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Design, development and prototyping of portable Potty as part of Petit en Suite Child's Pop-up Privacy Room

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A report on behalf of

Simple Creation Ltd

Design, development and prototyping of portable Potty as part of Petit en Suite Child's Pop-up Privacy Room

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Completion Date: 22 / Jan / 2013
Product Design team involved: David Swann, Chris Howard, and Glynn Stockton

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Introduction

Alison the owner of Simple Creation Ltd had an idea of creating a portable potty that provided infant privacy whilst potty training her infant. Following a substantial amount of personal research Alison identified that nothing existing on the market to tackle this problem. At this stage Alison contacted a company in 2009 to assist with a world-wide patent search and found out there was no other similar product in the market. With the help of a product design company she has successfully completed a new concept design supported by sketches, 3d visualisation and physical models

With the belief that her idea for a “Petit en Suite Child’s Pop-up Privacy Room” was good, Alison entered her design into an Innovation competition (Baby Products Association awards) judged by a panel of highly respected individuals from nursery industry. The product generated great interest and made it to the semi-finals of the competition. The judging panel all in agreed that the product has great market potential but did not win due to complexity of its design. The panelists suggested that the design needs to be simplified to ensure manufacturing costs are kept to a minimum.

Project Objectives & Design Specification:

The product design team met with Alison a number of times to identify and agree the objectives of the project to be undertaken. These were:

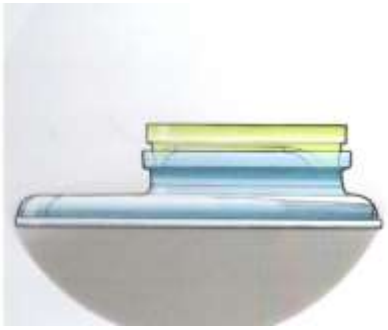
- Optimise the present design: material, components, weight, functionality
- Design for manufacture in injection moulding
- Minimal manufacturing cost
- Easy to clean
- Easy to carry and store with adjustable height
- Skin contact with the plastic bag is minimal

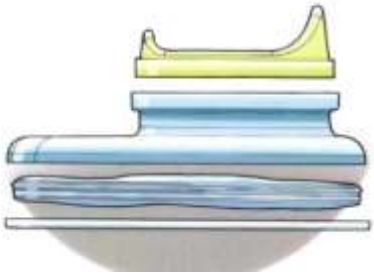
Project Deliverables to date:

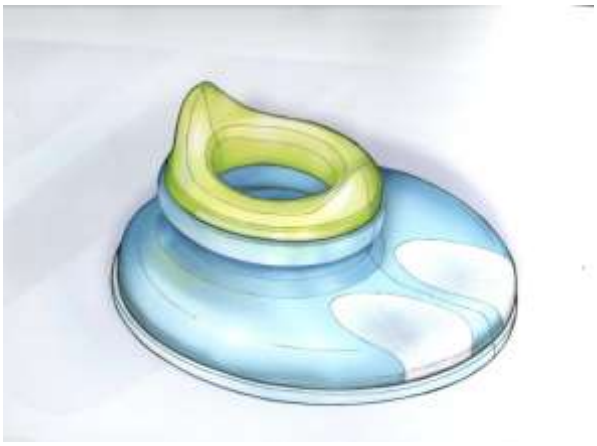
- A number of 2D computer rendered images will be created (attached)
- A number of design solutions investigated then selected design modeled in 3D and visualized (see attached images)
- 3D CAD data in neutral supplied
- A Prototype produced (two pieces)
- A computer animation is supplied

Evaluation of Current Potty Design:

Current design is not only too large and heavy but also difficult and expensive to manufacture due to the size of the moulding required. The present design is also difficult to access for cleaning purposes as well as other problems as seen in the following images:





