

Mini Assignment 5

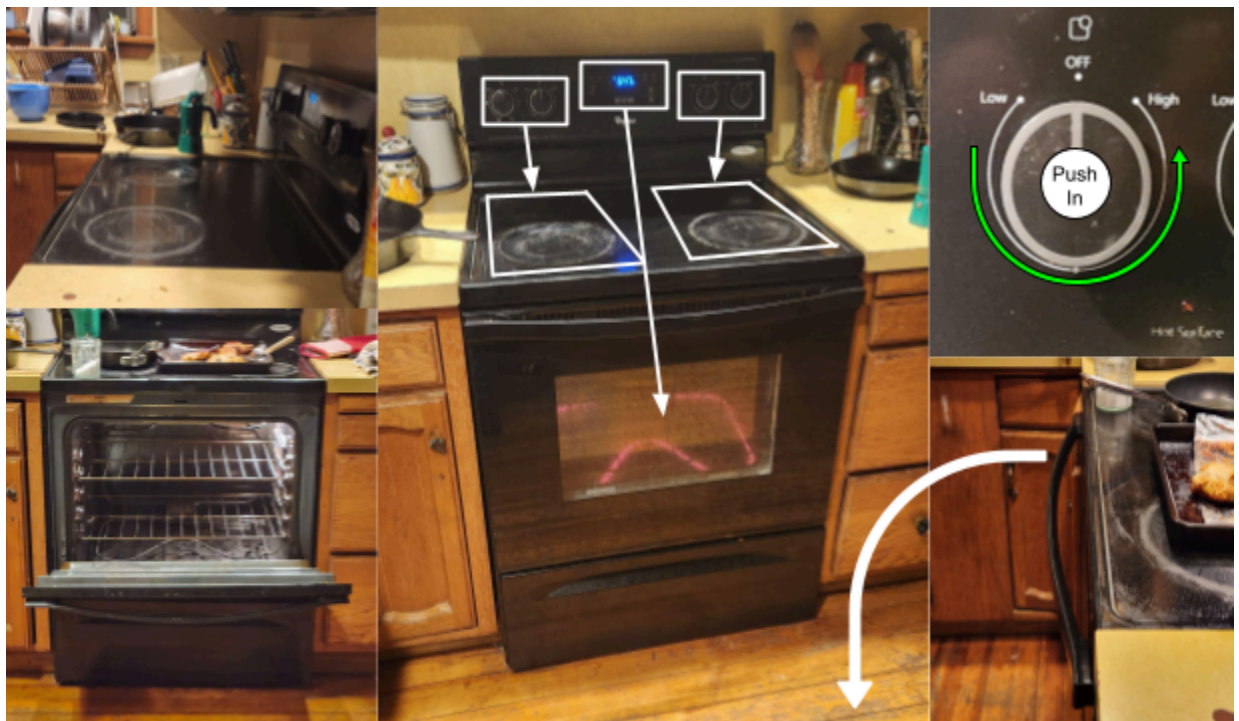
Body Dimensions and Product Dimensions
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10/09/2024
ENP-114

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Product 1: Oven

The oven/stove unit is a common household kitchen appliance that is used for a variety of things generally related to food preparation and cooking.. The knobs on the top of the unit are used to control the temperature of the stovetop. They work through rotating the knob to its desired position. The buttons on the display are used to set the temperature and timer of the oven. Once the temperature is set, food can be placed in the oven by opening the outward swinging door and putting items on the height adjustable oven racks.

Product Images





User Groups




The user groups are anyone generally over the age of ten looking to use an oven most likely for cooking. Gender, nationality, and ethnic/racial group play almost no role in who may have access to or use an oven. Geographic region or occupation may only impact the type or model of the oven and perhaps the possible uses for it, however the actions required to properly utilize this oven remain the same.

