

Repurpose Challenge Written Report

Monday, February 8, 2021 7:00 AM

Part 1: Brainstorm

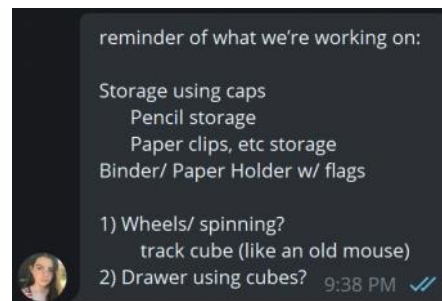
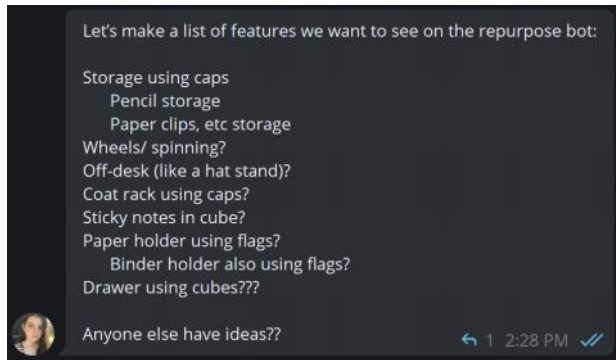
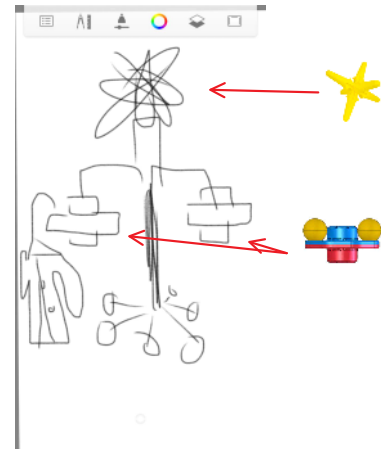
To begin our process, we broke apart the prompt and evaluated it. We realized that this challenge is open-ended and leaves a lot of room for creativity when we narrowed down the constraints:

1. Primarily old game pieces
2. SAFETY
3. Usable

From there, we were able to start brainstorming. By the end of the first meeting, we already had these ideas:

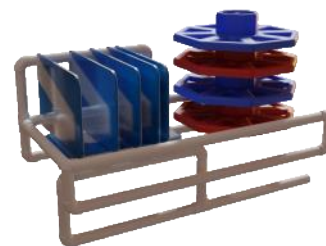
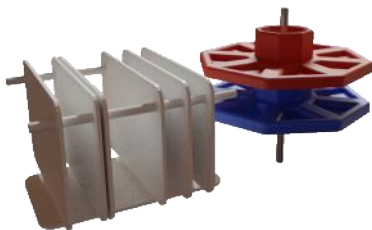
- Coat/ hat rack (see right)
- flower pots (self-watering?)
- Desk Organizer
- dog toys (starstruck stars)
- fidget toy (IQ pieces)

We found that a desk organizer had the best opportunity to combine ideas. From there, we narrowed it down over messages seen below.



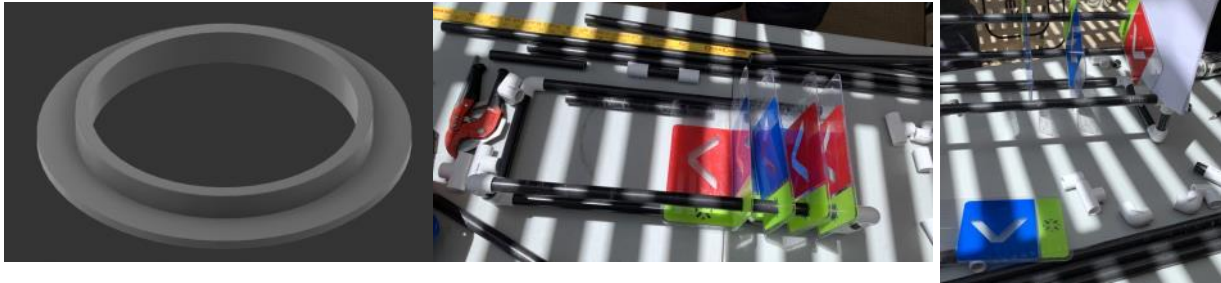
Part 2: Design

The design process made extensive use of the 3D design program Blender. The reason behind using this software versus a traditional parametric CAD program is that it allows for much faster and more flexible manipulation of geometry- something that proved very useful in the Early conceping phase. This rapid design allowed us to quickly settle on a basic layout of a flag-based filer and cap organization trays for the product; precise dimensions and scale were not a priority here, as these could be established later and the basic structure for the organizer omits any complex forms.

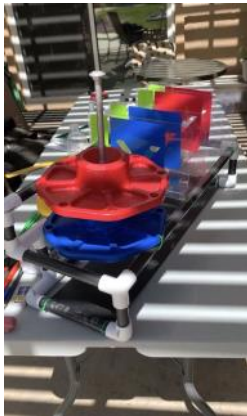


Part 3: Build

The construction of the organizer could be separated into 3 main subassemblies: frame, flag-filer, and cap-trays. The frame was built exclusively from the tubing that constituted the supporting superstructure for the flags on the Turning-point field, pressed into standard PVC tubing fittings. The filer portion consisted of Turning-point flags which had a hole drilled through one side. The hole was sized to the tubing, as they would slide along a raised extension of the frame. Additional 3D printed bushings were adhered around the holes of the flags with cyanoacrylate adhesive, sized large enough that the flags could slide easily along the tubing. Poly-carbonate sheet was cut and zip-tied beneath the flags to act as the resting surface for filed material. Lastly was the cap-tray, made from the disassembled halves of Turning-point caps, flipped face-up with a carriage bolt threaded through their centers and nuts clamping the caps from either side.



Part 4: Completed



Wrapping up the project, which we named Ghimbus upon completion, we are proud to have repurposed old game pieces. Ghimbus functions as not only a desk organizer, but potentially an organizer for robotics parts. The caps are great for organizing smaller office supplies with pens and pencils fitting in the center and paperclips and staples fitting in the outer divots. These office supplies could be interchanged with tools and small parts. The flags are moveable and ideal for organizing papers and binders. Because of the structure that we made from the turning point pipes, there is even a usable shelf underneath. Ghimbus is sturdy, yet easy to move and change for your preferences. Overall, we are very proud of what we made and thankful that we had the opportunity to participate in VEX this year.