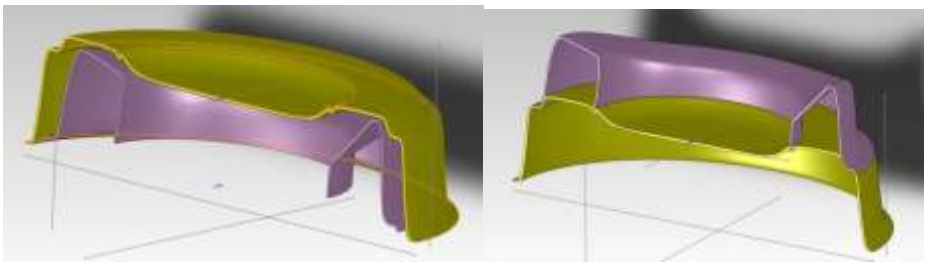


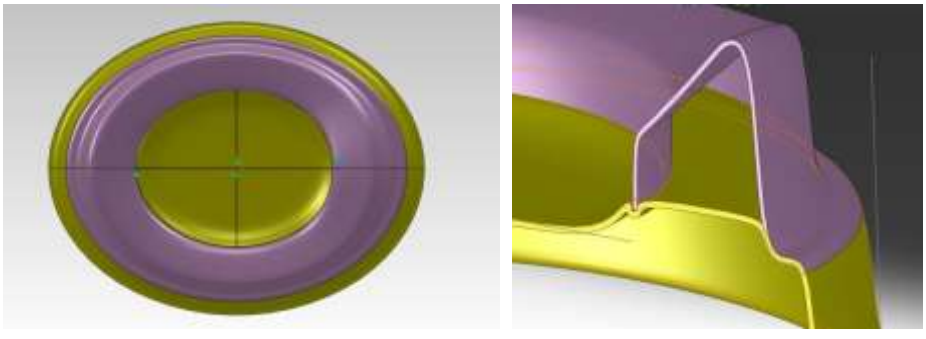
Research into Existing Potty Products on the Market:

Investigation into the market revealed the availability of wide range of potty products. To understand these products more deeply from a design, quality and manufacturing perspective many were purchased, with each product analyzed for design advantages and weaknesses.

Initial Ideas / Concepts:

After discussing a number of ideas, the team & Alison selected two-piece travel potty where the top section is used for the extra height and also locating the liners. There are disposable liners / bags in the market which could be used in this design. But team recommended Alison alternative sealable liners which could be easily adapted to this design. After discussing a number of parents, the team found out that direct skin contact to the liners is a problem for children. Therefore the travel potty is designed in a way to prevent the skin touching the liners directly. Four different stages of the design, final design and visualisations colour selections are also shown in the following images.





