









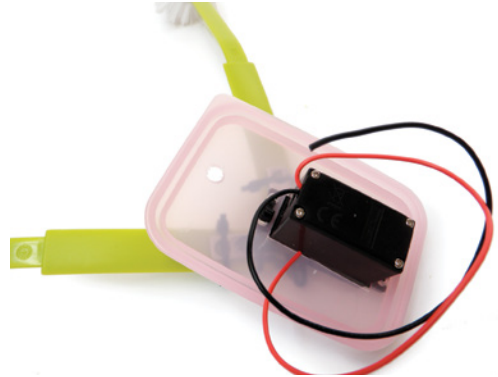


**Step 11.** Turn the plastic container upside down. Mark, drill, and zip-tie the two remaining scrub brushes to the front of the plastic container such that they meet at a 90-degree angle and point evenly downward toward the direction of the plastic container opening. In other words, make two even-length front legs for your bot.

**Step 12.** Drill a ¼-inch centered hole near the other short edge of the plastic container lid.

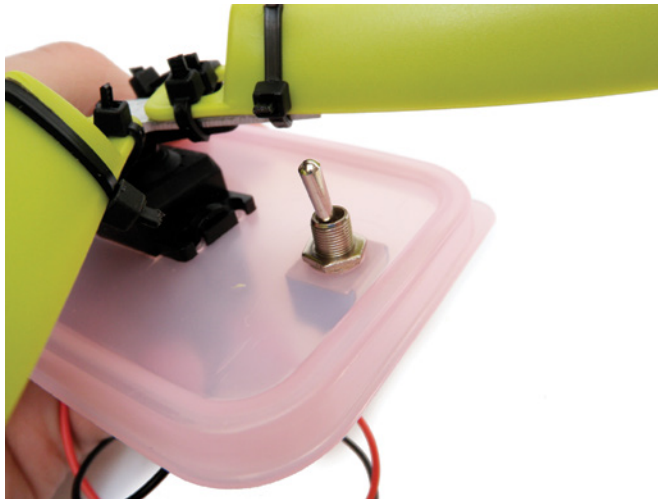


Step 11



Step 12

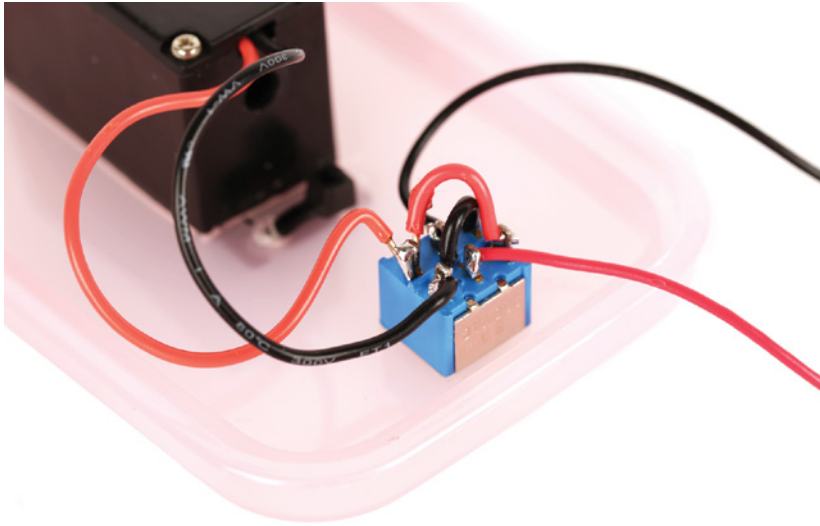
**Step 13.** Pass the DPDT switch through the hole so that the shaft is pointing at the scrubber legs and then fasten the switch on with a nut.



Step 13

**Step 14.** Wire together the opposite corners of the DPDT switch. Solder the red battery wire to one of the center DPDT switch pins and the black battery wire to the other.

Turn the switch so that there are only two pins facing you (as opposed to three). Solder the black motor wire to the DPDT pin closest to you on the right. Solder the red motor wire to the other pin on the left.



Step 14

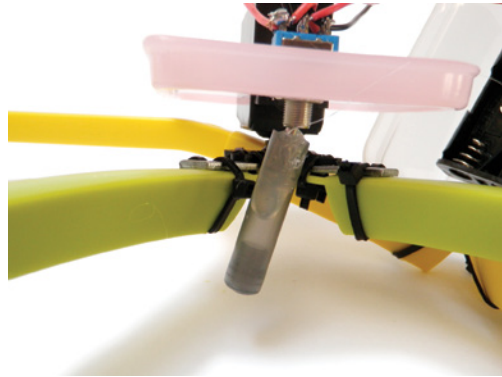
➔ **NOTE** Refer to “H-Bridges” on page XX in **Chapter 3** for more information on how to change the direction that a motor is spinning using a switch.

**Step 15.** Take apart the Bic pen and cut about 1½ inches from the end of the pen tube to use it as an extender for the switch's lever.



Step 15

**Step 16.** Make certain the switch is positioned between the two scrubbers. Fill the pen cap with hot glue and, using pliers, quickly slide it onto the switch's shaft. Hold the hot tube in place until it begins to set. Be careful not to push it on too far; otherwise, you could get hot glue inside the switch, which could prevent it from working.



Step 16

**Step 17.** Put some batteries into the holder, and the legs will start to move.

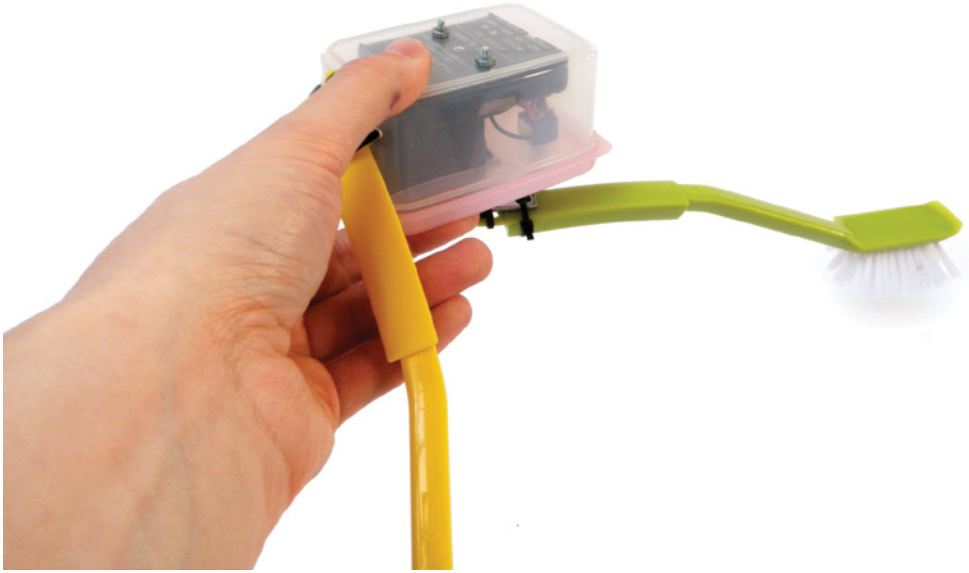


Step 17

➔ **NOTE** If, when you power up the bot, the switch isn't making the legs oscillate back and forth, remove the batteries. Then, simply rotate the switch 180 degrees in its mounting hole. It should now work perfectly when you reinsert the batteries.



**Step 18.** Quickly close the plastic container and let the bot go free.



Step 18



**NOTE** Be sure to remove the batteries to turn the bot off. See [Appendix A](#) for instructions on adding a power switch.

