

Let's Assemble our DriveBot Chassis

OBJECTIVES

- Brainstorm and sketch a plan for vehicle chassis (frame) assembly
- Assemble DriveBot chassis

PRE-LAB CHALLENGE

Overview

At your lab bench, you should have a personal kit containing the following parts:

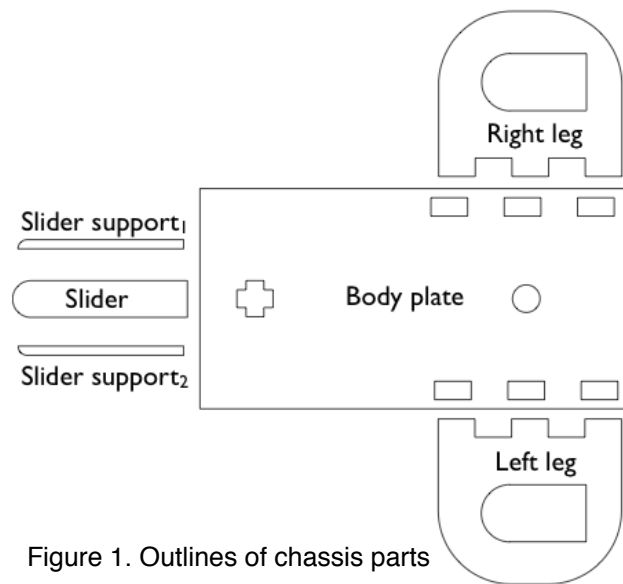


Figure 1. Outlines of chassis parts

Goal

Your **goal** is to assemble the DriveBot chassis, as depicted in Figure 2. Your first challenge is to “unlock” the epoxy (glue). Read on to find out more about this challenge!

Assembled DriveBot Chassis

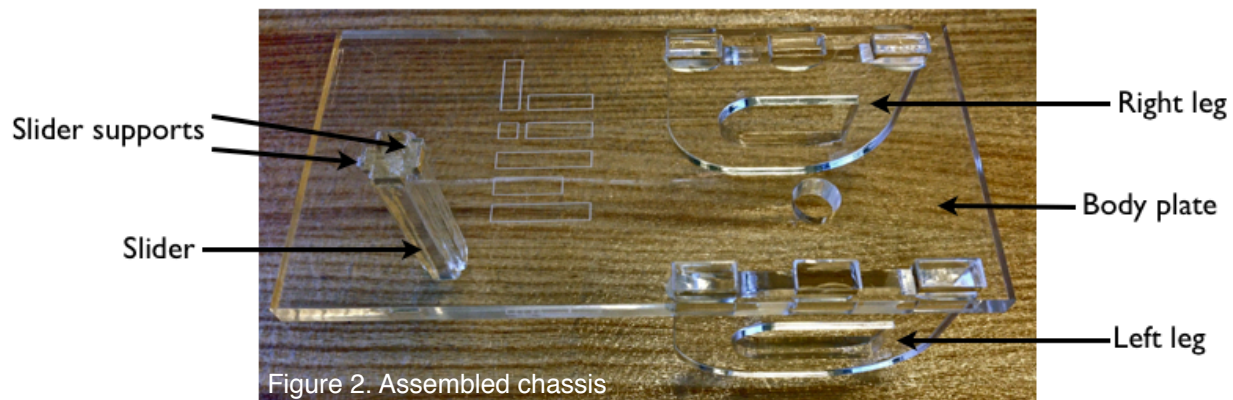


Figure 2. Assembled chassis

Challenge Instructions

1. **Make a plan.** On Figure 1, clearly mark (trace) the surfaces where you plan to place epoxy.
2. **Order steps.** Next, label each part with a number between 1 and 5, to demonstrate the order you plan to follow, when gluing the parts together.
3. **Challenge checkoff.** Explain your plan to an instructor.
4. **Obtain epoxy.** When your plan aligns with suggested steps, an instructor will give you a packet of epoxy, so you can start assembling your DriveBot according to your outlined plan.

Excellent work, you've unlocked your epoxy and more detailed instructions!

LAB

Chassis Assembly

Instructions

1. To confirm that you have all of the materials you will need in this lab, [draw a line through](#) each of the following items that you have in front of you at your lab table.

- | | |
|-------------------------------|---------------------------|
| • [Chassis parts] | • Epoxy packet |
| • right leg | • Popsicle stick |
| • left leg | • Scrap paper |
| • body | • Ceramic tile |
| • slider support ₁ | • Nitrile gloves (1 pair) |
| • slider support ₂ | • Glasses |
| • slider | |

If you are missing an item, please inform your instructor.

2. You will be assembling the chassis upside-down (i.e. with the body laying flat and with the right and left legs extending up from the table toward you). Prepare your parts; [align the components](#) next to each other (refer to Figure 1) on the ceramic tile.
3. PUT ON *NITRILE GLOVES* AND *LAB GLASSES*. How to epoxy:
 - a. With the epoxy packet still sealed - [squeeze the epoxy](#), As if squeezing toothpaste to the bottom of the tube.

It is very important for the next steps [in green](#), that you [work quickly](#), so the epoxy does not harden.

- b. [Tear the top off the epoxy.](#)
- c. [Squeeze all the contents on to the scrap of paper.](#)
- d. [With the popsicle stick, mix the epoxy components by stirring, until the resulting substance is a pearly white color.](#)
- e. [Review where you will spread the epoxy, as depicted below \(Figure 3\).](#)

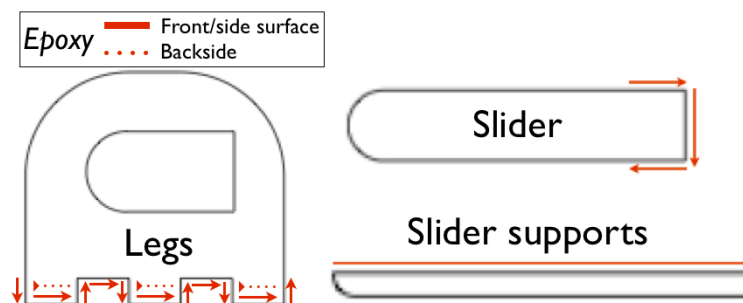


Figure 3. Epoxy placement for chassis parts

- f. Use the popsicle stick to apply epoxy to the right leg.
 - g. Place the right leg into the corresponding slots in the body.
 - h. Repeat f. & g. for the left leg.
 - i. Before attaching the next part, lift the body up from the ceramic tile, and place it down in a different spot, so the frame does not get glued to the ceramic tile.
 - j. Epoxy and place the slider.
 - k. Epoxy and place the two slider supports, one at a time.
 - l. Using the remaining epoxy and the popsicle stick, test when the epoxy is dry.
4. Once you have assembled your DriveBot frame and the epoxy is dry, place your DriveBot in your personal storage bag.

Cleanup

1. Place your storage bag (with your DriveBot frame) in your locker.
2. Throw away epoxy packet, scrap paper with leftover epoxy, popsicle stick, and nitrile lab gloves.
3. Place safety glasses in the middle of your lab table.
4. Neatly stack ceramic tiles in the middle of your lab table.