Possible Relevant Body Dimensions

Body Dimension	Source
Dactylion reach from wall	2012 ANTHROPOMETRIC SURVEY OF U.S. ARMY PERSONNEL
Elbow Rest Height, Standing	2012 ANTHROPOMETRIC SURVEY OF U.S. ARMY PERSONNEL

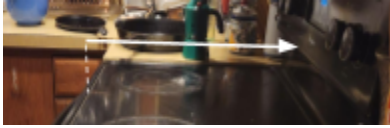
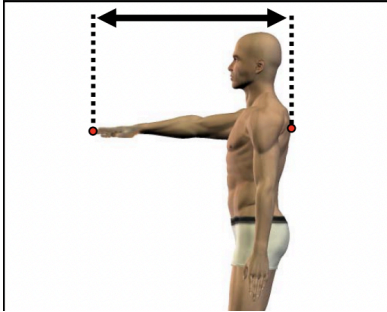

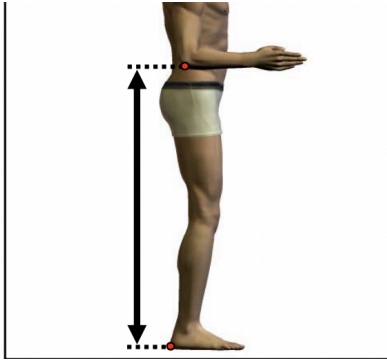
Product Dimensions

Product Dimension	Interface Description	Measurement	Image
Oven Depth/Distance to Controls	User extends arm and uses fingers to manipulate stove knobs/oven buttons.	21in	
Stove Top Height	User places cookware on top of the stove at this level.	36.25in	

*Door Handle Circumference	User wraps hands around the bar and pulls open the oven door.	5.6 in	
*Oven Tray Height	Users place oven items at these levels.	24in (upper tray) 17.5 (lower tray)	
*Burner control Knobs Diameter	User pushes and rotates the stove control squeezing and using fingers and wrist motions.	2in	

*Additional Salient Measurements

Body Measurements to Product Dimensions

Product Measurement	Body Dimensions	Percentile Range									
21in 	Dactylion Reach from Wall 	<p>The stove depth and positioning of the controls are designed for anyone within the target survey as the measurement falls well below the 1st percentile female measurements.</p> <table> <tr> <td><u>CM</u></td> <td><u>IN</u></td> <td></td> </tr> <tr> <td>71.40</td> <td>28.11</td> <td>1ST</td> </tr> </table>	<u>CM</u>	<u>IN</u>		71.40	28.11	1ST			
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36.25in 	Elbow Rest Height, Standing 	<p>Between the second and third percentile of female measurements accommodating these percentile groups and any above them include all male measurements.</p> <table> <tr> <td><u>CM</u></td> <td><u>IN</u></td> <td></td> </tr> <tr> <td>91.20</td> <td>35.91</td> <td>2ND</td> </tr> <tr> <td>92.20</td> <td>36.30</td> <td>3RD</td> </tr> </table>	<u>CM</u>	<u>IN</u>		91.20	35.91	2ND	92.20	36.30	3RD
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Luckily, for this product and the categories we selected there were good pre-existing anthropometric measurements available to use that didn't require any assumptions to be made about the measurements. This oven is designed to accommodate almost anyone that falls within the measured range provided by the US military surveys, this of course excludes those who wouldn't be featured in the anthropometric surveys for example the lower extremes of our population. The user experience should be comfortable for almost all users however for those on the shorter end amongst the single digit percentiles particularly women in this case there may run risks of accidental contact with the stovetop which could be hot and be a burn risk. This of course applies to all users but is more of a risk for those with less clearance trying to reach over or across the stovetop.

Product 2:

This container is meant for the storage of tide pods, a detergent capsule meant to allow for easy measurement for laundry loads. The container maximizes storage while also prioritizing safety features to prevent unwanted consumption by children or pets. The lid of the container features safety measures similar to a medicine bottle requiring the compression of two opposite placed tabs that then unlock the ability to rotate the lid and gain access to the tide pods. For portability the container has two indentations on the side of the container to minimize the width of the container to allow for most hand types to hold it.

Product Images






User Groups




The user group for tide pods does not necessarily tie to any gender or occupation. The two main groups that use these are adults aged 25 and up that are looking for a more convenient way to do their laundry. Another main user group is students aged 17-22 that live in dormitories and don't have access to detergent capable laundry machines. Tide pods are sold worldwide, but are not necessarily used worldwide - the primary market for these is in the US. Given the geography and the ethnic makeup of the US, there is probably no specific ethnic group targeted.


