

Group M1.04: Post-Consumer Injection Molding

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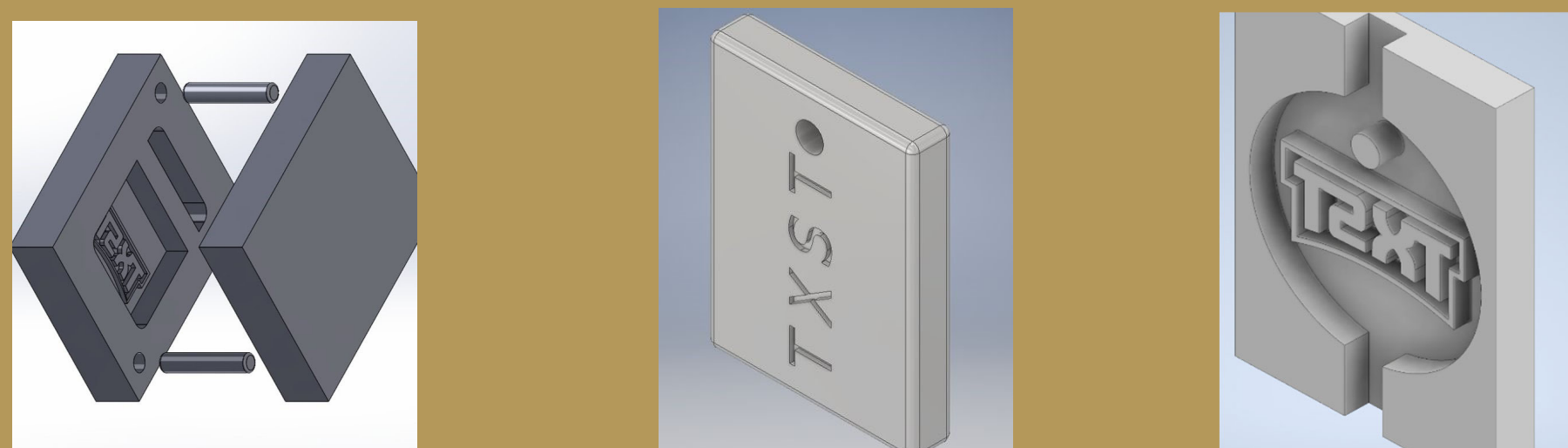
Problem

Creating a plastic injection molding system consisting of an injection molding machine and molds that use post-consumer recycled HDPE plastic to make products!

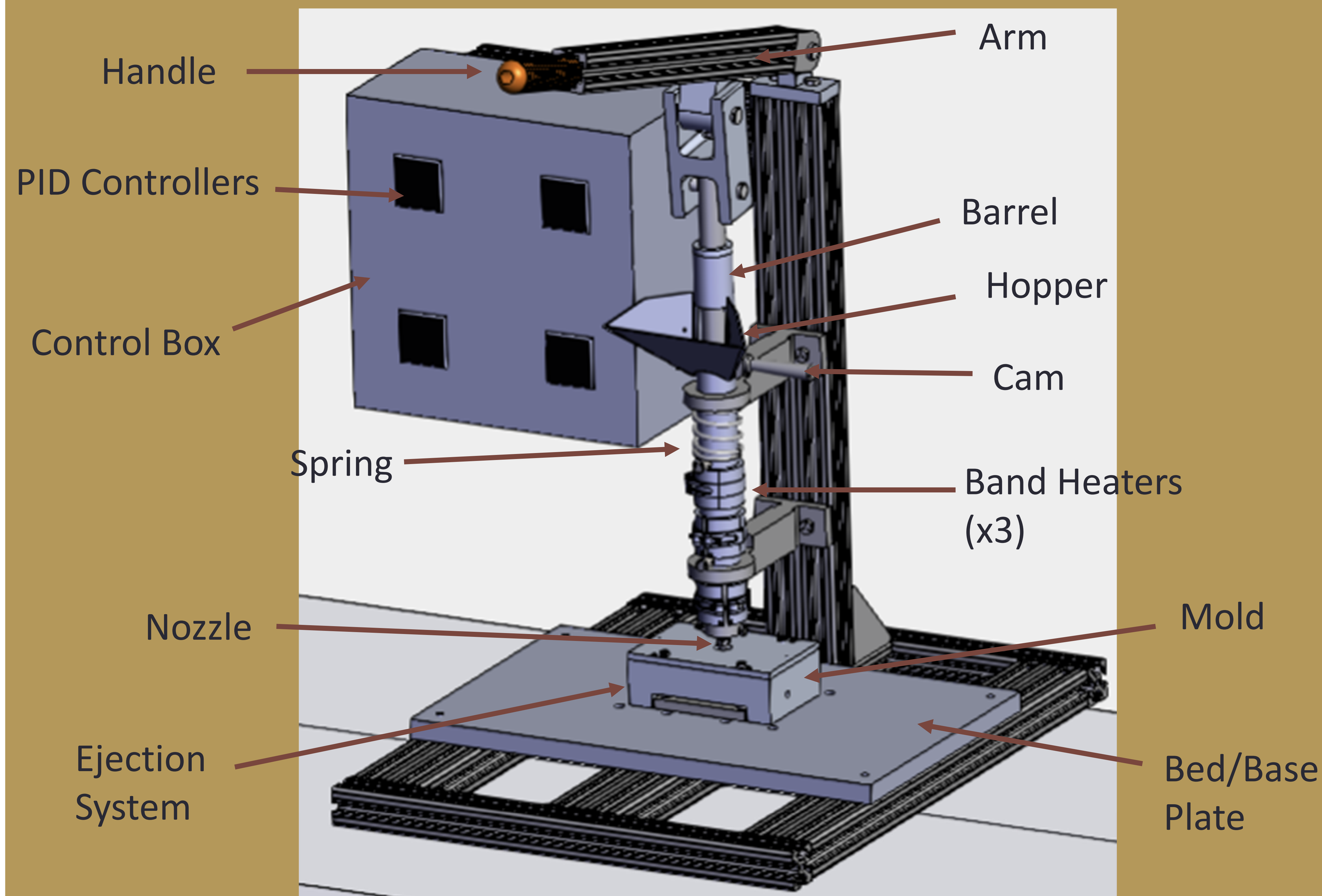
Manufactured Parts:
 80% of parts designed & manufactured by the team



