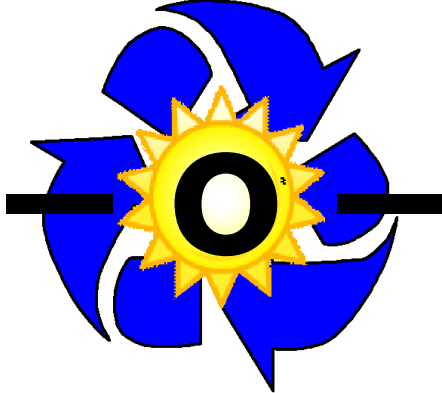


Solar Recycl Sort

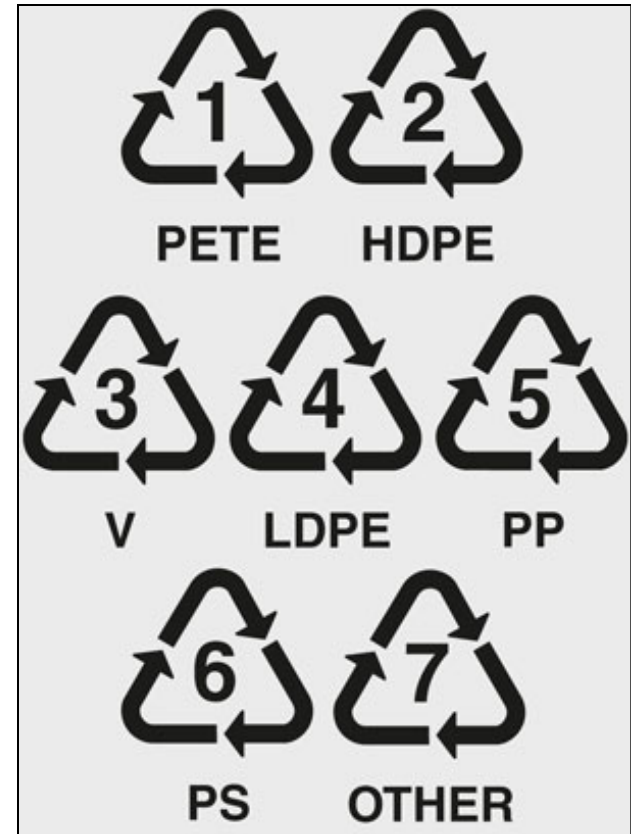


“Working for a Bluer World”

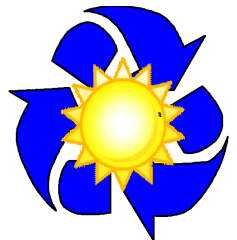
Presented By:
Nancy Diaz & Joyce Gallagher
2.009 Mockup Review
October 18th 2007

Recycling Facility Updates

- Acceptable Plastics
 - Caps → Indifferent
 - Labels → Yes
 - Mixed Plastic Types
 - Shredded → No
 - Compacted → No

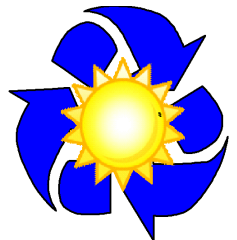


Types of Plastics



Customer Contract

- **Product Description**
 - Solar powered sorting and compacting recycling bin for aluminum, plastic, and glass bottles
- **Intended Customers**
 - Residential areas, parks, retailers, and schools
 - Recycling facilities (end processors)
- **Market**
 - Curbside recycling industry
 - Cambridge DPW distributed 4,300 recycling bins in 2006



Meeting Owner & User Needs

Customer Needs	Product Attribute(s)	Engineering Specifications
Minimize the number of recycling bin pick-ups	Individual plastic bottle and aluminum can compaction	43.4J per compaction of one aluminum can
Fun and educational product that promotes recycling	LCD display with sorting info. and recycling facts	2" by 5" screen near bin opening
Less labor-intensive sorting method	Glass, plastic, and aluminum sorting mechanism	1.5mm displacement of deformation sensor
Easy to identify the plastic type	Readable labels and stamped recycling number after compaction	92.5J per horizontal compaction

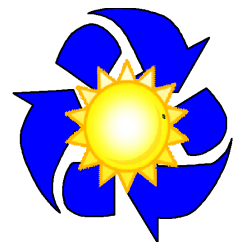
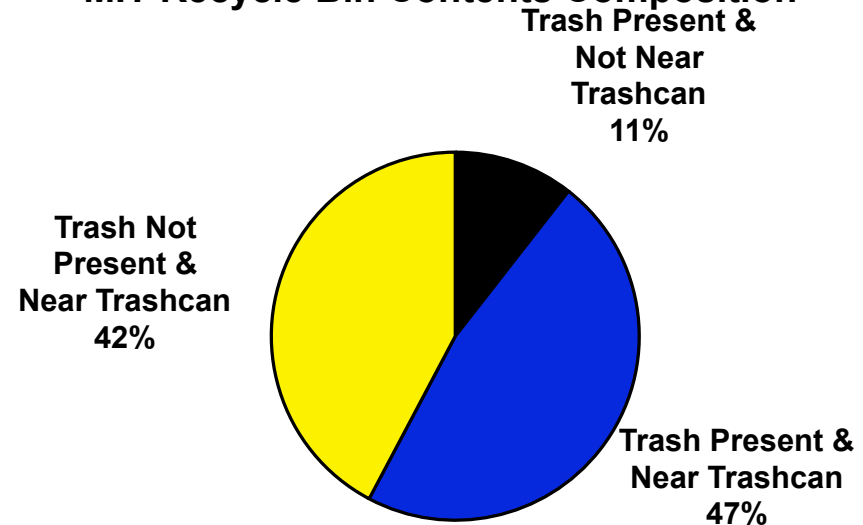
Meeting the Facilities' Needs

