PCB to disconnect due to the heavy vibration present during the launch.
- Find a way to prevent the tension being lost between the Nichrome and the fishing line after the launch.

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References: