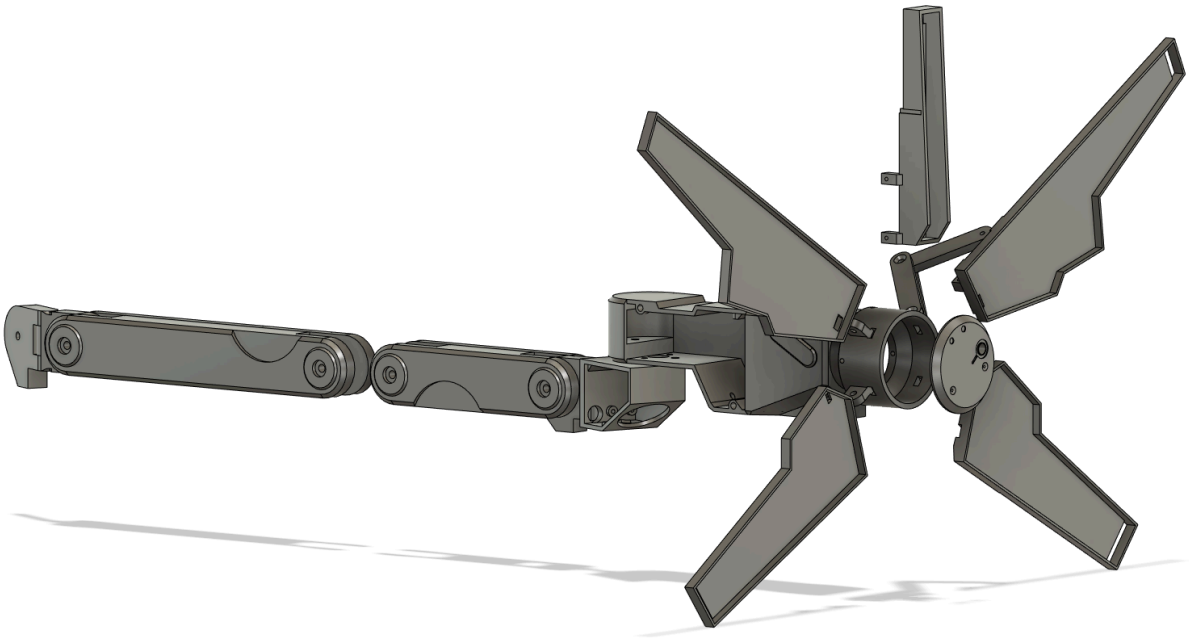
The Odradek

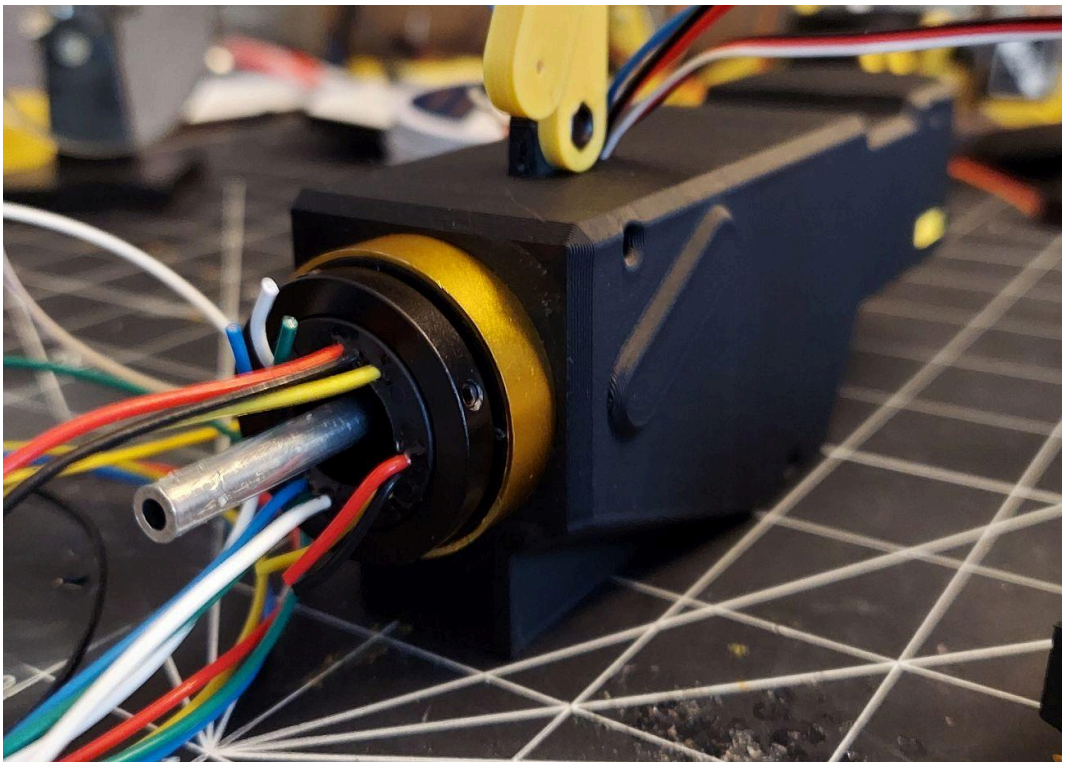
Death Stranding

By Hasen.3D

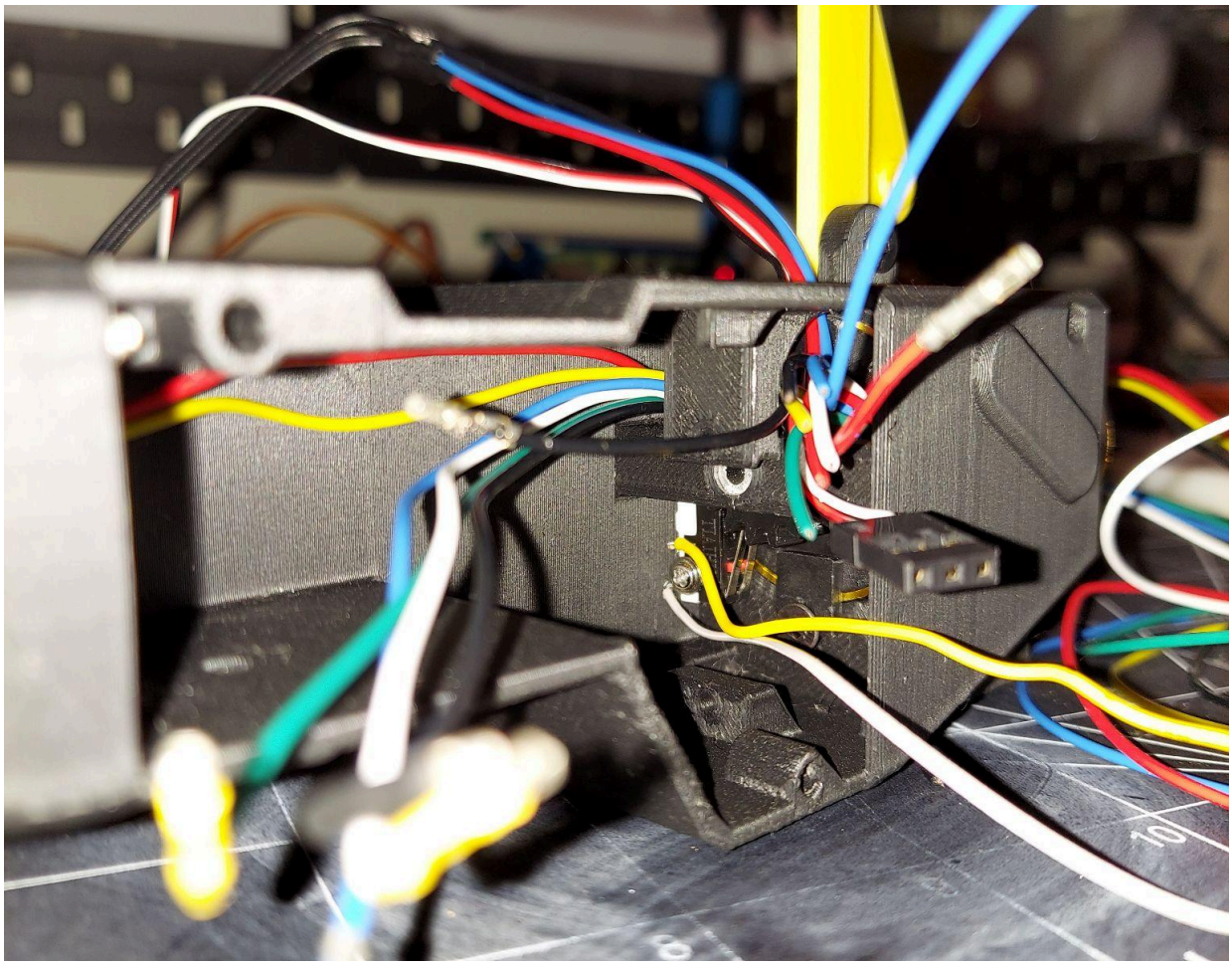
The Odradek was first modeled in Fusion 360, scaled around the dimensions of the mechanical slip ring and servo controller that make the core body. The support arm, linkages, flaps and internal mechanical components were then modeled and 3D printed by myself.



