Recycling Aluminum in Resource Scarce Regions

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The aim of this project was to develop a cost-effective, off-the-grid aluminum melting furnace that can safely melt 1,200 aluminum cans (approximately 35 lbs. of molten metal) per hour on a 12-hour duty cycle. Not only is this product innovative for bridging the gap between backyard foundries and industrial processes in which there is no existing products or systems, it provides a way to clean up the environment while making money for underdeveloped regions and communities. By first theoretically modeling used a computer aided design software, Solid Works, the final design was tested for thermal spread, deformations, and system thermal analysis of an object or assembly. Then the system was built using minimal materials and cost, and tested melting down scrap aluminum. With a simple and affordable solution, this product can be either sent to regions in need or instructions can be given to replicate it using locally sourced materials.

Awards Won:

Fourth Award of $500