

DCG STUDENT ASSIGNMENT

2017

HIGHER LEVEL

EXAM NUMBER 123166

SOLIDWORKS 2015 EDUCATION EDITION

OUTPUT 1

Smoothie Makers; Main Considerations:

- Functionality
- Ease of cleaning
- Size
- Accessories
- Appearance

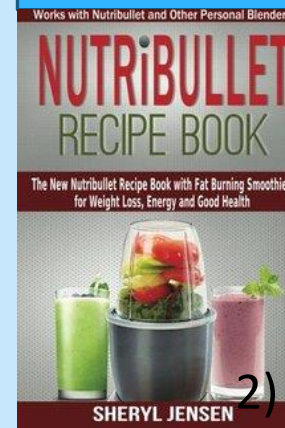


Features:

- Main body
- Blades
- Goblet
- Extra features such as additional goblets, taps and ice crushing ability
- Additional features make the product more useful, attractive and versatile

Target Market:

- Aimed at people who have or are trying to get a healthier lifestyle
- Some smoothie makers such as the Nutribullet have become more specialised towards healthy people



Materials:

- Plastic and metal
- These materials have not changed over time as smoothie makers are quite a recent invention

Size/Shape/Form:

- Small (To fit on a countertop/in a hand, only makes smoothies so isn't required to be large)
- Varying design, some are sleek
- Width, depth and height can vary while keeping the function the same
- Sleek form is used as a selling point to people who buy them for aesthetics
- Different sized goblets are used depending on how big of a smoothie you want



Ergonomics:

- Countertop smoothie makers: Size of handles, dials and switches
- Handheld smoothie makers: Also the shape of the body to fit into a hand



Mechanism:

- Moving blades
- These sometimes have varying speeds

OUTPUT 2

Nutribullet Pro 900W

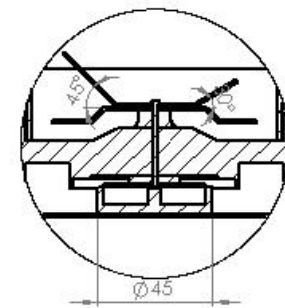
Argos Simple Value Hand Blender

| | Nutribullet Pro 900 | | Argos Simple Value HandBlender | |
|---------------|--------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------|
| Materials | Metal, Plastic goblet | More expensive, durable materials | Plastic | Cheaper, less durable material |
| Colour | Bronze, silver, clear goblet | More varied in colour | White | More uniform, all one colour |
| Height | 370 mm | Taller | 350 mm | Shorter |
| Diameter | 130 mm | Wider | 70 mm | Slimmer |
| Ergonomics | Goblet is shaped to fit into a hand so is easy to drink from | Less focus on ergonomics | Shaped to fit into hands, switch is the right size for fingers, light | Greater focus on ergonomics |
| Target Market | Specialised to people who want to get fit | More focus on target market | General as it is a cheap project | Less focus on target market |
| Features | Ice crushing function | Has an extra feature | None | Has none |
| Shape | Curved, rounded | Broader for countertop | Thin, sleek, curvy | Sleeker to fit in hands |
| Mechanism | Blade mechanism | More powerful, more blades | Blade mechanism | Less powerful, less blades |
| Aesthetics | Many curved lines, tall and rounded, not very sleek | Looks better as a countertop smoothie maker | Thin, sleek, switch is an ellipse | Looks better as a handheld smoothie maker |
| Wattage | 900 W | Higher | 170 W | Lower |
| Capacity | 0.95 L | Higher | None | None |
| Price | €139.99 | Much higher | €6.49 | Much lower |

