FLL Cargo Connect

Core-Values & Design

By: Team Redbot (52761)

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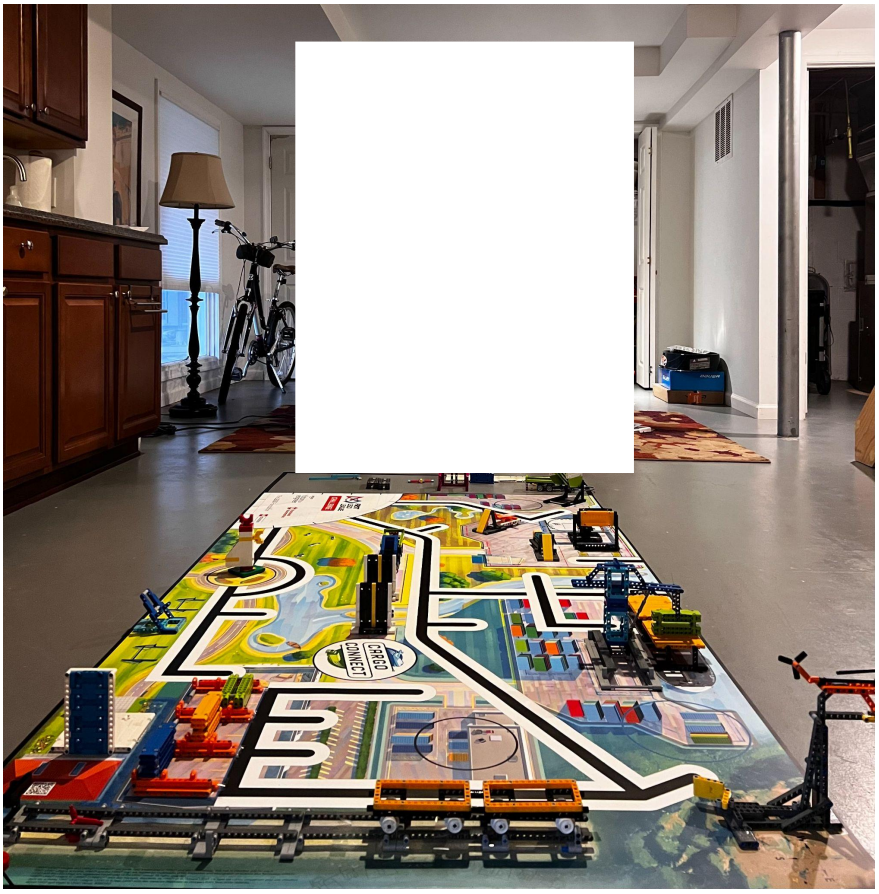
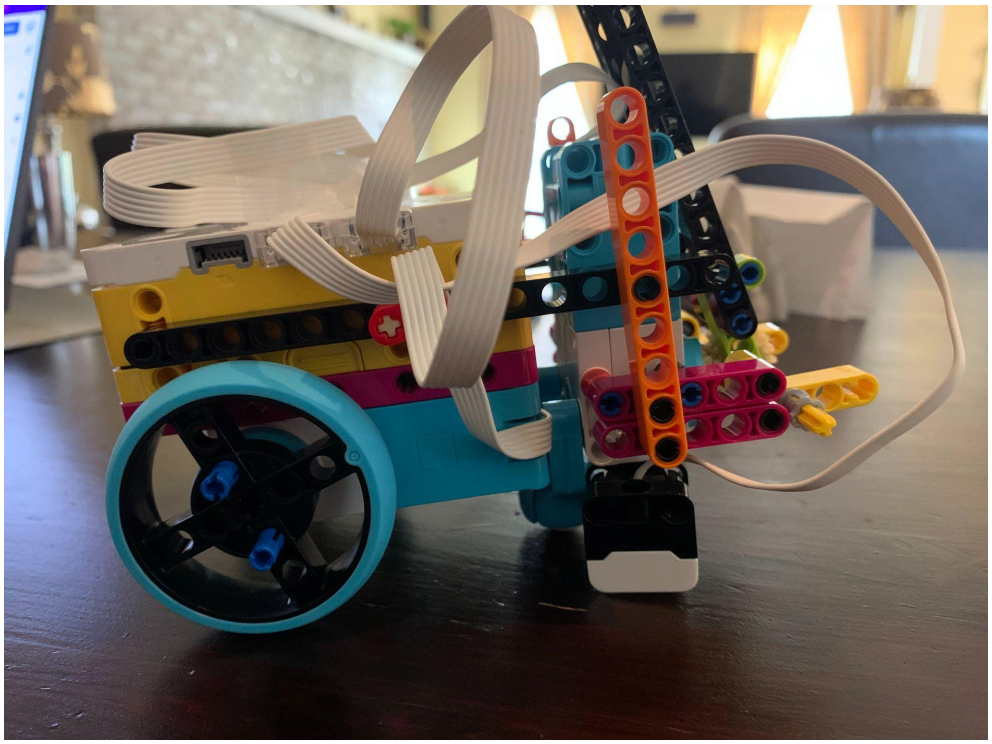
