



Robot vacuum carpet ramp [parametric]



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updated 27. 4. 2023 | published 27. 4. 2023

Summary

A ramp to help my robot vacuum get up on carpet [parametric].

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[deebot](#) [ecovacs](#) [bambulab](#) [bambulabx1carbon](#)

What is this ?

This is a ramp made specifically for my vacuum cleaner, it could not climb up a carpet that is ~ 24 mm in height, so i made a ramp that i stick to the ground, this ramp will stick to the carpet threshold (the golden thingy) with glue enabling the robot to go up to the carpet area of the room. My robot is ECOVACS DEBOOT, but it should work with any bot facing the same problem - i suppose.

the design has connectors on either side to connect the whole length of the carpet/tile line. You are supposed to print this design multiple times and connect it together with the side connectors until you fill the whole line in question.

i have done 10+ iterations until i got the dimensions right since the ramp is not a standard shape.

Parametric

I uploaded the fusion 360 file with some parameters so you can customize it to your specific room / carpet. 2 Parameters to keep note of :

- segmentLength (the length of 1 segment, make it so that it fits in your bed, 250 mm by default)
- height (total height of the ramp 13 mm by default , which is the height of the carpet you have)
- tolerance (the tolerance between the connectors, change if if you face problems fitting the pieces together, 0.1 mm by default is working with me on the Bambulab x1c)

the rest of the parameters are not supposed to change, feel free however to change them.

How ? (Instructions)

normal printing, no special instructions for printing, just make sure to orient the print correctly (STL is oriented correctly by default). No support is needed.

Print first the file called (print test) to test the fitting of the connectors and the fit on your carpet, if you need any changes , make then on fusion360 parameters, otherwise, you can just go on with printing the whole project.

Print as many center pieces as you need (I've provided 210 and 215 mm versions), and then print (left) and (right) piece to close off the sides.

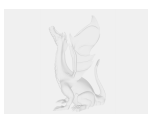
The connectors are having a press fit tolerance of 0.1 mm, they should fit together with a bit of force, you can use your hands or a plastic hammer if you wish.

Model files



robot-ramp_test-piece-print-two_25-mm.stl

☐ print two of this to test the fit of the connectors and the shape of the ramp for your case



robot-ramp_right-piece_210-mm.stl

☐ print one of the right end



robot-ramp_left-piece_210-mm.stl

☐ print one of the left end



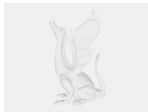
robot-ramp_center-piece_215-mm.stl

☐ print as many as you want to fill the carpet line



robot-ramp_center-piece_210-mm.stl

☐ print as many as you want to fill the carpet line



ramp-fusion-file-parametric.f3d

☐ Parametric file to customize the design for YOU

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