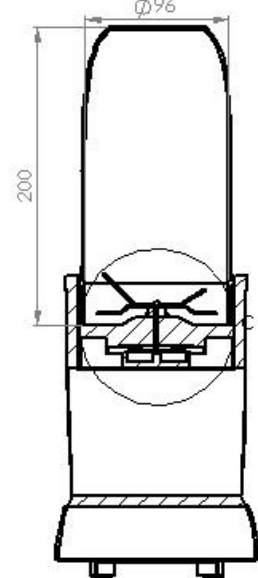
OUTPUT 3

OUTPUT 3

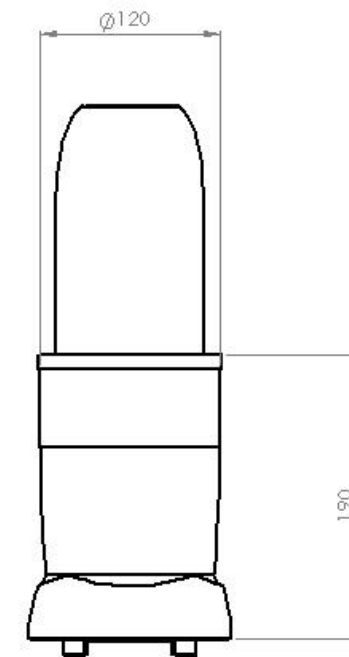
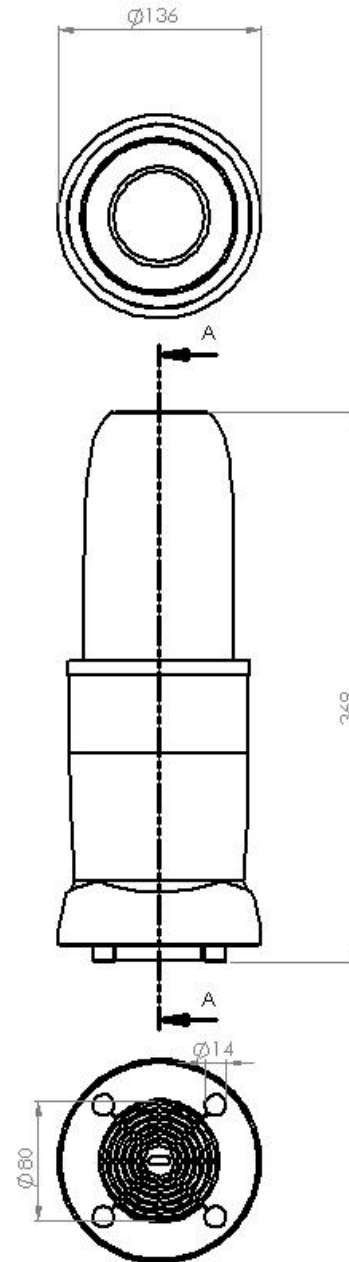
OUTPUT 5



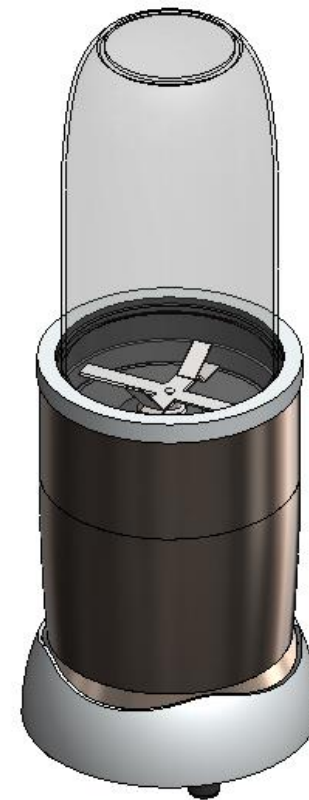
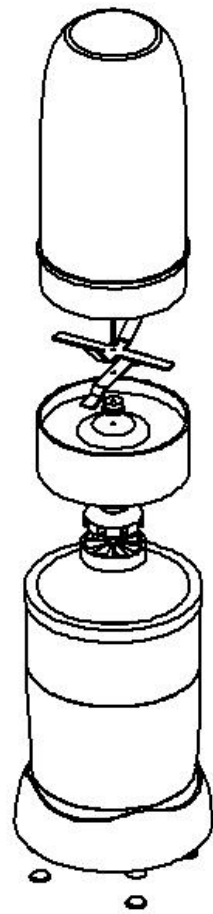
DETAIL C
Blade Mechanism
SCALE 1 : 1.75