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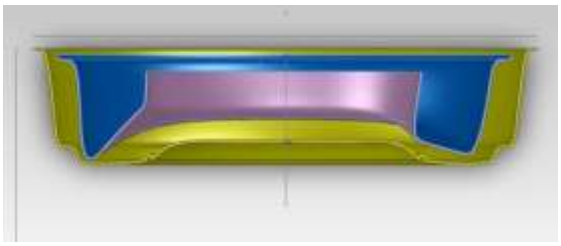
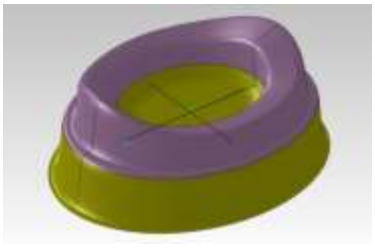
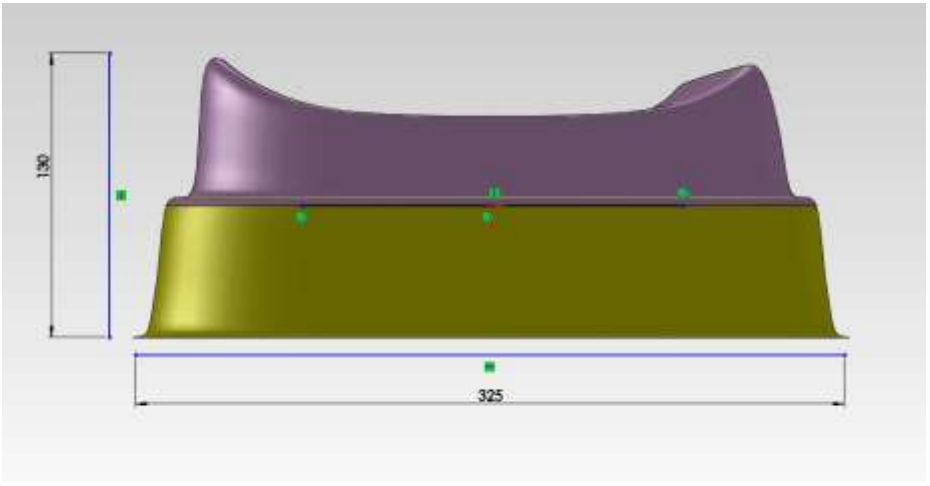
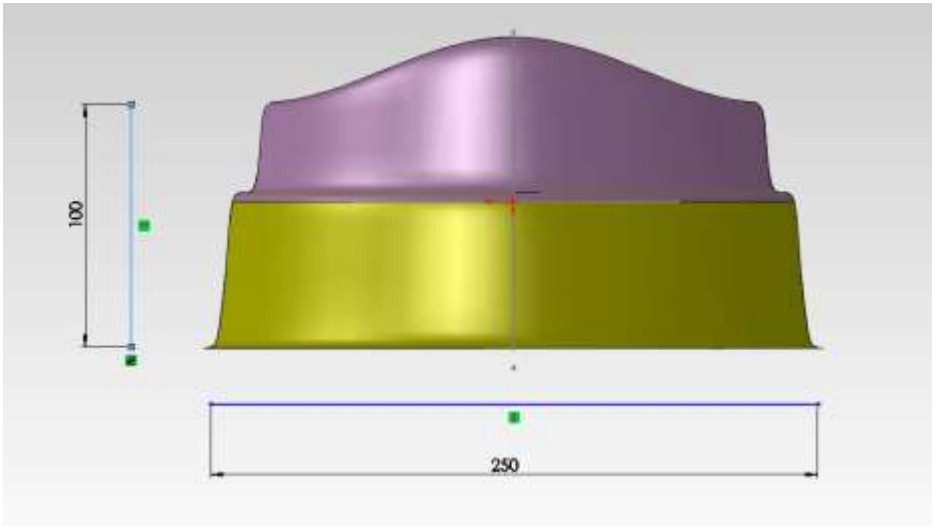
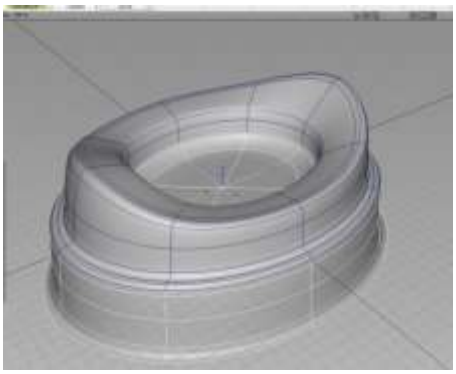
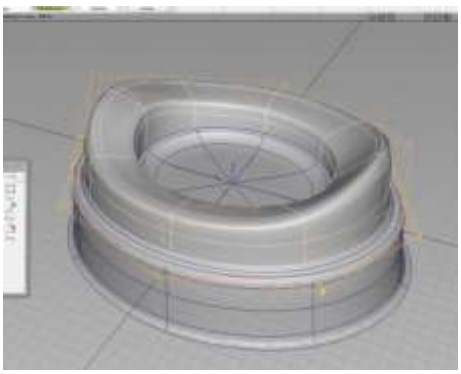