Customer Needs	Product Attribute(s)	Engineering Specifications
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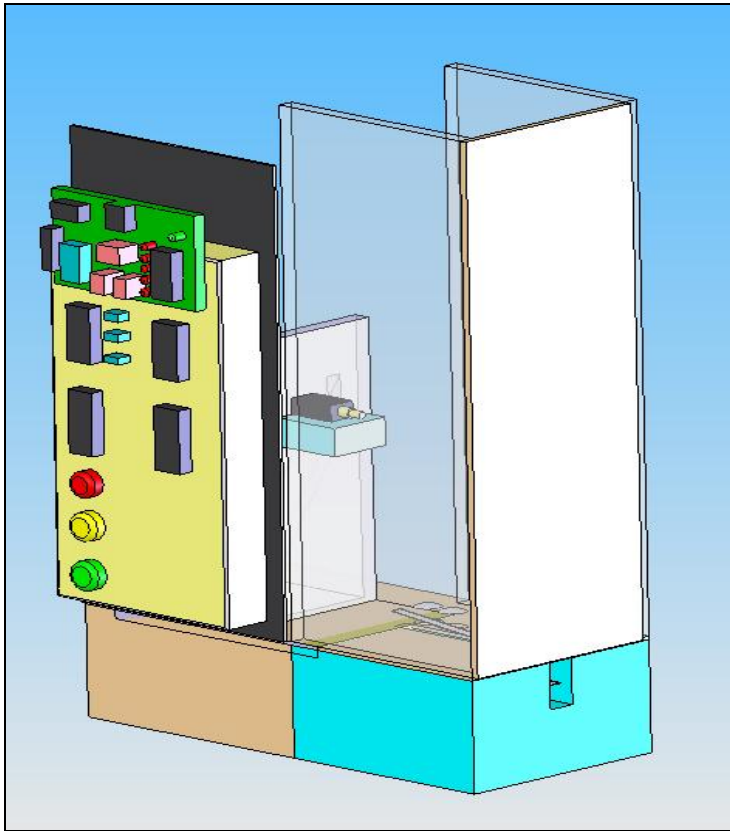
Key Challenges

- Liquid spills & trash
- Paper cup vs. plastic bottle
- Distributing recyclables after material detection
- Array of shapes and sizes of recyclables

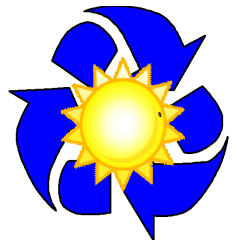
MIT Recycle Bin Contents Composition



Sketch Model



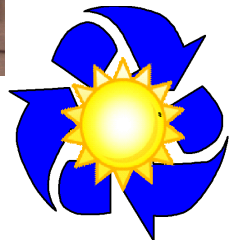
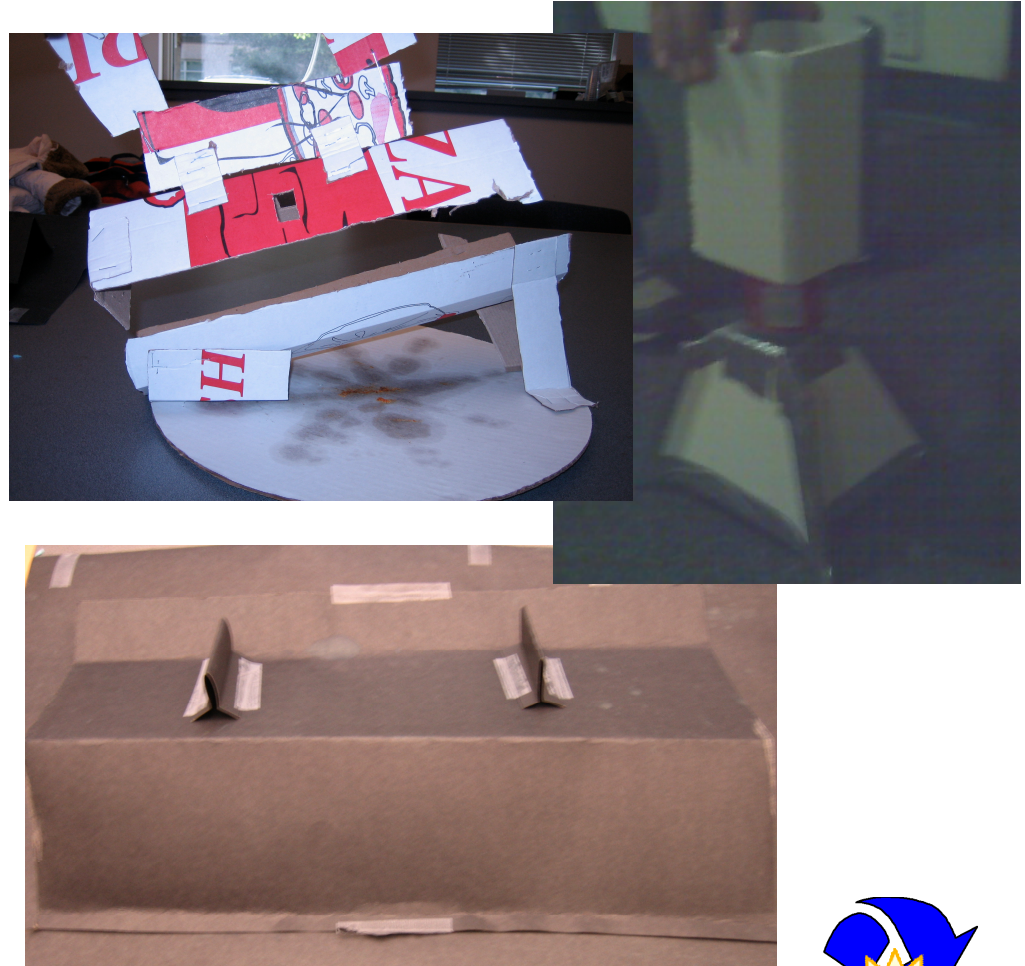
- Detect Aluminum
 - Conductivity
- Glass vs. Plastic
 - Deformation of plastic
- Key Issue to Address:
 - Automation



