Cannon Crossfire: The Making

by Earnest Long, Igor Gonzales, and Andrew Cie
(w/ MEAM 150 Student - Greg Near)

Planning Phase

Preliminary Ideas:

1. “Snatch and Fling” (“snatching” mechanism based off of Hungry Hungry Hippos)

2. 3D Maze/Race

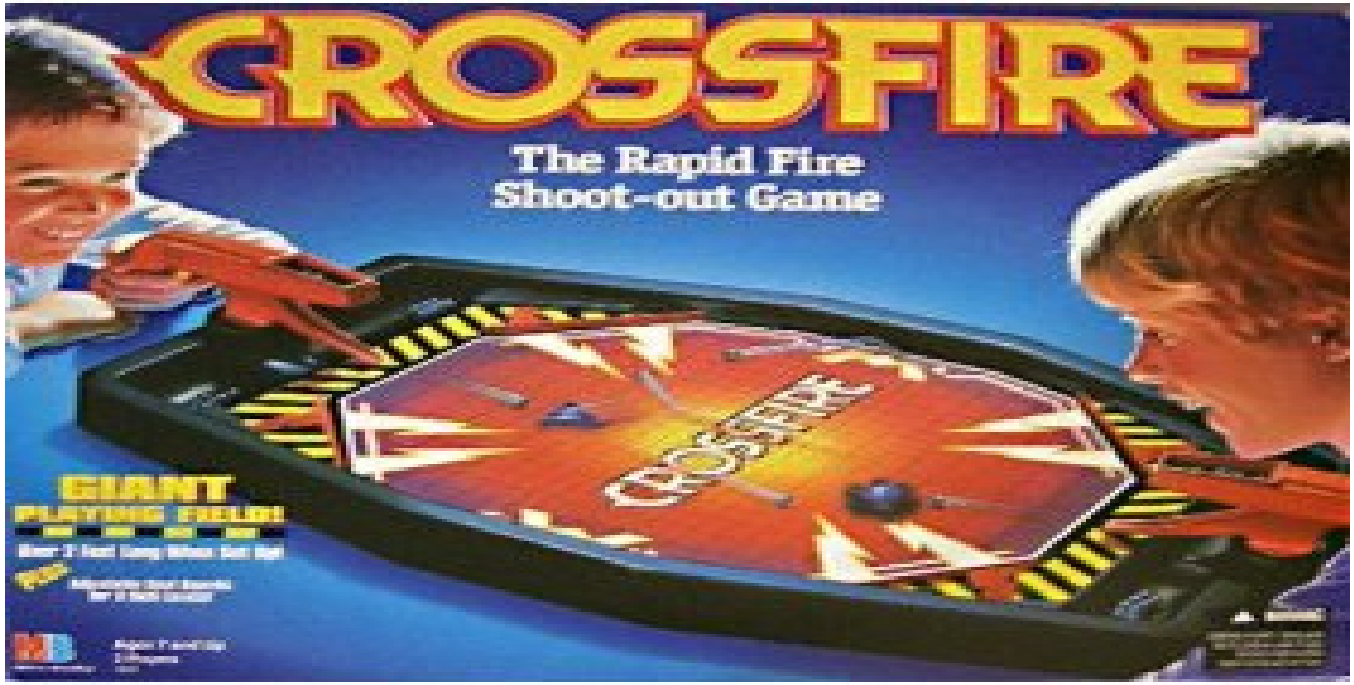
3. Head-to-head Shooting Game

After realizing that the mechanism for the “snatch and fling” game was not feasible and that the game was too similar to Hungry Hungry Hippos, we settled on the shooting game.

Design Phase (Basic Concept)

We decided that the game would be based loosely on “Crossfire”. in which opponents fired ball bearing at pieces on the playing field in an attempt to knock one of the pieces into the opponent’s goal. Each player would be in control of a “ship” (pirate ship, originally) and would attempt to blast the opposing ship while at the same time avoiding the enemy’s fire.

In the interest of space, we planned to make our playing field 20 inches long by making separable 10 inch long halves that could stack for storage. Originally, the cannons would move along a track with a crank and gear mechanism for player control. There would be a mound on the center to deflect balls in order to add some challenge to the game. At the end, the walls behind the ships would be painted to look like pirate ships.



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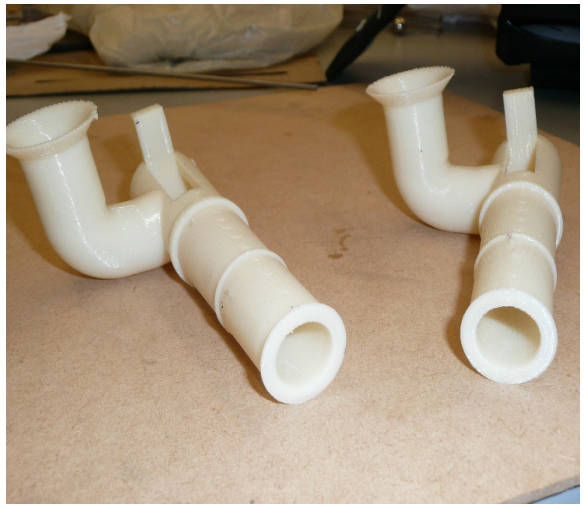
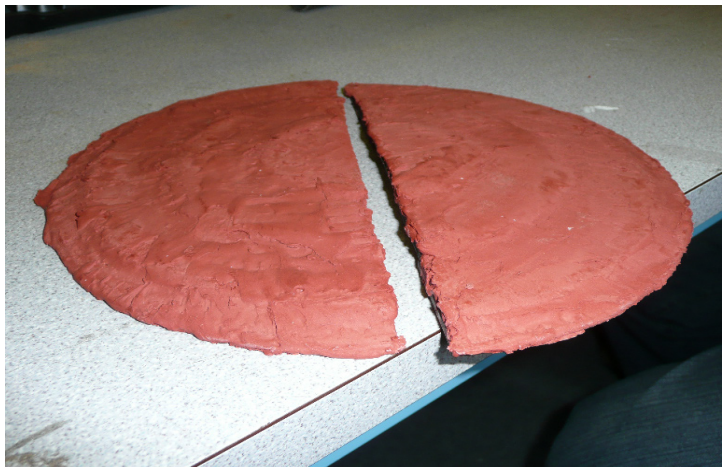
Tweaking and Building Phase