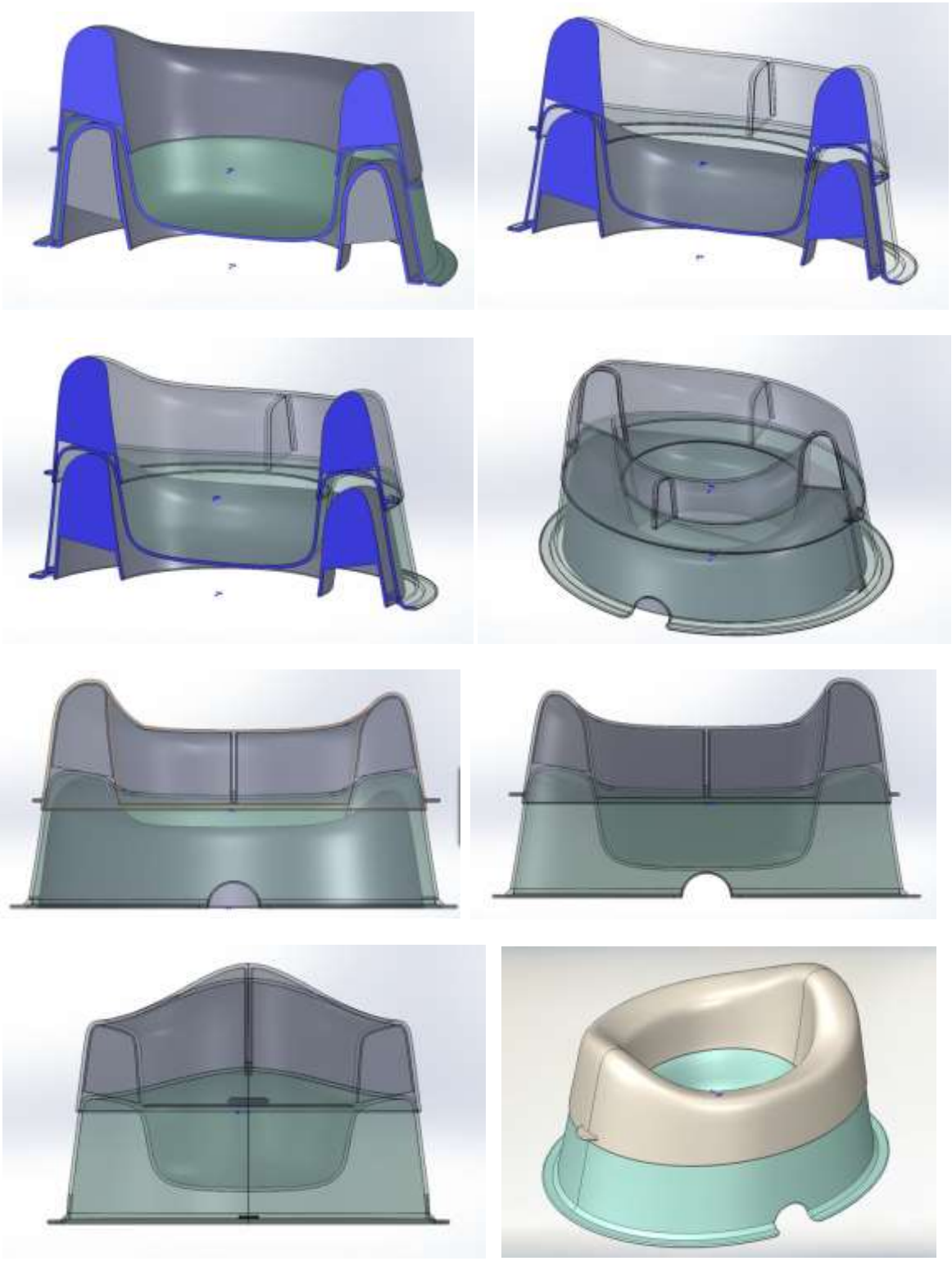








IDEA 1 Further development:



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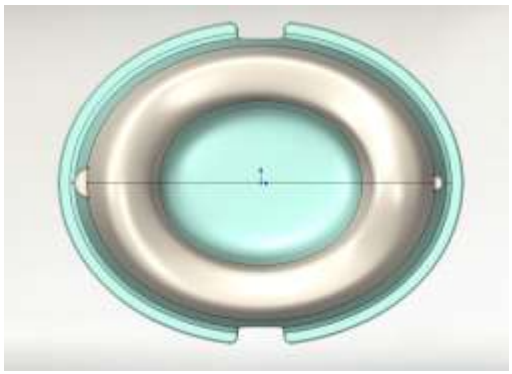