I press fit the hollow gear I 3D printed into the slip ring that was then press-fit into the body of the Odradek. This gear is driven by the gear attached to the continuous rotation servo inside the main body.



I then installed a 5mm diameter aluminum shaft through the hole in the slip ring and hollow gear, which carries the signal for the stationary flashlight on the cap of the spinning module.



The position of the spin module is tracked by a limit switch in the body that the hollow gear trips once per rotation. This spin drive/encoder part of the Odradek was a cause for many redesigns, with part and motor wear leading to 6 rebuilds of the Odradek to get stable.

The spin module is attached to the inner ring of the slip ring, inside of which I had to apply over a dozen solder joints to connect the 5 wires passing through the slip ring to the 16 pins on the exterior of the spin module, all while leaving ample room for the barrel connector mounted to the end of the 5mm shaft for the flashlight

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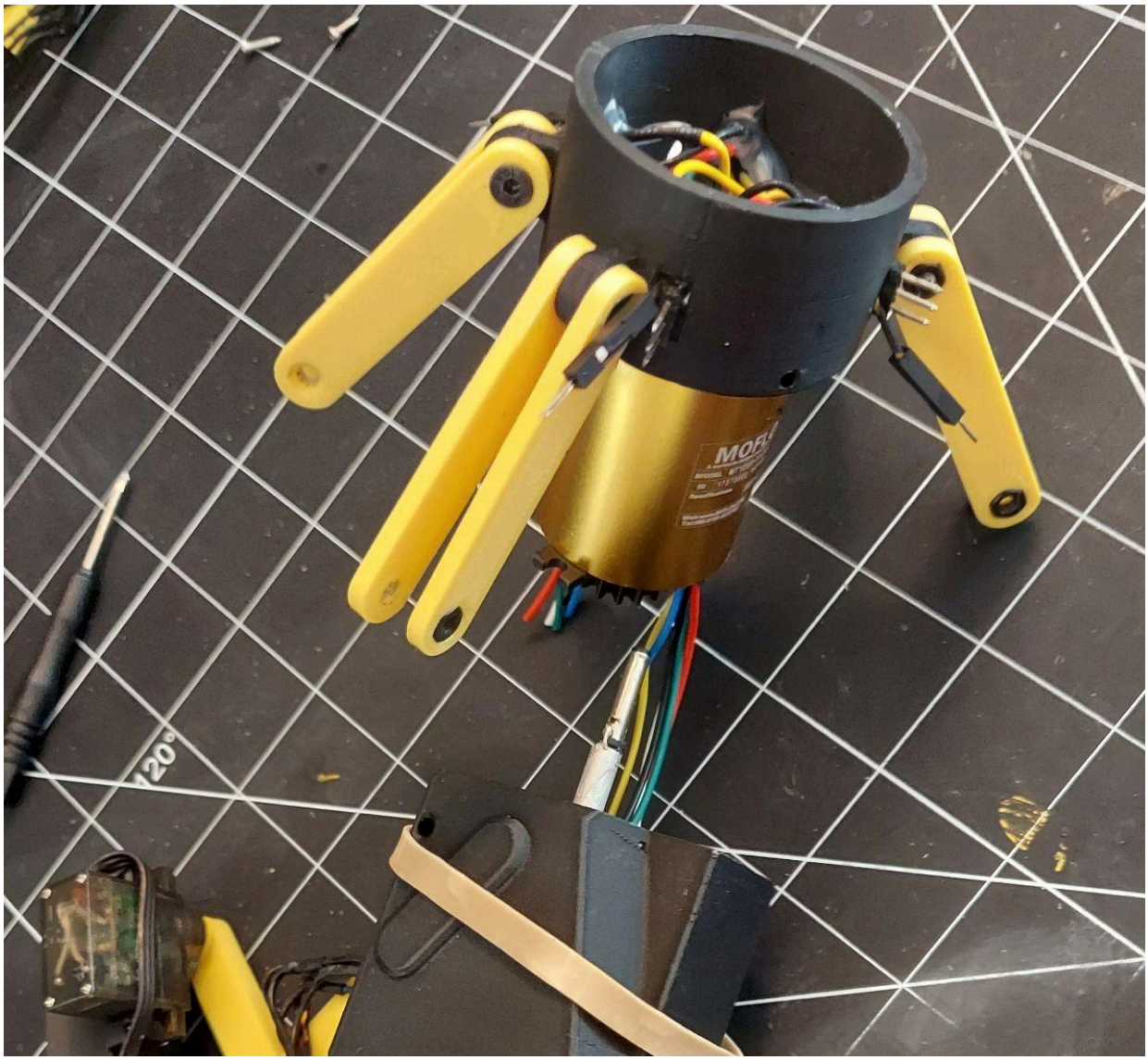
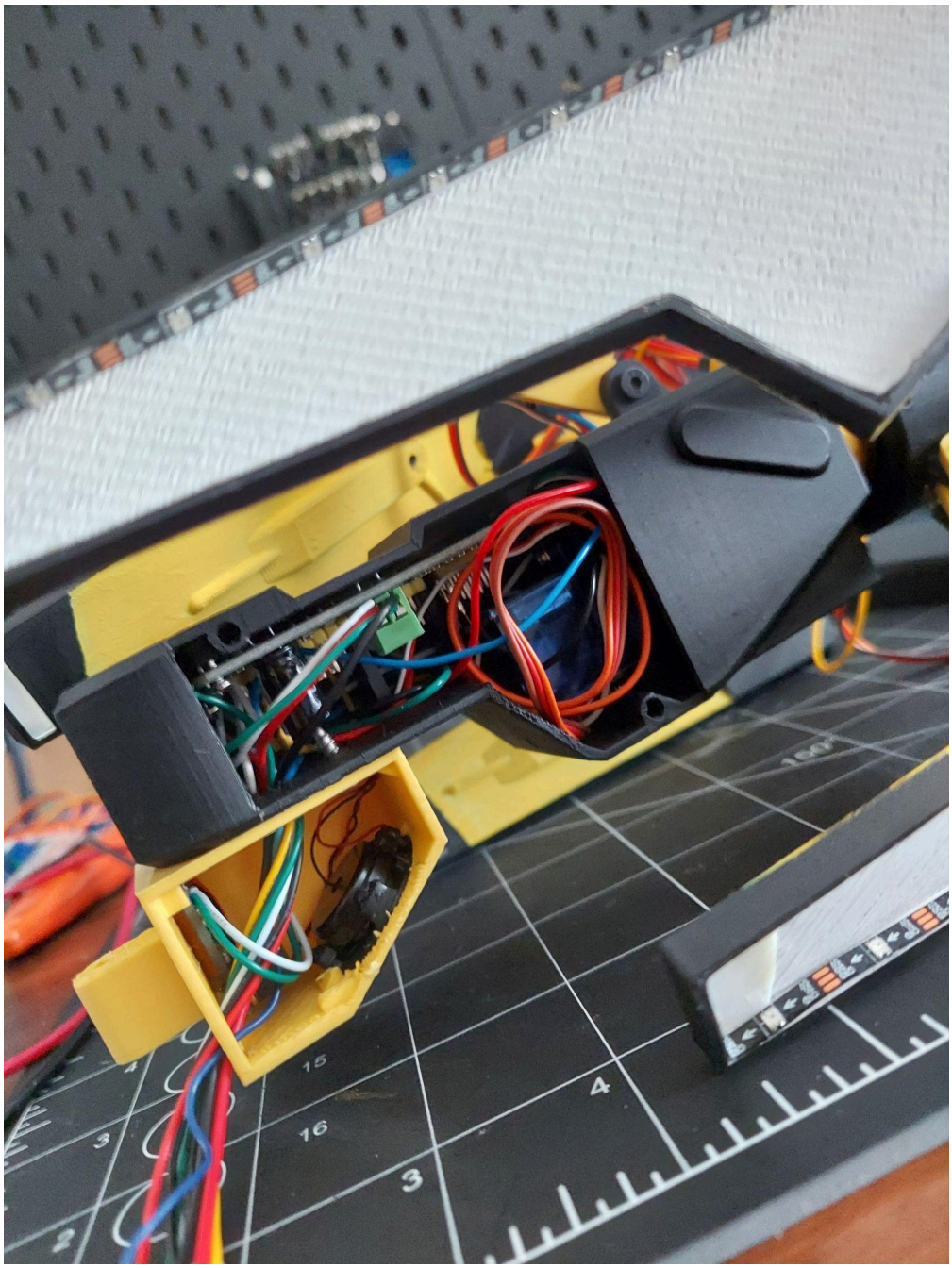
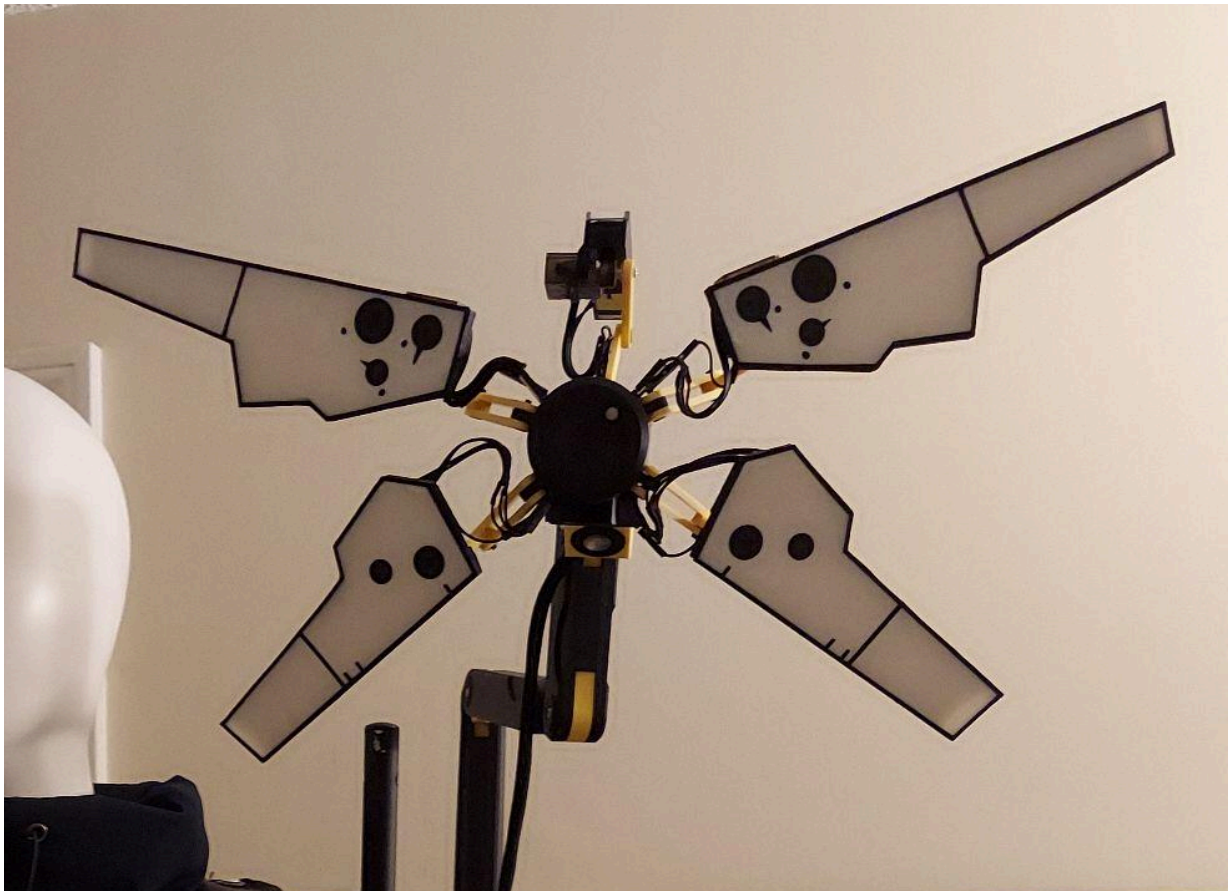


