



YOUIMAGINE

A (mostly) 3D Printed Air Pump.

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Located at: <http://www.youmagine.com/designs/a-mostly-3d-printed-air-pump>

Short description:

Creating an air pump for 3D printing.

Description:

<https://youtu.be/BxWekzEilPU> I recently purchased a reel of Ultimaker TPU95A for experimenting. This filament is advertised as both durable and flexible, so I decided to use it to 3D print the gaskets, valves and bellow of an air pump design I'd been working on as part of an upcoming project. During testing of the air pump, I determined the valves and gaskets worked great, however the 3D printed bellow required more energy to compress than I was willing to allow in the upcoming project, so it was back to the drawing board, or better yet, the kitchen... My wife Lora loves to bake and last weekend she was in the kitchen with the grandkids making one of their favorite snacks, cake balls. As I casually strolled by, I just happened to notice she was baking the cake balls in silicone baking molds, and one of the baking molds had hemispheres that were the exact diameter and thickness I needed for a bellow, go figure! So, long after the kitchen was closed, I returned for the baking mold with the hemispheres having the diameter and thickness I needed, took it to the basement, and placed it under the modeling knife. Needless to say, my wife discovered my diabolical scheme when she recognized the bellow in this model as being the remnants of one of her silicone baking molds, whereupon which I quickly took a trip to a local baking supply shop to replace her mold. Anyway, the grandkids love this model as it involves inflating balloons, releasing the inflated balloons and watch as they careen around our home, is easy to operate, and even has an on / off button they love to push! 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 comment as I do make plenty of mistakes. Designed using Autodesk Fusion 360, sliced using Ultimaker Cura 4.8.0, and 3D printed in Ultimaker PLA and Ultimaker TPU95A on an Ultimaker 3 Extended and Ultimaker S5s.

If you can, please use the online documentation found at <http://www.youmagine.com/designs/a-mostly-3d-printed-air-pump> because those may have been updated. Also, there you can interact and provide praise and/or feedback.