One-Finger Coffee Mug

Alex Kim, Chris Decapua, Vansh Prabhu, Sam Anawalt
Why do this?

This product specifically targets individuals with only one finger, but it allows others with different disabilities to safely and conveniently drink coffee.
Mission Statement

Our task was to create a product that would allow disabled people that only have one finger on their hand to safely and conveniently drink coffee. By using the engineering process we were able to pinpoint the exact design elements and constraints that would define our mug.
Past Patents/Products

T Handle Mug
Customer Needs

1. Portable (.11)
   a. Lightweight (.0825,.75)
   b. Fits cup holders (.0275,.26)

2. User friendly (.41)
   a. easy to hold (.0615,.15)
   b. stable (.0615,.15)
   c. easy to put on (.066,.162)
   d. doesn’t burn their hand (.043,.106)
   e. easy to clean (.057,.14)
   f. microwavable (.0185,.045)
   g. Safe (.103,.25)

3. Flexible (.25)
   a. able to fit any size (.06,.24)
   b. keeps temperature stable (.05,.2)
   c. be used by all age (.055,.22)
   d. Used by people with other disabilities (.0675,.27)
   e. stackable (.015,.06)

4. Durable (.19)
   a. Shatterproof (.07,.368)
   b. Non-melting (.08,.421)
   c. Reliant (.04,.211)

5. Environmentally Responsible (.05)
   a. Recyclable (.05,.1)
<table>
<thead>
<tr>
<th>Classification Tree</th>
</tr>
</thead>
<tbody>
<tr>
<td>safe</td>
</tr>
<tr>
<td>One Finger Mug</td>
</tr>
<tr>
<td>Light weight</td>
</tr>
<tr>
<td>Paper Cups</td>
</tr>
</tbody>
</table>
## Classification Tree

<table>
<thead>
<tr>
<th>Non-melting</th>
<th>Microwavable (starbucks)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>One Finger Mug</td>
<td>Shatter proof</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Usable for people with other disabilities</td>
</tr>
<tr>
<td></td>
<td>only requires wrists</td>
</tr>
</tbody>
</table>
Concept Selection (Screening)

1. (1st) Dishwasher safe, plastic lightweight, microwavable, only requires wrist.
2. (2nd) Dishwasher safe, paper lightweight, microwavable, fits to all size
3. (2nd) Dishwasher safe, plastic lightweight, microwavable, shatter proof plastic, fits to all size
4. (2nd) Heat resistant, plastic lightweight, microwavable, shatter proof plastic, fits to all size
5. (2nd) Dishwasher safe, plastic lightweight, microwavable, shatterproof plastic, only requires wrist.
Concept Selection (Scoring)

(2nd) Dishwasher safe, plastic light weight, microwavable, shatterproof plastic, only requires wrist.

Total Score 3.55
Prototype and Testing

- White Acrylic Texture
Engineering Ethics

Consequentialism:

Materials impact on environment

Reusability
Difficulties

- Prototyping with a worse type of clay at first
- Personally have no relation to having only one finger
- Trying to match the customer needs
What we learned

● Engineers complete complex process
● Initial model almost never final product
  ○ Many factors to consider
● Tedious process
● Group effort