

Overview of Drosophila auto-dispenser. The purpose of the dispenser is to release a single fly into the Coliseum when prompted via software, and to repeat this task approximately 20 times (depending on how many flies are loaded) without any intervention from the user. This is accomplished with a solenoid-driven gate that blocks a small tunnel (1/16" diameter) leading from a syringe containing 10-30 Drosophila into the Coliseum. When triggered, the gate opens. A line-camera monitors the tunnel and closes the gate after a fly has passed. The fly is made visible to the camera by back-lighting with an IR light source, guided by an optic fiber.

Camera:

TSL1401 Linescan Sensor Daughterboard

<https://www.parallax.com/product/tsl1401-linescan-sensor-daughterboard/>

Solenoid (Gate Actuator):

Part Number: 474-ROB-11015

<https://www.mouser.com/ProductDetail/SparkFun/ROB-11015?qs=WyAARYrbSnb40pNKVm6nzg%3D%3D>

Steel bar (Physical Gate):

Hardened Undersized High-Speed M2 Tool Steel Rods

Mcmaster-Carr: 3009A273

LED:

Manufacturer: Osram

Manufacturer Number: SFH 4235-Z

Mouser Part Number: 720-SFH4235

<https://www.mouser.com/productdetail/?qs=vyVHulCG23uDj%2BpvRifQnw==>

Optic Fiber:

1.5mm

<https://www.edmundoptics.com/p/1500mum-optical-grade-plastic-optical-fiber-unjacketed/68/>

Syringe: 50ml

Acrylic bar (forms the tunnel)

<https://www.mcmaster.com/>

Mcmaster-Carr: 1227T519

Thor Labs Posts (provides scaffolding)

https://www.thorlabs.com/navigation.cfm?guide_id=2065

We use mini series and 1/2"