Previous Teams Molds



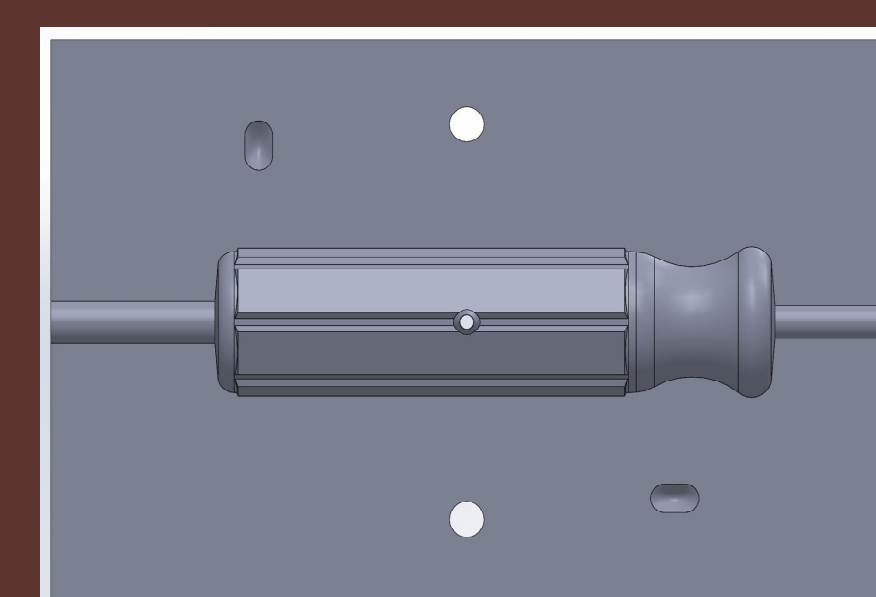
Machine Design and Molds



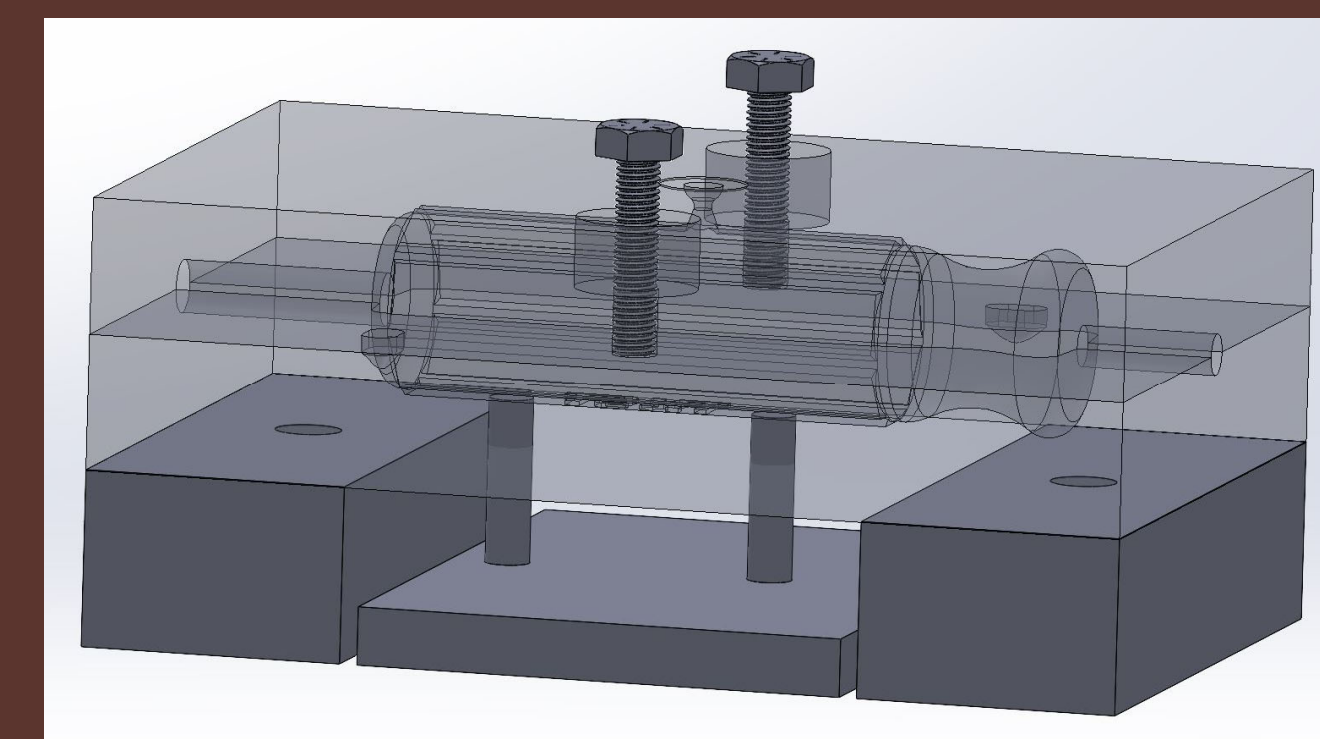
New Mold Designs



- Improvement on locating features
- Redesigned screwdriver mold
- Designed tray mold



Mold Separating & Ejecting System



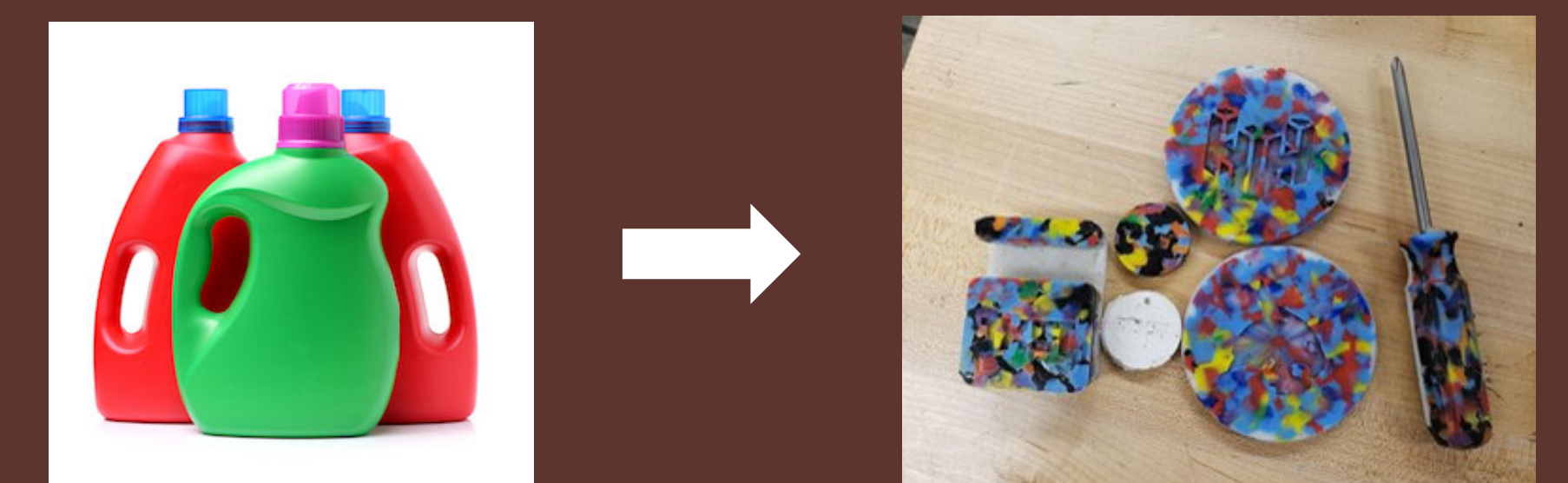
- Bolts to assist in mold separation
- Ejector pins to release part from mold
- Supports a simple process in ejecting a product from its mold

Process

Conceptualization

Customer needs:

- Process time within 1 hour
- Library of molds for users
- Minimum training required to operate the machine



Process of Injection

- Fully extend arm upward
- Lift nozzle and insert mold under the nozzle
- Lower nozzle onto the top of the mold
- Place shredded plastic into the hopper
- Pull down on the arm to bring plunger halfway down into the heating zone
- Pull handle all the way down to inject plastic into the selected mold.

Future Steps

- Create at least 3 more mold designs
- Manufacture 5 molds of each design
- Continue to improve on machine & molds
- Further testing on molds & ejecting system
- Present our project at the 2022 SXSW Innovation Lab