SECTION A-A
SCALE 1 : 3



Orthographic and Sectional Views



Exploded View and Rendered Pictorial View

OUTPUT 6



OUTPUT 7

Possible Solutions:

- Lightsaber:
 - I thought about my hobbies and interests when deciding what concept to create for my smoothie maker
 - I have an interest in Star Wars so thought of different designs for that
 - The lightsaber design would be useful as a hand blender as it is the right shape
-
- R2D2
 - This is another design from Star Wars
 - It would be the right shape for a countertop smoothie maker
 - However I decided to think of other ideas based more on target markets as these will sell more than ones based on movies

Chosen Solution:

“POWERBLEND” - JUSTIFICATION

Aesthetics

- Battery style fits in with the theme of energy; the smoothie gives the consumer energy much as the battery gives electronics energy
- It is rounded; the usual shape for a countertop smoothie maker
- The legs will be hidden from view beneath the body of the smoothie maker
- The vivid green colour gives the idea of energy and life so will appeal to a consumer looking to get healthy

Functionality:

- The blade mechanism is a very similar mechanism to that of the Nutribullet Pro, so it is tried and tested and I know that it will work
- The main body will be most of the battery while the top will detach; this will make it easy to pour
- The hidden legs on the smoothie maker will ensure that it remains standing and does not fall over

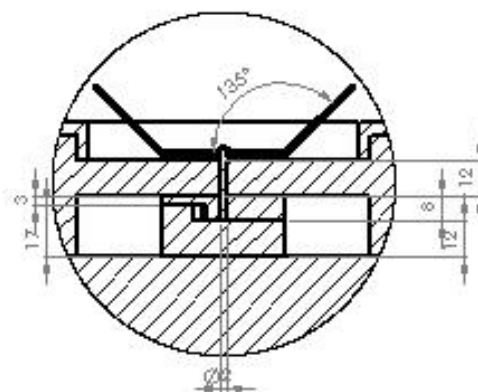
Environmental Sustainability

- The “energy” theme will remind people that energy is important and valuable in their everyday lives
- As the smoothie maker will be on full display on a kitchen counter, it will serve as a constant reminder to people not to waste energy (e.g. turning off lights when they leave their kitchen, handwashing small loads of dishes instead of putting them into a dishwasher)
- It will encourage the use and buying of fruits, which are biodegradable
- It will be made of recyclable materials which can be reused when the smoothie maker is no longer used by the owner