The yellow mount underneath the Odradek body is home to a speaker and amp, as well as serving as the junction for the 10 wires that power and control the Odradek. All these cables I sleeved into a 7mm diameter paracord, and ran to the battery/control box.

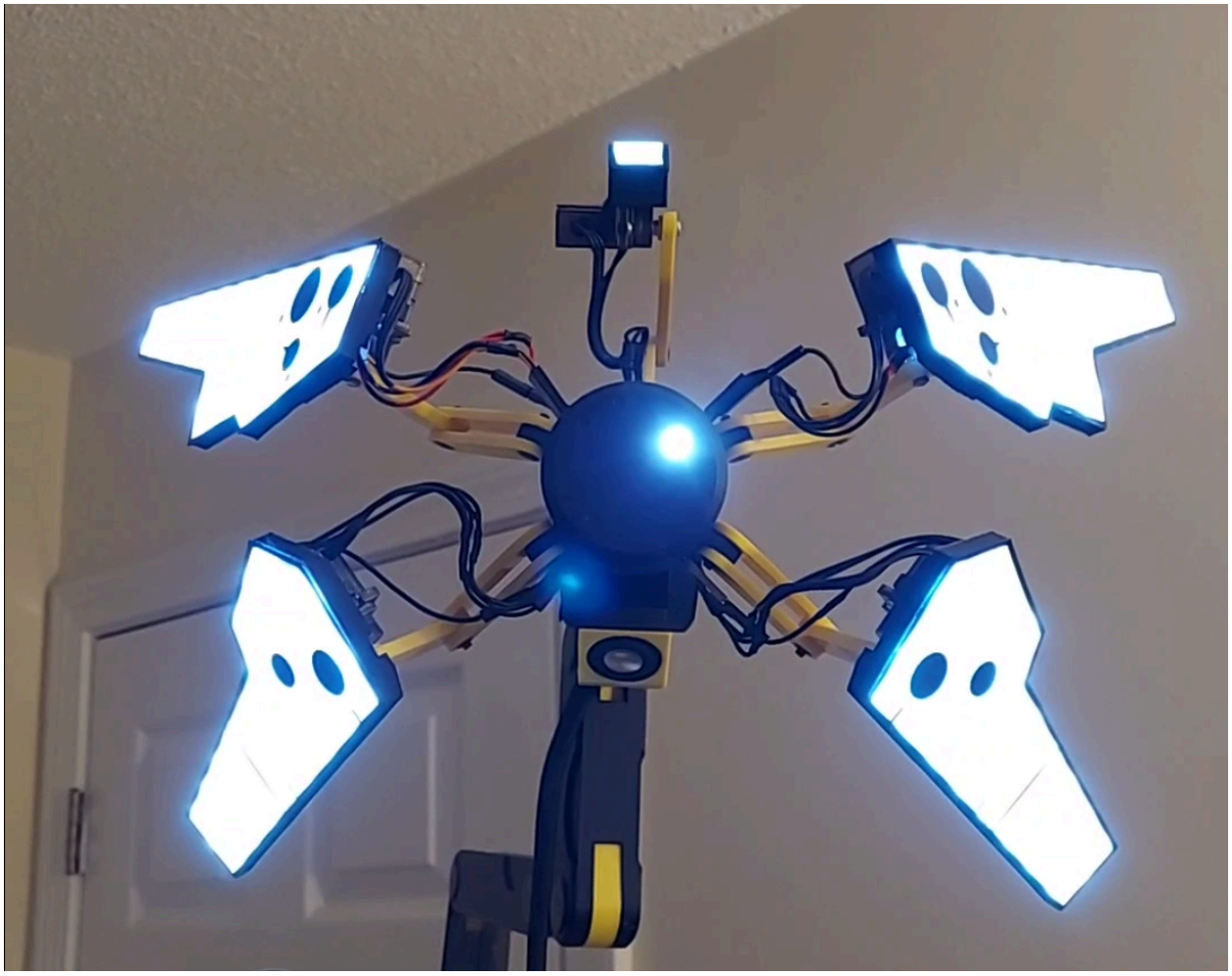


The body and mount also have caps to allow access for maintenance and disassembly, the yellow being press fit, and the black being secured with machine screws.

For each of the flaps, I affixed a 3mm addressable RGB strip and a diffuser cut from Mylar with light blocking vinyl cut on my Cricut machine. Each then has a micro servo attached to allow the flapping animation. These were then attached to the outside of the spin module and plugged in to receive power and signal.



Finally, I programmed the Odradek in C++. Using a handful of arduino libraries, I was able to bring the prop to life by giving it motion, lights, and sound. At its most basic level, the code listens for inputs from the two buttons that are affixed to a strap, which is to be routed down the sleeve and worn around the palm. The code uses these inputs to determine whether it should change states, those being off, on, flapping, fast flapping, spinning, and “party”.
This all runs on an ESP32 microcontroller, accompanied by a 114 watt hour battery, mounted in the power pack on the bottom of the backpack.



For more details or a demonstration, contact Hasen.3D