Possible Relevant Body Dimensions

Body Dimension	Source
Index Finger Height (digit 2 height)	1991 US MILITARY ANTHROPOMETRIC SURVEY
Thumb Height (digit 1 height)	1991 US MILITARY ANTHROPOMETRIC SURVEY
Palm Length	1991 US MILITARY ANTHROPOMETRIC SURVEY
Hand Breadth	2012 ANTHROPOMETRIC SURVEY OF U.S. ARMY PERSONNEL
Grip Strength	<i>Could not find</i>

Product Dimensions



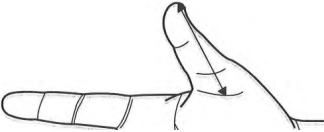


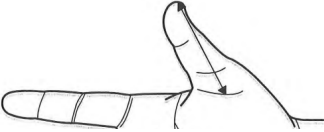
Product Dimension	Interface description	Measurement (Inches)	Image
Handle Width	User grabs each side of this handle for single handed transportation (if the user's hand is wide enough).	5.5"	
Handle Height*	User's four fingers must fit in this gap in order to grip the container.	4.5"	
Handle Depth*	Depth of indentation to allow for shorter grip of whole container.	1.25"	

Lid Diameter	User extends hand to squeeze and twist open the lid.	4.25"	
Opening Diameter	Users must be able to fit their hand inside of the container to retrieve pods.	3.5"	
Height*	N/A	11.25"	

Width*	N/A	8.75"	
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*Additional Salient Measurements

Body Measurements to Product Dimensions

Product Dimensions	Body Measurement	Percentile Range																		
Handle Width: 5.5" 	29 - Digit 3 Link Length  1 - Digit 1 Length 	<p>Adding both, we get that this is designed for the 1st percentile of females, and any hand bigger.</p> <table> <tr> <th colspan="2">PERCENTILES</th><th></th></tr> <tr> <th>CENTIMETERS</th><th>INCHES</th><th></th></tr> <tr> <td>8.63</td><td>1ST</td><td>3.40</td></tr> </table> <table> <tr> <th colspan="2">PERCENTILES</th><th></th></tr> <tr> <th>CENTIMETERS</th><th>INCHES</th><th></th></tr> <tr> <td>5.22</td><td>1ST</td><td>2.06</td></tr> </table>	PERCENTILES			CENTIMETERS	INCHES		8.63	1ST	3.40	PERCENTILES			CENTIMETERS	INCHES		5.22	1ST	2.06
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Lid Diameter: 4.25" 	29 - Digit 3 Link Length  1 - Digit 1 Length 	<p>Adding both, we get that this is designed for the 1st percentile of females, and any hand bigger.</p> <table> <tr> <th colspan="2">PERCENTILES</th><th></th></tr> <tr> <th>CENTIMETERS</th><th>INCHES</th><th></th></tr> <tr> <td>8.63</td><td>1ST</td><td>3.40</td></tr> </table> <table> <tr> <th colspan="2">PERCENTILES</th><th></th></tr> <tr> <th>CENTIMETERS</th><th>INCHES</th><th></th></tr> <tr> <td>5.22</td><td>1ST</td><td>2.06</td></tr> </table>	PERCENTILES			CENTIMETERS	INCHES		8.63	1ST	3.40	PERCENTILES			CENTIMETERS	INCHES		5.22	1ST	2.06
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<p>Opening Diameter: 3.5"</p> 	<p>(42) HAND BREADTH</p> 	<p>The opening diameter is designed for anyone under the 55th percentile of male hand sizes (which includes <u>all</u> female hands).</p> <p>7.80 3.07 55TH 8.90 3.50</p>
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The first two measurements should be taken with a grain of salt. The distance that your hand is able to open to grab something between your four fingers and your thumb was approximated. So, our results show that statistically any person should be able to grab both the tub and the lid. In practice this is not the case, but no better anthropometric source was found for this measurement. The opening diameter of the tub is designed to accommodate all female hand sizes according to the data source, but it excludes about the top half of all male hands according to the data source. This means, for those users, the sides of the lid opening will scrape the outside of your hand and not offer a comfortable user experience.