The cannons would be 3D printed while the rest of the game pieces would be laser cut or machined. The housing for the cannon was designed to be a press fit box. Most of the board, including the "drainage system", triangles on the side that moved out-of-play balls off the playing field and into a player's pen, were made of acryllic. The mound would be layered MDF crescents covered over with Bondo. The aluminum and steel pieces were machined by our MEAM 150 partner Greg Near or made in the GM Lab.



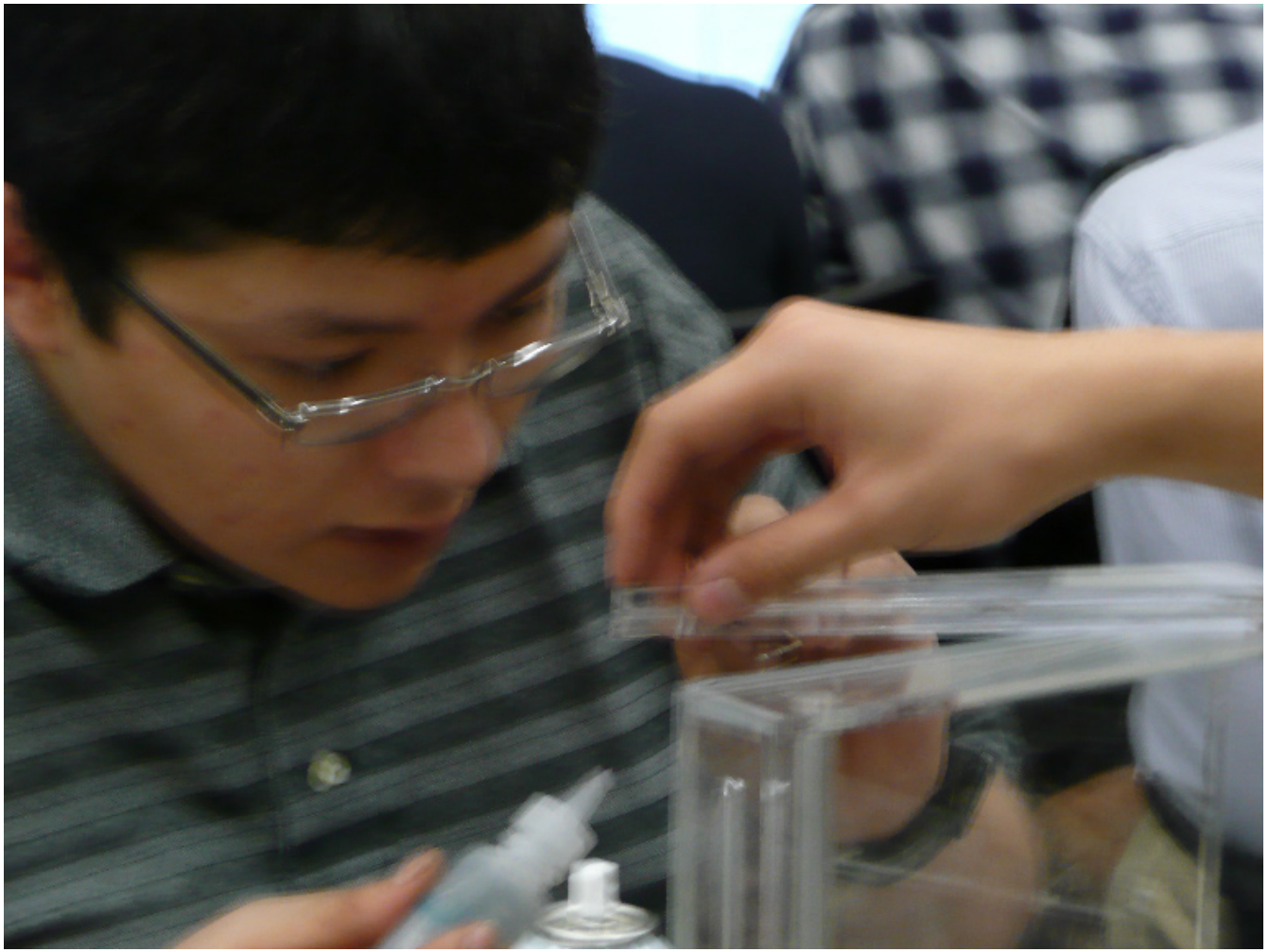
It was decided that the crank and gear mechanism was too complicated to manufacture and it was not time-efficient to wait for the parts to arrive in the mail. We opted for a simpler design, where the cannons would be attached to a rod that would slide side-to-side through a slot.

The pirate theme was also dropped in the interest of time.



Materials

1/4” acryllic
1/8” MDF
1/4” MDF
1/8” steel rod
Aluminum rods
Ball bearings
3D Printing (Cannons)
Bondo
Loctite



End Result: Cannon Crossfire