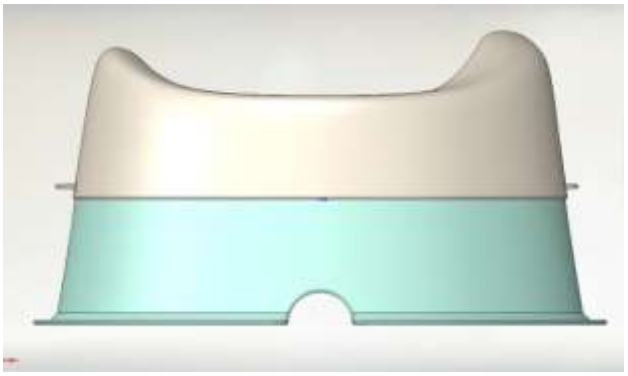

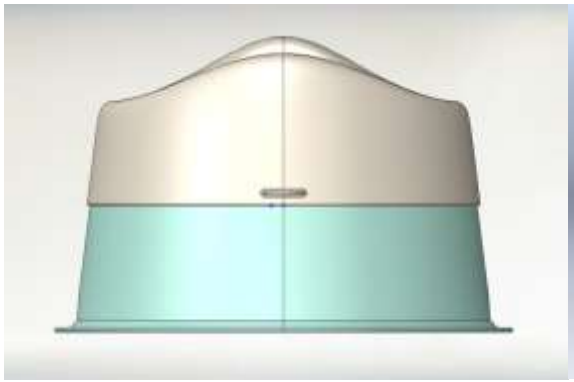

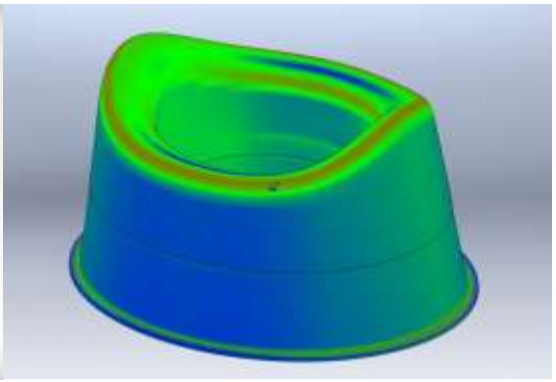

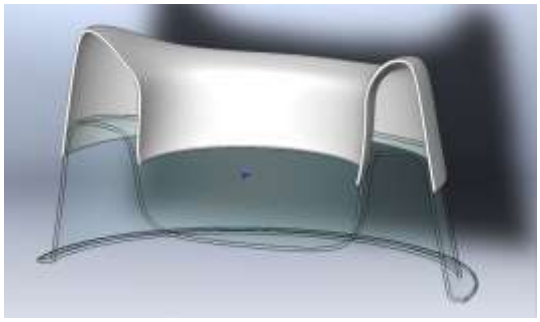

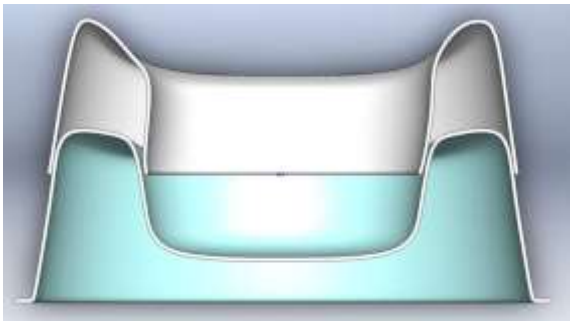

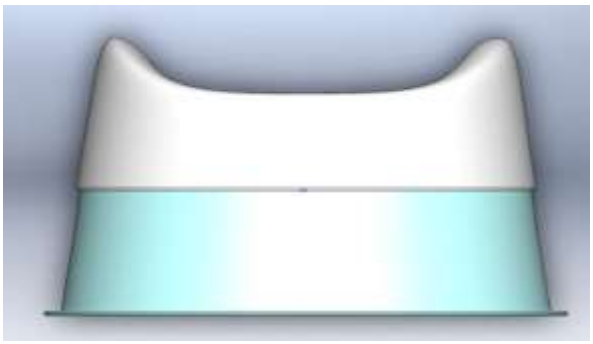

