

TRANSITION DOCUMENT

The Catalyst team has been tasked with designing an interactive model that demonstrates how catalyst work. This project will be used to explain what a catalyst does to middle school students at outreach events.

This semester we worked on creating the final model of the project. We used the partially built prototype from last semester as a starting point and evaluated it to be able to effectively start the final model. We drew many sketches to help demonstrate our ideas. We then started working on the construction aspect of the project. We made the final slingshot, electrical system, and delivery system. We also added another educational aspect to the project, to help further explain our concept.

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CURRENT PROJECT STATUS

Prototype

- Gator Board Wall
 - Wall was cut and spray painted
- 3-D printed bases
 - Reprinted a couple times and then sanded in order to fit the wooden box
 - Wooden stabilizers were cut and then attached to the bottom of the bases and the box in order for the bases to stay in place
 - Then, they were redesigned to be one piece
- Wooden Launcher
 - Wood pieces were cut and then attached together with wood glue
 - 3 Launcher prototypes were made (one two-handed design, one one-handed design, and one two-handed and one-handed design)

Final Product

- Wooden Box
 - New box was designed in CAD
 - Laser cut at Bechtal
 - Stained
 - Assembled with wood glue
 - EPICS sticker was added to the front
- 3-D printed bases
 - CNC in St. Louis and shipped here
- Electrical System
 - Designed circuit for box, powers both a set of buttons (controlling either catalyst or no catalyst) and a motor
 - Supplies bought from Amazon or found in EPICS lab
- Educational Poster – Supplement to box
 - Designed in Canva
 - Definition, example, visual aid, and our box included on poster
 - The design is ready to be printed, but no physical copy yet
- Educational demonstration
 - Elephant toothpaste was decided as the demonstration to go along with the game
 - Instruction cards, lesson plan, and poster have been designed and finalized
 - Still need to be printed
 - Can be found under files in catalyst folder of “Spring 2022”

For weekly updates of progress from Spring 2022 see Teams > EPICS CED > Files > Archives > Catalyst > Catalyst Weekly Updates

CURRENT SEMESTER PROJECT TIMELINE

- For next semester, focus on:
 - Glue the acrylic box and wood box together
 - Do product testing
 - Delivery paperwork

The Catalyst team should plan on finishing the final product and conduct testing. Once testing has been completed, the design should be evaluated by CISTAR.

TRANSITION INFORMATION

- Location of items
 - All of the CAD models can be found in the Spring 2022 catalyst folder on teams.
- Milestones completed
 - We are almost finished with the final model.
 - All the CAD files currently cut the correct dimensions for the size the model is currently.
 - We finished the delivery system, electrical system, and slingshot
- Roadblocks
 - Because of the small surface area, we are not sure how to attach the acrylic box to the wooden box
- Suggested next steps
 - Finish scissor lift

- Attach acrylic top to the box
 - Delivery paperwork
- Design ideas
 - Our past design review slides as well as the design document is a great place to start to get more information on the project.
 - There are a number of sketches as well as pictures of the current progress that has been completed within those documents.
 - All this can be found on teams.