Ian Rosado

Team B: Monkey Bots

Teammates:
Stephanie Chen, Trevor Decker, Ian Hartwig

ILR08

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Individual Progress

In the past week, I have worked mostly to design, build and assemble the mechanism that will allow us to move our cleaning unit back and forth along the bar. This entailed analyzing the geometry of the "power chain" that we had decided to use to push and pull the cleaning unit, then creating a suitable geometry to fit into that, and designing the housing and guides that would hold everything. The unit was 3d printed and laser cut, then bolted onto the arm. It was nearly operational for our Wednesday demo, but the stepper motor driver that we used to control it could not give us enough torque, so we hope to have that unit operational soon. Figure 1 shows the cad model for the part of this subsystem that was 3d printed, which holds the stepper motor and guides the power chain into place.

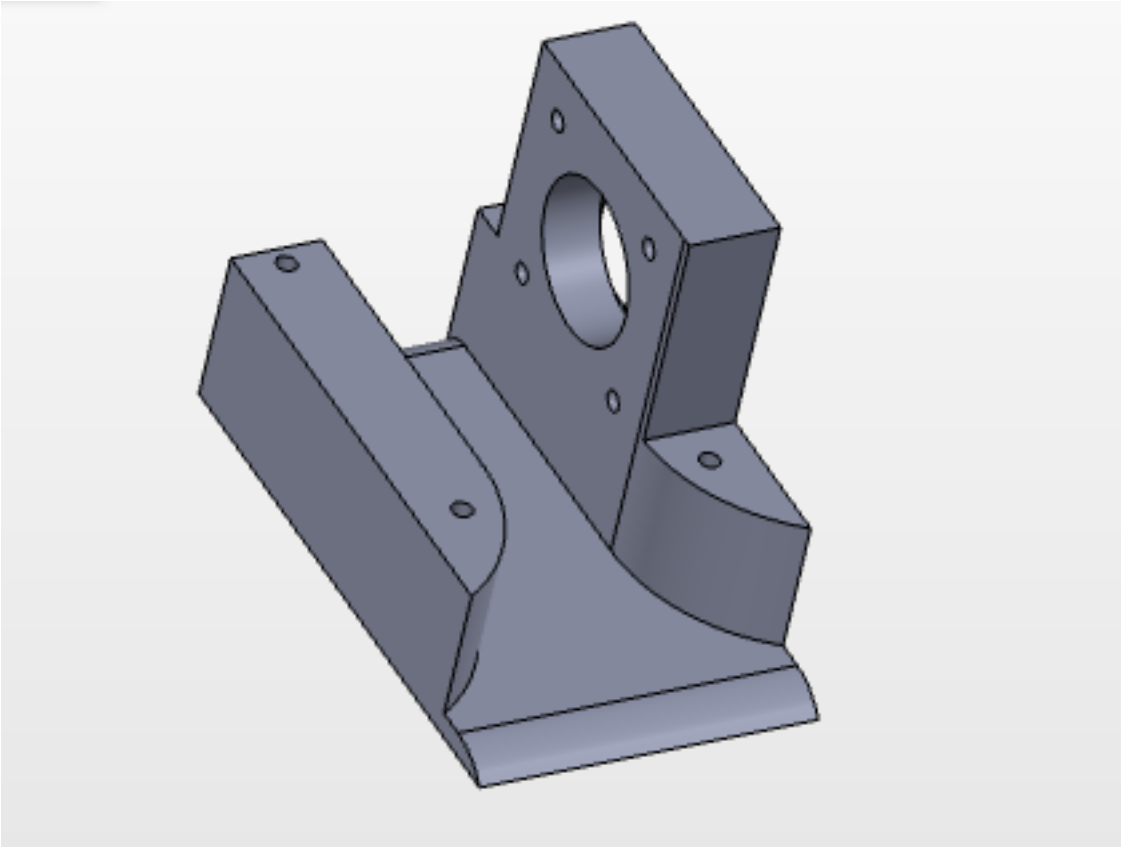

Figure 1: Cad model a component used in the cleaning unit actuation system.

I also worked to machine other small parts for other subsystems such as the new gripping mechanism and cleaning unit

Challenges/Issues

As we work to finish all the subsystems of our robot on time, we are working on new designs for the gripper that will allow for us to hold ourselves up easily, so that we can make sure that the rest of the robot is working. When we are making small changes to different parts of the robot that all interact with each other, we can run into issues with being unable to work on specific components due to that portion of the robot being

occupied for other work. TO get around this, we have disassembled and reassembled the robot several times, which has caused us to lose track of small bolts or other things, which can become an issue around demo time.

Teamwork

Since we have been able to get some of the moving parts of the robot together, Ian and Trevor have been able to work on integrating some of the motors and getting our microcontroller up and running, tackling the controls side of things. They have also helped with machining and making other parts that we are also remaking or replacing, as well as working with all of us on the new gripper. Steph has worked to machine parts for the wrists and the cleaning unit, and has worked hard assembling and keeping track of components after we realized that we were having issues with that.

Future Plans

With the next system demo being the last one before we need the robot to operational, we are hoping to finish all of the subsystems to some extent before then. To do this, I will work to finish assembling and troubleshooting all of the movement in the cleaning unit, as well as helping to get the gripper operational. With those two subsystems complete, and with Ian and Trevor working on controls, we should be able to demonstrate at least the majority of the functionality of the robot.