

Ceiling Roomba

By Chris Reimer and Team NXS



Perhaps it's just me, but all too often I find spiders hiding in the corners of the ceiling, cobwebs on the lights, and large amounts of dust on the trim. The simplest solution is to clean it yourself, but as innovators it is our job to design wacky creations to do such mundane tasks for us. Thus, I would like to introduce the Ceiling Roomba. Using the suction cups at the end of each of its six legs, it is capable of traversing any wall, and is perfectly capable of walking completely upside down. Using the built-in vacuum and duster arm, no dust bunny or insect stands a chance against its cleanliness. When the dust collector chamber is full, it can be easily removed, emptied, and reused. It functions completely autonomously, and will automatically find its way back to its charging station when needed. If you'd like the robot to prioritize a certain area first, or are in desperate need of it to eliminate a spider, you can use the included laser pointer to guide the Ceiling Roomba to the desired location.



To create the Ceiling Roomba, I started by looking through the recycling, and taking out whatever I thought could be at least somewhat useful. The main body of the robot is an upside down pea shoot container with a pie plate taped to the top. Getting the pie plate to stay folded around the container was tricky as it kept wanting to return to its original shape, but when the legs were taped on they helped keep the edges of the plate down. The neck is a piece of cardboard tubing that was cut down to size, and the head is a spice container. The lid to the spice container had several holes of varying size which I had intended to use as eyes, but when I cut out holes in the tape it kept ripping too much. I also had a small circuit board that had been in the electronics recycling that I wanted to put in the head as a sort of 'brain', but I was not sure if it would count as common recycling so I omitted it. For the abdomen, I set aside a glass jam jar. This jar was as heavy as the entirety of the rest of the creation, so I instead decided to use a container that had held contact solution. The legs were cut from a cardboard sheet, and are fitted into small cutouts I made in the rim of the sprouts container. When designing the legs I was worried about the cardboard not being strong enough to support the body, so I made sure that each leg was cut out with the veins of the cardboard vertically aligned. The feet are Gatorade bottle lids that I had been saving up for a month. The vacuum arm is created from the rim of the pie plate that is on the back of the robot. Creating this was extra difficult, as it required an understanding of curvature and the ability to put tape on the inside without cutting myself on the sharp edges. The duster arm is cardboard, and has a crumpled piece of paper as the duster. Originally I had wanted to use an actual swiffer duster for the arm, but I figured that did not fit within the allowed materials. Getting the paper to look like a duster was tricky, and I definitely wish it looked more like a duster, but I think it turned out fairly well. To connect all of these parts together, I used both duct tape and electrical tape. Duct tape has the advantage of being extra grippy and strong, while electrical tape has more colors and looks more clean. Lastly, I put a few black stripes on the back of the robot using electrical tape to give it a bit more individuality.

Parts List:

- Pea Shoots Container
- Pie Plate
- Marjoram Container
- Contact Solution Bottle
- Cardboard Sheet
- Cardboard Tube
- Piece of Paper
- Six (6) Gatorade Bottle Lids
- Duct Tape
- Electrical Tape

