



YOUMAGINE

Nutcracker Pin Walker

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Published on: Dec 23, 2019

Located at: <http://www.youmagine.com/designs/nutcracker-pin-walker>

Short description:

A pin walker in Nutcracker attire.

Description:

<https://youtu.be/D1VdomhnRel> Reminiscent of a static Nutcracker model my father and I created in balsa wood using one of my favorite childhood Christmas presents, the "Mattel Power Shop" (circa fifty plus years ago), "Nutcracker Pin Walker" is a 3D printed recreation in pin walker form of the laminated mustache, lathed arms, lathed hands, lathed body and lathed head my father and I milled using my power shop many years ago. I was unable to locate our original plans thus this version was recreated from bits and pieces of memories, family photographs and internet searches. This recreation is designed for single extrusion 3D printers thus some color detail pieces are threaded and glued in place (I used thick cyanoacrylate glue). I also designed this model to print with no supports, however if you have access to a dual extrusion printer with PVA support, "Base.stl" will require less clean up after printing. The mechanism that propels this model is very similar to my previous pin walker designs in both 3D printed and purchased parts. For both longitudinal and lateral stability of a pin walking model of this size, it is important that the center of mass be centered over the the ellipse of the pin motion from front to back, and centered between the pins from left to right. As can be seen in the center of mass images calculated by Autodesk Fusion 360, the model center of mass satisfies these conditions yet is slightly top heavy, so I used a lower RPM gear motor in the design for increased stability. With the battery and gear motor I selected for this model, the average power consumption is around 16mA, so it should run a few hours before needing a recharge. As usual, I probably forgot a file or two or who knows what else, so if you have any questions, please do not hesitate to ask as I do make plenty of mistakes. One final note, I receive no compensation in any form whatsoever for the design, equipment, parts and/or materials used in this model. Designed using Autodesk Fusion 360, sliced using Cura 4.4.0, and printed in PLA on an Ultimaker 2+ Extended, an Ultimaker 3 Extended, and an Ultimaker S5.

If you can, please use the online documentation found at <http://www.youmagine.com/designs/nutcracker-pin-walker> because those may have been updated. Also, there you can interact and provide praise and/or feedback.