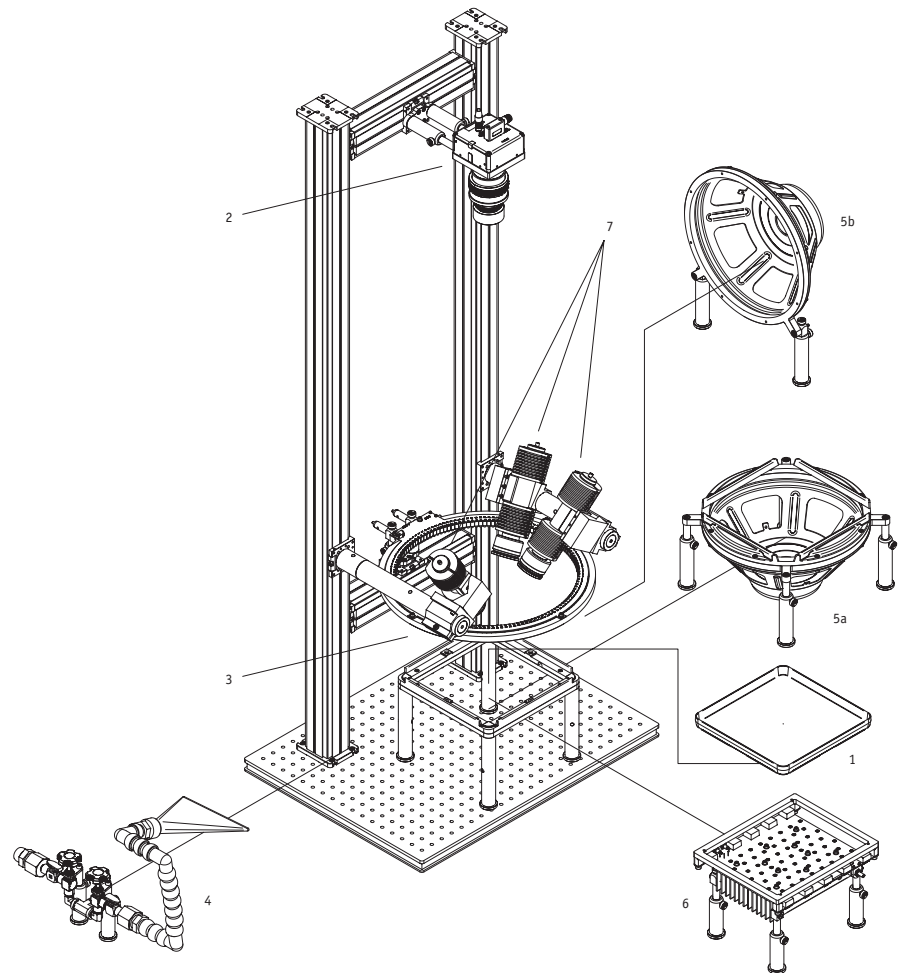


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## Project Showcase



### Drosophila Larva Tracker

Multi-Worm Tracker with Somatosensory and Optogenic Stimuli for *Drosophila* Larvae. Larvae roam a 600 cm<sup>2</sup> Petri dish (1). A high-resolution camera (2) collects images to track their movement and body shapes at 30 fps and 4 megapixels. A ring light (3) provides illumination in the red, where the larvae are not light-

sensitive. Different modules impart stimuli: Puff (4) through sudden bursts of compressed air, Buzz (5a or 5b, depending on other installed modules) through sound patterns from a speaker, channelrhodopsin activation (6) from an array of high-power blue LEDs, and Pinch (7) through the pain inflicted by sudden flashes of infrared light from high-power solid-state lasers.

**Client:** Janelia Farm Research Campus of the Howard Hughes Medical Institute.

**Employed instrumentation:** high-resolution camera, air handling, high-power infrared lasers, computer-controlled digital output, frequency generator.

**Noteworthy manufacturing technique:** 3D printing.