

Assembly/Manufacturing Plan

P11216 Wandering Ambassador

Total Time:	8.5 hours
Facilities Needed:	ME Machine Shop
Equipment Required:	Drill Press with appropriate drill bits Mill with appropriate bits Table saw Horizontal Band Saw Sander
Schedule:	2 Weeks
Personnel:	Nick Leathe, Anna Gilgur

Servo Mounts on Robot

Estimated time: 2 hours

1. Mill square pipe so that a 'U' shaped piece remains.
2. Cut piece into appropriate lengths
3. Weld pieces onto the robot chassis.

Sonar Mounting Plate Construction:

Estimated time: 4 hours

1. Cut square pipe to overall length of the combined sonar mountings or a little more than eight inches.
2. Mill away two sides of the pipe so that the remaining material is an 'L' shaped piece of material with both legs being two inches long.
3. Slice material into four equal size pieces using a band saw.
4. Centerpunch holes into the center of both sides. On one of the sides, centerpunch four additional holes .5 inches away from the center hole in a '+' shaped pattern.
5. On the side with one centerpunch, remove material incrementally until there is a hole diameter of 1.1 inches.
6. For the other holes, drill ¼ inch holes into each of the centerpunches.
7. Sand surfaces to remove barbs.

Sonar-Servo Assembly:

Estimated time: 1 hour

1. Drill four holes into circular servo attachments to align with the sonar mountings.
2. Screw together circular servo attachment with sonar mounting with two washers in between.
3. Screw sonar into position on the mounting and attach to sonar.
4. Epoxy sonar into position on the robot chassis.

Additional Plant Box Construction:

Estimated time: 30 minutes

1. Cut pieces to designated sizes based off of drawings.
2. Place the base and a side perpendicular to each other and apply caulk to the seam.
Repeat this step for the additional sides.
3. Caulk together the vertical seams of the box and wait for the caulk to dry.
4. Attach Velcro to the bottom of the box and robot.

Pump System Assembly

Estimated time: 1 hour

1. Position and attach reservoirs in desired location.
2. Drill holes in robot chassis to attach pumps
3. Attach pumps and assemble tube sizing adjusters
4. Attach nozzles on the top of the robot with an L bracket.
5. Cut tubing to proper size and attach to reservoir, pumps and nozzles.