

Cup Holder Resizing Ring

DESIGN RATIONALE

Introduction

There are many open-source and commercial options available for cup holders, as well as built in cup holders on many structures and devices. However, with the varying sizing of beverages you can buy today, some cup holders will not hold your drink securely, so a way to modify the size is required.

Research

There are many existing cup holder designs as well as a few open-source ones. Some models are adjustable, but typically cost more or are expensive/difficult to make.

<https://makersmakingchange.com/resource/device-selection-guide-cup-holders/> - Contains many of the existing commercial devices found during research as well as the opensource devices in the MMC library.

[Adjustable Ram Mount Cup Holder \\$73.69](#) – Is adjustable to fit various beverage containers, but very high in cost.

Requirements

1. Shall be able to modify the size of existing cup holders.
2. Shall be easy to vary the dimensions to custom fit for different cup holders and beverage containers.

Ideation

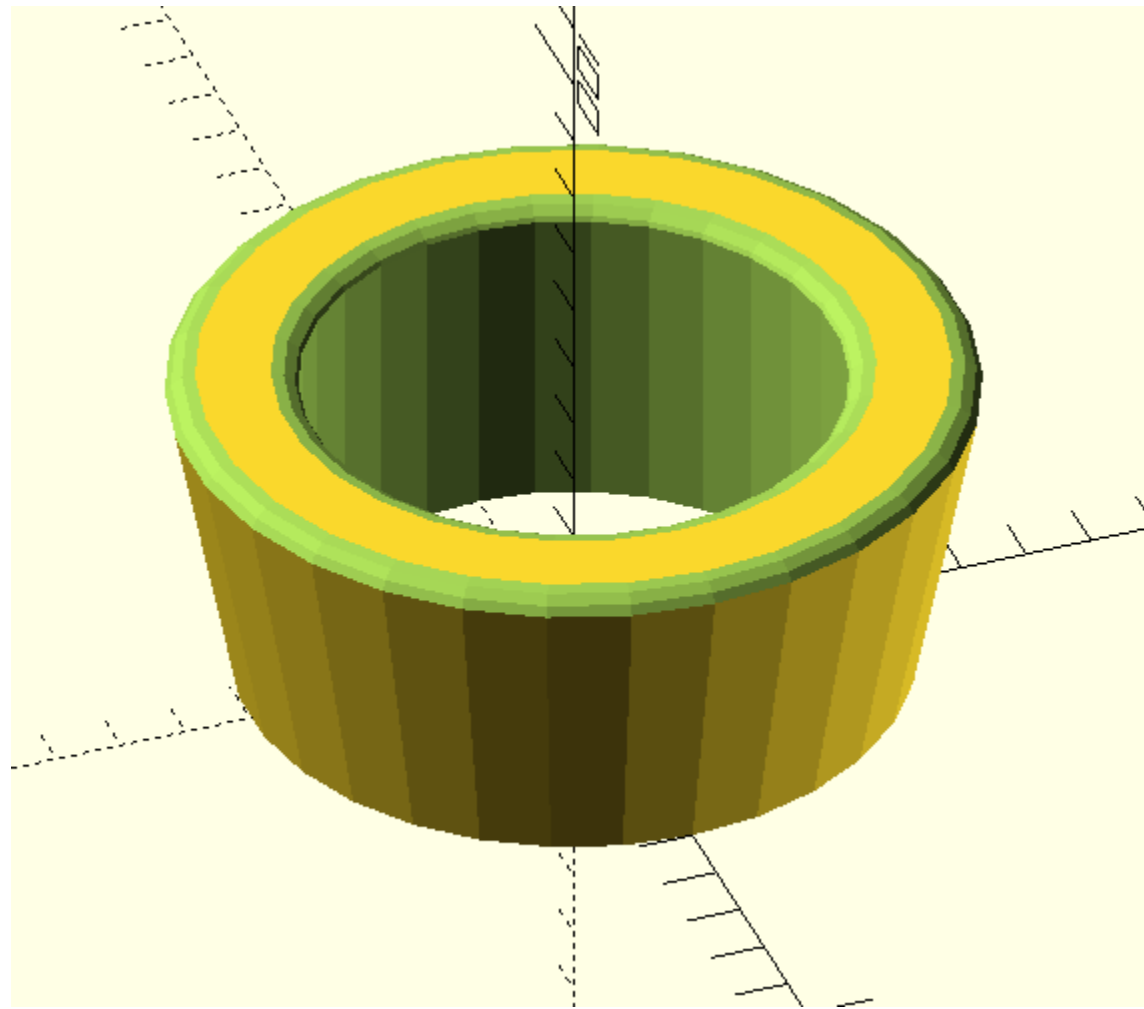
Component 1:

Resizing Ring: A custom printed ring that fits into the cup holder and effectively reduces the diameter of the cup holder to better fit a smaller beverage container.

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Prototyping



Designed in OpenSCAD, the Cup Holder Resizing Ring can be modified according to the measurements of the top and bottom radii, and height of the cup holder, as well as the radii of where the beverage container will sit in the holder.

Final Design

- Updated the OpenSCAD file to include sliders for adjusting dimensions, and added dimensions for specific cup holders to the user quick guide and 3D print guide.
- Increased the resolution of the OpenSCAD model
- Changed the measurement input in the model from Radius to Diameter.

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Opportunities for Improvement

- Increase the number of presets
- Make the design so it can accommodate varying sizes of beverage containers once printed
 - o Soft flaps or varying radius (like a camera iris)
- Add in the option for a bottom so open-ended cup holders can hold cans.

Credited Resources Used In Development

- Idea came from Marc Hache and the ring he made for the cup holder in his Walker tray design.