Create® 2 Bin Modification

Summary

This procedure describes how to modify the cleaning head and vacuum bin so that a project can be mounted inside the robot. Common examples are to mount an Arduino® or Raspberry Pi® in the robot to make the robot move autonomously.

Introduction

So you have made your robot move using a laptop and a cable, and now you want add a computer or other project to your robot and you want that project to be inside the robot. By following these instructions you remove the cleaning head but retain the cleaning head frame so that the vacuum bin can still be mounted and modify the bin to turn it into a drawer for your project.

The side brush module, main brush motor, and vacuum motor are not required to build your Create® 2. You may re-purpose these motors and gearboxes for other tasks.

Tools Needed

- #1 Phillips head screwdriver
- Needle nose pliers or tweezers
- 3D printer or other method to fabricate a new bin bottom (optional)
- Drill and 3/4" (20mm) drill bit (optional)

Supplies

- Ballast (optional)

Procedure

1. If you have access to a 3D printer, you can build some additional parts to improve your Create® 2. For this tutorial, you can print the bin latch holder and a new bin bottom. There are multiple options for the new bin bottom outlined below.

a. If you have a lot of weight on the robot, you might want to add an additional caster in the back. You can buy one from our website. The following files are designed to work with this caster wheel.

    - Full bin bottom with caster mount
    - Left bin bottom with caster mount
    - Right bin bottom with caster mount

b. If you want more space and don't need the caster, you can use these files.

    - Full bin bottom without caster mount
    - Left bin bottom without caster mount
    - Right bin bottom without caster mount

2. Build an interface cable. Here, you have a few options, depending on your application.

    Interface to USB
    Interface to a 3.3V device (like Raspberry Pi)
    Interface to a 5V device (like most Arduino boards)

3. Remove the vacuum bin from the robot

4. Flip the robot so the wheels are facing up

5. Remove side brush screw and side brush (1 screw)

6. Remove the bottom cover (4 screws)

7. Remove side brush module (2 screws), if desired

8. Remove main brush module (4 screws) lift straight up

9. Disassemble cleaning head from main brush frame

a. At the back of the cleaning head on each side use your phillips head screw driver to push the gray cleaning head pivot point in as you pull the blue frame out to dislodge the pivots

b. At the front of the cleaning head remove the sticker over the cable anchor

c. Using your needle nose pliers or tweezers push up on the cable until the anchor is free from the recess and remove the cable from the slot

d. At the front of the cleaning head remove the screw retaining the cleaning head connector

e. Push the cleaning head connector down into the frame

f. Release the cleaning head wires from the wire routing features

g. The cleaning head should now be free from the frame, set aside the cleaning head

10. Install the cleaning head frame back into the robot chassis (4 screws)

11. On the vacuum bin remove the clear bin bottom (6 screws), save the screws, set aside the clear bin, tailgate, and filter. The exhaust grill can be removed or kept in place

12. Remove the fan assembly, take care to save the spring and latch (1 screw)

13. If desired, while the bin latch is out, drill a **3/4" (20mm)** hole though the center of the button for cable routing. (Doing so will make it difficult to push the button, though.)

14. Install 3D printed latch cover using the screw from the previous step. If you don't have a 3D printer, hold the bin in the robot with some duct tape.

You will need two additional thread-forming screws to hold the latch in place.
Thread-forming screws:
(3/16" for stainless steel, 2-28" thread, 3/8")

You may need ballast in the rear of the bin to keep the robot level. If so stick the ballast in the back of the printed bin floor on the back wall (optional)

15. Install the printed bin floor (6 screws). If you didn't print a new bin bottom, reinstall the original bin bottom.

16. Reinstall the robot bottom cover (4 screws)

17. Flip the robot over

18. Install your project in the bin

19. Insert the modified bin in the robot

20. Have Fun - Change the World