Teams:

electrical- will build sensor package and integrate it to the power system.

Mechanical will design 3D models of channels and integrates it with the incubation chamber.

Idea 1: optical counting using laser and photodiodes to sense disturbances in laser diffraction. Mechanism will separate fry into “lanes” or channels and can be counted by detecting blocked light.

Idea 2: use a parallel plate capacitor and measure changes in capacitance as fry pass through the cap. You should see a dip in capacitance as they pass through. Similar channelling techniques as idea 1.

Idea 3: using a camera and computer vision to detect fry. This uses machine learning algorithms to recognize what is a fry and what is not a fry. Power intensive. Can use channels or some other separation techniques.

Idea 4: use 2 complementary planar optical sensors that are orthogonal to get both x and y directions. Sync them up to verify counts. This sensors can be placed on exit tube. No separation needed.

I like idea 1 for its simplicity and Idea 4 for its complexity.