

Assignment Name: Servos/Movement

Assignment Number: 1

Group Members: John Buckley. Charles Clayton

Project Description:

Construct a mount for a whiteboard marker in order for your robot to draw. Have the robot draw 5 pictures: Square, Circle, S-shape, and a 5-pointed star. All images drawn must be at least 1 foot in diameter, and end in both the same place and same orientation as when it began, except for the S-shape which must simply end in the same orientation.

What Worked:

We quickly realized after the first test that where the marker was mounted on the robot would drastically effect how our images looked as they moved corners. However, as programmers we could adjust for this, we still felt that this was a quick and well worth fix for us, to reposition the marker at an angle between the tires of the robot. We started attempting to draw using `setMotorSpeed` but found that using `SyncEncoder` gave us more control over the robot as we can determine the distance by encoder counts.

What Didn't Work:

`setMotorSpeed` didn't work well for us as it only allows the user to encode the power level of each motor. The position of the marker, even after reconstructing the mount to orient the marker between the tires, we discovered that we had limited control to restrict the tilt of the marker as it turned. We fixed this by add support braces at the base of the marker to lock it in place.

What I feel that I learned from this assignment:

Always check and read the language specification! We would have completed this assignment quicker and more easily if we simply read the language specification instead of diving head in and trying to brute force it. Simply put in the words of Dr. Guerin: "Why work harder, when you can work smarter".

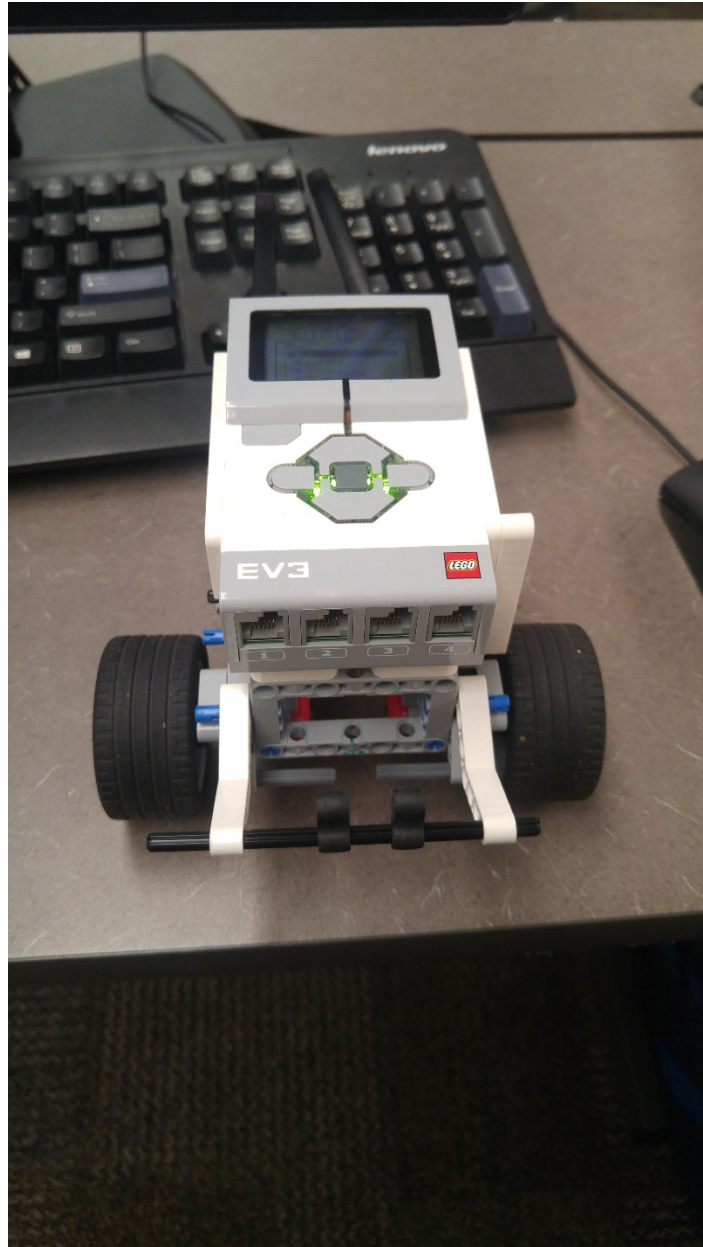


Figure 1: This is the default robot build constructed from following the instructions from the manual, with an added support bar at the rear of the vehicle to hold a marker.

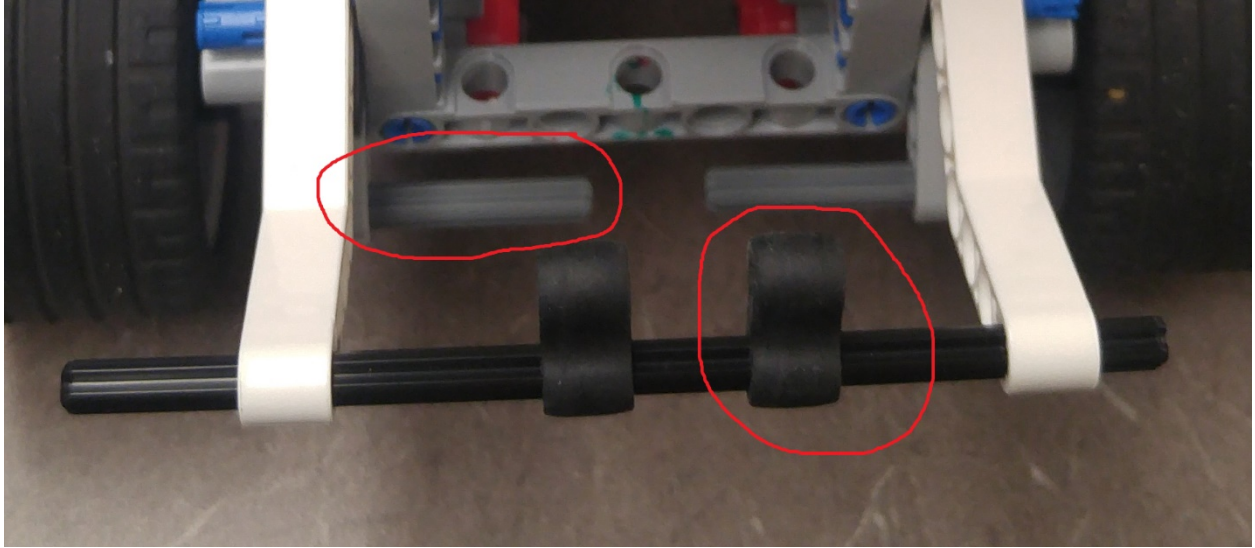


Figure 2: The rubber supports on the black bar is to hold the top of the marker in place while the grey bars hold prevents the marker from swaying left or right while turning. The forward momentum of the vehicle presses the marker to the whiteboard due to the angle at which the marker is mounted.

Source:

http://help.robotc.net/WebHelpMindstorms/index.htm#Resources/topics/LEGO_EV3/ROBOTC/Motors/setMotorSyncEncoder.htm