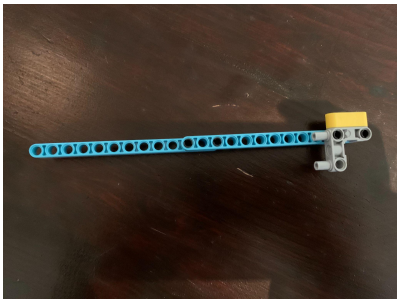
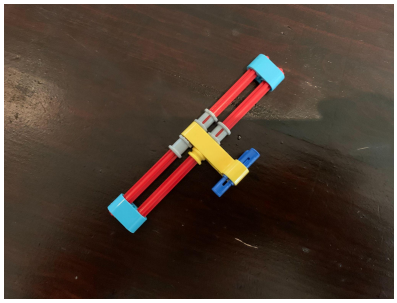
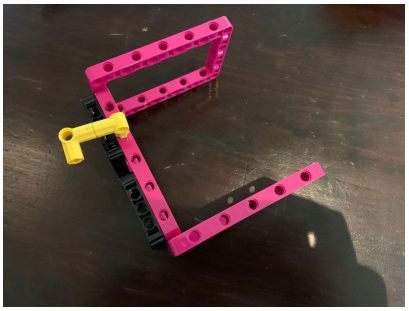
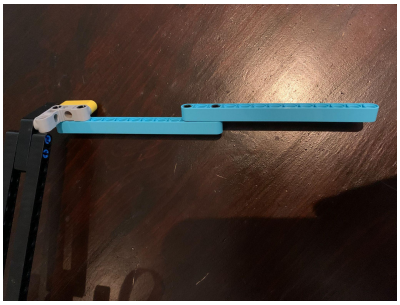


