ANTHONY QIU

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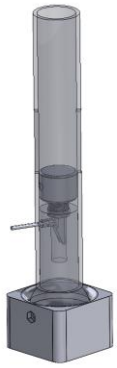
Launcho



What?

- A spring powered toy rocket launcher, created by a team of 5 people.
- Has the capability to adjust it's launch angle in all dimensions.

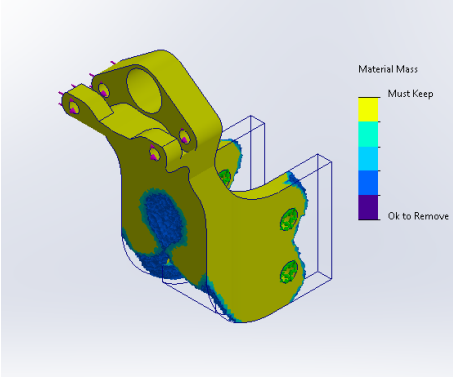
How?

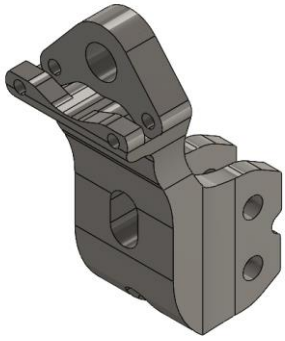
- Fabricated initial prototype using PEX pipe, Nerf gun parts, and duct tape to gauge design feasibility.
- Designed scaled 3D model to prepare team for construction of the design.
- 3D printed unique parts with ABS and machined high stress parts using steel.
- Assembled using force fits and superglue for adhesion.

Results

- Able to consistently launch its projectile above **1.5m** when angled vertically.
- Can adjust its launch angle in any direction within **20 degrees** from the vertical (upwards).
- Wide base prevents tipping during use.
- An aesthetic design achieved through many CAD revisions and spray painting.

Brake Caliper Mounting Arm for Solar Car





What?

- A mounting arm to mount Wilwood's GP200 caliper to our solar car at Midnight sun.

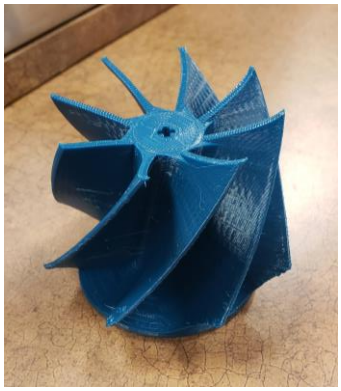
How?

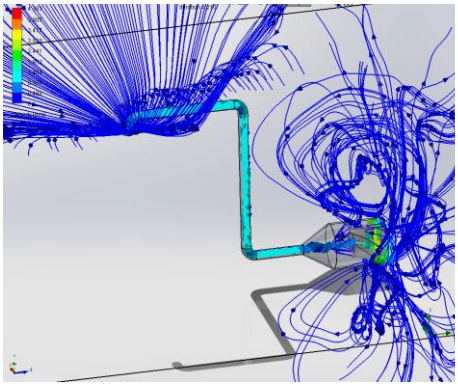
- Designed 3D model of mounting arm in Solidworks, using caliper dimensions obtained from the instruction manual.
- Performed FEA stress test and topological analysis to produce the most effective strength to weight ratio.

Results

- Successfully created 3D model allowing fabrication of the mounting arm.

Impeller for Robotic Suction Arm





What?

- An impeller and enclosure designed to generate vacuum force for a suction feature on a robotic Lego arm.

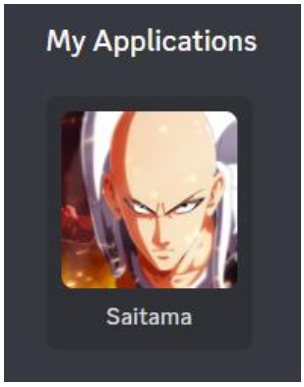
How?

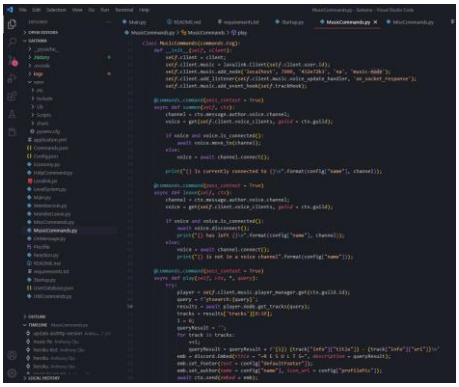
- Designed 3D model of impeller in SolidWorks.
- Ran flow simulations in Solidworks to determine the most optimal shape for the impeller.
- 3D printed impeller as well as enclosure for impeller using PLA filament.

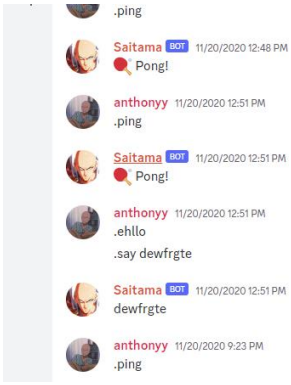
Results

- Generates suction with the use of only **one** Lego EV3 motor and several gear ratios.
- Can generate enough suction to lift a **4 g** object, demonstrated by lifting a napkin.

Saitama







What?

- A server hosted application which can interact with a chat service called Discord.

How?

- Programmed with python and several libraries for extra functionality.
- Json files were used to store user information.

Results

- A fully functional discord bot which can respond to messages, keep track of user statistics, execute certain commands, and play YouTube audio in voice calls.