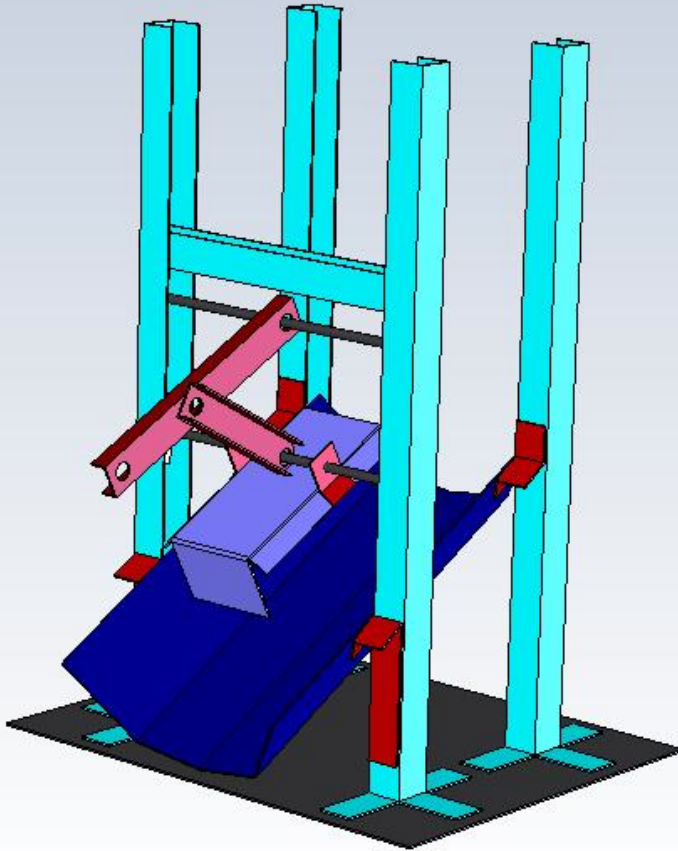
Designing the Sorter & Distributor

Features

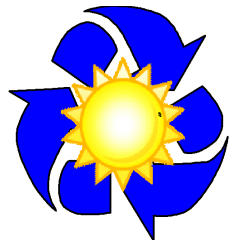
- Simple distributor
- Removes small pieces of trash
- Reasonable size
- LCD display



Solar Recycl-o-Sort Mockup

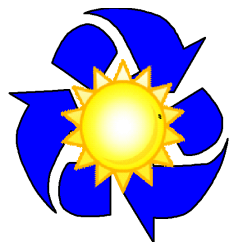


- ➡ Distribution
- ➡ Spills & small trash
- ➡ Redundancy
- ➡ Shapes and sizes
- ➡ Low material costs
(~ \$125)



Future Work

- 3/4 key challenges tackled
- Mechanical frame for electrical components
- Moving forward:
 - Automation
 - Compacting
 - Paper vs. Plastic:
 - Light through plastic
 - Force threshold



Customer Responses

- **WasteCap**

- “It sounds like an excellent solution to a problem that lot of major establishments have.”

- Stephen Green

Chairman of the Board & Acting Director

- **Codman Square**

- “Finally, all of the ‘litter’ on our streets can be seen as recyclables! This machine will go with our anti-littering campaign. This is so exciting!”

- Cynthia Loesch

Director of Community Organizing at FAMILY, Inc.