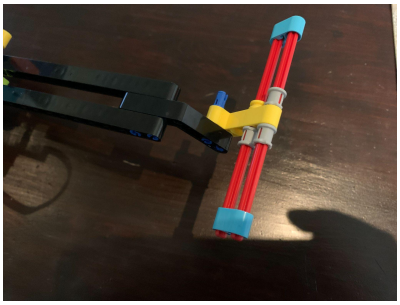


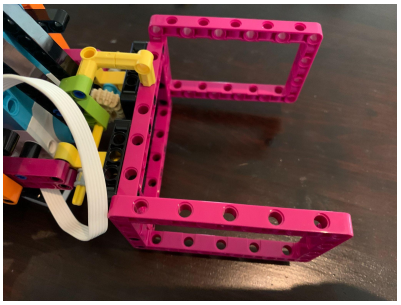












Long Attachment

Push Attachment

Cargo “Basket

Innovation and discovery are our team's strongest values. We persisted through many hardships as we only had three people in our group. To overcome these challenges we used creativity, one of the core discovery values. One of our members tried something new by going onto a forum to find the answers for the problems we encountered, as well as posted answers of our own once we figured out how something worked. We also got a good idea from the forum and integrated it into our robot.

's strength was coding the robot and being an excellent listener to the group's suggestions. He also demonstrated the qualities of an excellent leader by directing the group in many of the tasks. 's strength was fixing all the bugs and critical issues with the robot and helping with attachments and design. He discovered logical ideas for every problem and came up with a solution. 's strength was developing attachments and suggesting new ideas of how to do something. He also took the lead in meticulously documenting the core values. He created two attachments that were later used and suggested the innovative design for the 3rd. Aaron also suggests brilliant ideas of how to code the robot despite not knowing how to code.

One thing that we struggled with was teamwork. There were times when we had opposing arguments, but we quickly overcame them by coming up with a reasonable compromise. There were many occurences where two different people got into an argument about attachments and how to make them. As a reasonable compromise, suggested that we try both attachments and see which one could work better. Peaceful agreements like these is how we overcame the challenge of teamwork in this mission.

The intelligent design of our robot took many tries. At first, we started with a basic robot. It seemed simple enough, but we then had to adjust it to accompany more attachments. Then while coding, we had issues with the robot going in a straight line reliably. To solve that, posted the issue on the Chief Delphi Forum and got help from other robot enthusiasts. After more adjustments, we could use our robot to properly execute the complex tasks more reliably. In the end, we made three attachments, one to push, one to hit, and one to move objects.

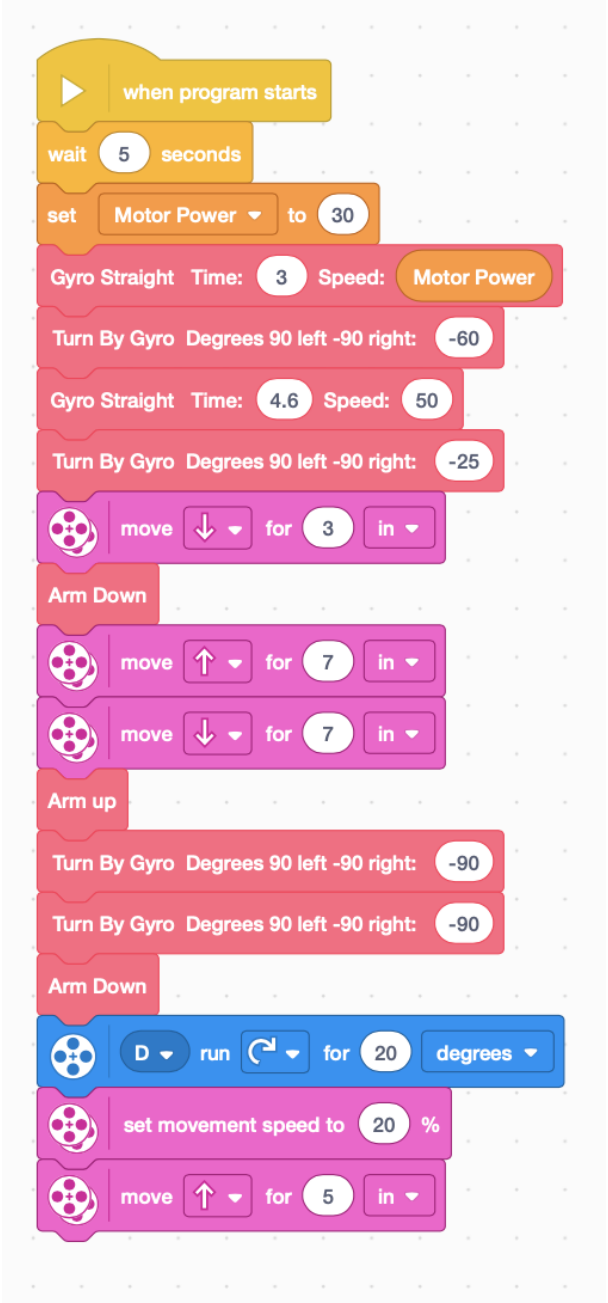
Our comprehensive strategy to sufficiently complete the mission was to complete them in areas requiring similar attachments. The first run finished the top left corner and only needed one stick to push and pull. The second run completed all tasks which involved an attachment with an elongated portion. Our third run used a basket to deliver all of the cargo. The fourth and final run used a small plane to push the crane and complete the entire run.

Our Final Run code:

Go to Crane:

Push Crane:

Push Parking:



Our “Functions”:

Arm up and down, follow line script, turning by gyro, and using gyro to stay straight.