GEAR/TCEA Robotics

Challenge 6: Helping Hand

Challenge 6.1: Carrying and Dropping the PVC Compression Coupler

THE OBJECT:

The object of this challenge is to add a motorized arm to the robot in order to carry and drop a **PVC compression coupler** into the blue 3-gang electrical box. The motorized arm must be able to drop the object automatically once it approaches the box, with no human assistance. You may pre-load the PVC coupler into or onto the arm before you run the program. The robot and arm must be able to carry the object at least three feet before it gets to the box, and must be able to return to the starting location after dropping the object in the box.

1. Measure and record the height of the top edge of the blue electrical box.

2. Estimate the height at which your robot arm will need to hold the PVC coupler so that it will clear the top edge of the box.

3. What design considerations need to be made for the arm, so that it can carry and drop the PVC coupler?

4. What will happen if the robot arm gets stuck in or on the box?

5. How will you prevent the arm to be dragged down from the weight of the compression coupling and/or the weight of the motor?

6. How many program blocks will you need to use to complete this challenge?

7. How could you solve this challenge without using a motorized arm?