Walton Sustainability Solutions Services

GreenLight Solutions

ASU Rob and Melani Walton Sustainability Solutions Service
Arizona State University

GreenLight GreenPaper

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We spent over 50 hours troubleshooting bottle caps into 3D-printed filament to print and distribute over 30 toy cars to children in foster care.

Created by
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Visit GLSolutions.org to learn more & donate. Contact info@GLSolutions.org to get involved.

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Challenges & Opportunities

Challenges

The Project Partner was facing many technical issues with the filament recycling process including foreign particles, quality control, printing time duration, etc. Tyler also wanted to demonstrate the power of a 3D printer to provide relief for underserved communities.

Opportunities

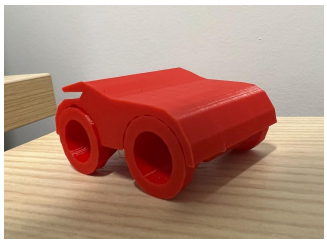
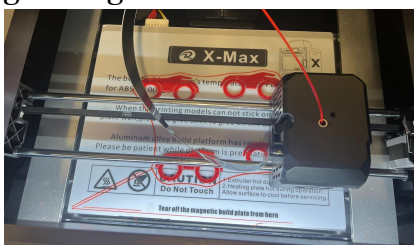
- Learn how to operate a 3D printer as well as explore the various 3D printing resources on ASU campus
- Create partnerships with nonprofits
- Have discussions with underserved communities to determine what sort of products provide the most relief
- Troubleshoot and master the process of recycling plastic into new filament
- Create how-to guides for each machine
- Research and secure a printing lab space

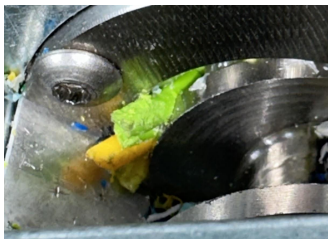
Recommended Solutions

Accomplishments

- 3D printed over **30 toy cars** to children in foster care around the holidays
- Spent roughly **50 hours** troubleshooting with the Protocycler and 3D printer
- **Secured a space** in the Planetary Health building for the 3D printing lab

Recommendations

- Obtain a blender to shred bottle caps on a pulse setting for faster results
- Ensure plastic shreds are small when going into the Protocycler to prevent clogging and blockages
- Use automatic extruding setting for a wider audience to use
- 




Project Benefits

Benefits to the Project Partner

We had opportunity to help other students and 3D printing teams utilize the use of the Protocycler. By recycling bottle caps and failed prints, we can limit the amount of waste produced.

Benefits to Solutioneers

We gained critical insight into using the Protocycler and 3D printer. Now, with knowledge on how to operate both machines,we can participate in the circular economy by turning bottle caps into 3D printer filaments.

Benefits to the Community

Through this project, we were able to develop 30 additional toy cars for foster care children through Arizonans for Children.