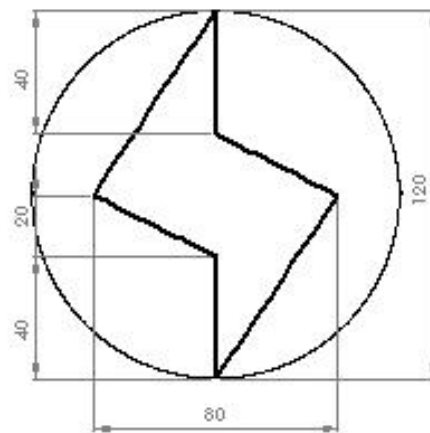
OUTPUT 8



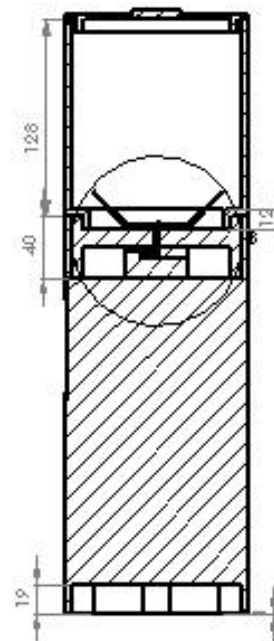
OUTPUT 9



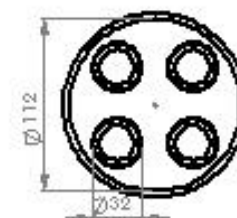
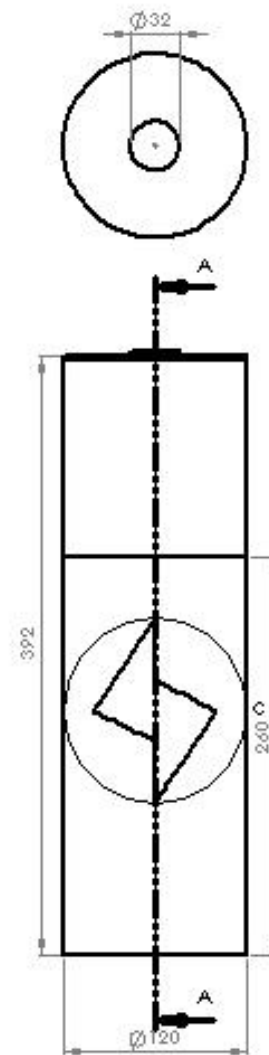
DETAIL B
BLADE MECHANISM
SCALE 2 : 3

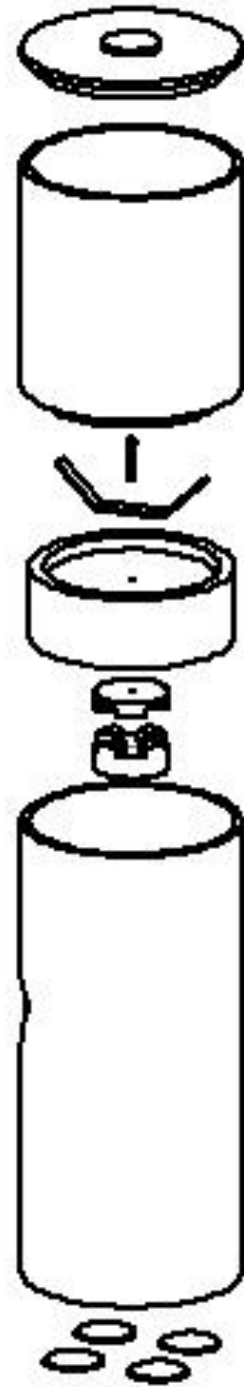


DETAIL C
ENERGY BOLT
SCALE 2 : 3



SECTION A-A
SCALE 1 : 3





Exploded View and Rendered Pictorial View



Photorealistic View

References:

- 1): Primary Research
- 2):<https://d1w7fb2mkkkr3kw.cloudfront.net/assets/images/book/large/9781/5150/9781515056669.jpg>
- 3):<http://freshpowersmoothies.com/wp-content/uploads/2016/01/fresh-power-smoothies.jpg>
- 4): Primary Research
- 5):<https://s-media-cache-ak0.pinimg.com/736x/97/46/1c/97461c36bfee4c0351ad0764fa70c0d0.jpg>
- 6):https://images-na.ssl-images-amazon.com/images/I/31bJjCUhrQL._AC_SX354_SY510_QL65_.jpg
- 7):http://www.healwithfood.org/images_ama/blender-stainless-steel-bottle.JPG
- 8):http://www.bestron.com/media/catalog/product/cache/1/image/9df78eab33525d08d6e5fb8d27136e95/a/s/asm250r_mp_ek_fruit.jpg
- 9):<https://heavyeditorial.files.wordpress.com/2015/03/ninja-prep.jpg?quality=65&strip=all&strip=all>
- 10): Primary Research
- 11): Primary Research
- 12): Primary Research
- 13): Primary Research
- All sketches are my own work.