

Rejuvenating Dry-Erase Markers



Walla Walla University consumes very large quantities of dry erase markers in classrooms all over campus. The solvent in the marker evaporates long before the ink is used up. Many people report success replenishing the solvent in markers multiple times per marker. The project is to automate the process of refilling either Expo or Quartet dry-erase markers with isopropyl alcohol solvent [1].

The markers may be refilled through the rear plug, the felt marker tip, a hole drilled in the body and resealed, or any other sealable means that retains all normal functions of the marker. Fluid may be dispensed with peristaltic pump or syringe, but any reservoir must be easily replenished for continuous operation of the system.

The most successful method discovered by the teams may be continued as a senior project to produce a self-contained machine that Custodial can use for bulk refilling of campus markers.

Resources available:

- Robots: up to two teams may use Motoman MH5L 5DOF manipulators
- Indexing turret: up to two teams may use pneumatic indexing turrets
- Stepper motor actuators: many stepper driven linear actuators are available, plus individual steppers
- Controls: AutomationDirect BRX plc, Motoman DX100 controllers, LinuxCNC motion controllers

[1] <https://www.officedepot.com/pdf/msds/259251.pdf>

Teams

Team 1:
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Team 2:
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Team 3:
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