Yellow Team Project Mockups
Living and Working in Constrained Space
Refrigerators

a common problem?
Lazy Susan Refrigerator: concept

- Rotating storage shelves
- Narrow, deep footprint
- Optimizes constrained space in refrigerator
Consumer Contract

*What do customers need from our refrigerator?*

- Maximize useable space inside of a fixed footprint
- Safe, easy access to all food in the fridge
- Standard features:
  - Crisper drawer
  - Storage bins
Our Mockup

• Duplicate volume of a mini-fridge for comparison
  • How does a consumer perceive the interior volume?
  • Can we make a smaller, cylindrical volume more useful?
Key Risk: adjustable, rotating shelves

- Always adjustable
- Removable
- Damped rotation

- Many design possibilities:
  - Lead screw
  - Track & cam lock
    - (second evolution)
Key Risk: maximizing usable space

- Ideal: Configuration of refrigeration components to fit in corners
- Requires a custom compressor

Current: Reuse of mini-fridge compressor in bottom corner
Key Risk: maximizing usable space

- Ideal: largest possible Lazy Susan
- Thermal FEA for feasibility

- Mockup: installed Lazy Susan without modifying internal geometry

84% of original area

93% of original area
Yellow Team
<table>
<thead>
<tr>
<th>Customer Need</th>
<th>Attributes</th>
<th>Engineering Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximize space inside fridge for certain defined footprint</td>
<td>Organization of Refrigeration Components and usable space</td>
<td>Most common footprint (sold): 31-35 inches deep</td>
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<tr>
<td></td>
<td></td>
<td>Cubic footage: 20-25 ft^3</td>
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<tr>
<td>Ability to reach all items in fridge</td>
<td>Organization of Components, Shelf Mechanism</td>
<td>Length of average arm: ~29&quot;</td>
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<tr>
<td></td>
<td></td>
<td>Length of average forearm: ~14&quot;</td>
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<td></td>
<td></td>
<td>Number of layers of food: 3</td>
</tr>
<tr>
<td>Ability to Clean</td>
<td>Materials, Shelf Mechanisms</td>
<td>Non-porous materials, removable, maneuverable shelves</td>
</tr>
<tr>
<td>Ability to See Items in Fridge</td>
<td>Materials, Lighting</td>
<td>Clear shelf material</td>
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<tr>
<td></td>
<td></td>
<td>At least 60W lighting</td>
</tr>
<tr>
<td>Storage Space on Door</td>
<td>Door Shelf Dimensions</td>
<td>Gallon of milk: 6&quot; x 6&quot; x 10&quot; plus leeway</td>
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