# Post-consumer PET as Stock for Additive Manufacturing

Hasler, Kaelum

The world of 3D printing is thus far not closely aligned with the world of the consumer. In the eyes of the average consumer, 3D printers are large, abstracted, industrial machines like injection molding machines or conveyor belt assemblies, whereas in reality, there has been a movement toward desktop 3D printing machines. One reason for 3D printers not being groundbreaking in the eyes of the consumer is that they are seen as novelty or, more often, not useful in everyday life. Filament must be purchased, models must be designed, and machines must be calibrated to finally end up with a product. This research aims to create viable extrusion based filament feed stock from common consumer waste. This will drastically cut down on the entry fee of 3D printing, make 3D printing a more sustainable form of manufacturing, enable wider use of this technology. Through extensive planning, material fabrication and experimentation, we set a list of criteria for this project to maintain. By the end of the project, all goals were met and viable filament was created from post-consumer waste and was successfully printed. We hope for this research to be built upon and expanded in the future as there is a real potential for large scale replication of the techniques and processes that were employed in the scope of this project.

**Awards Won:**

NASA: Second Award of $750