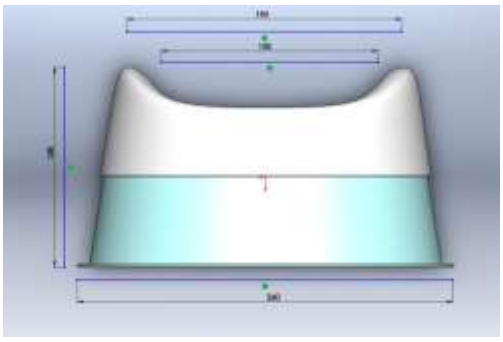

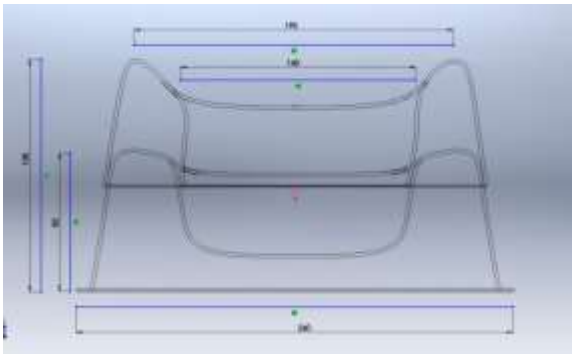
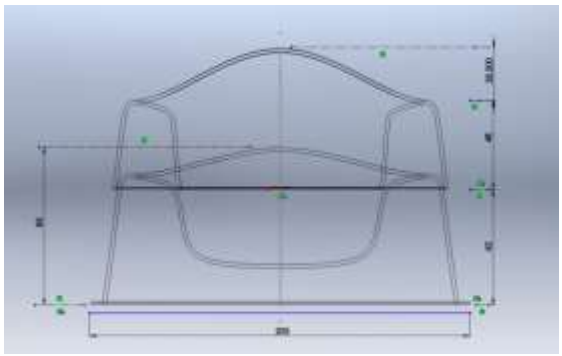
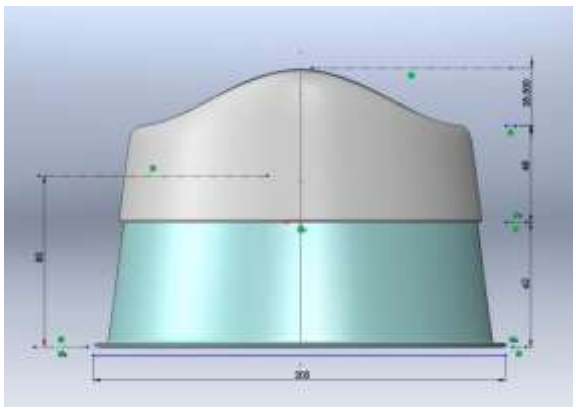
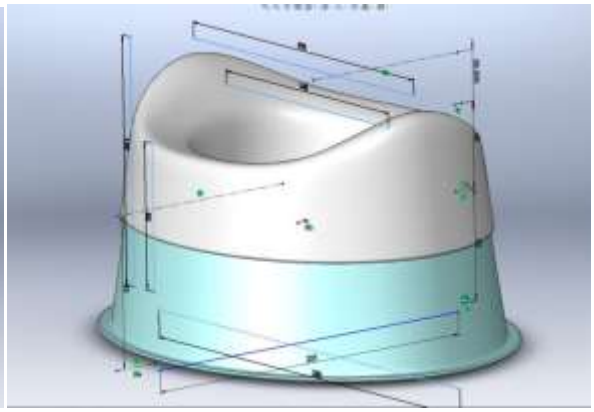
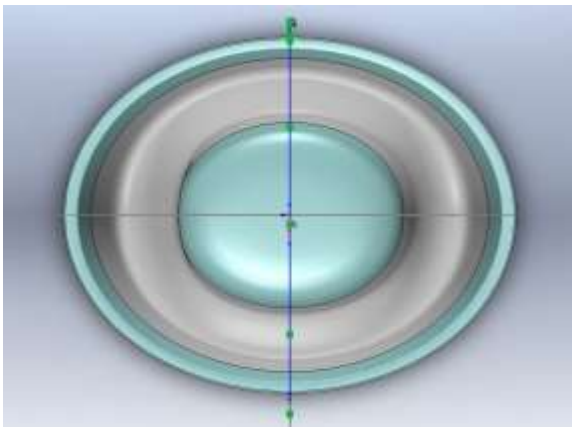
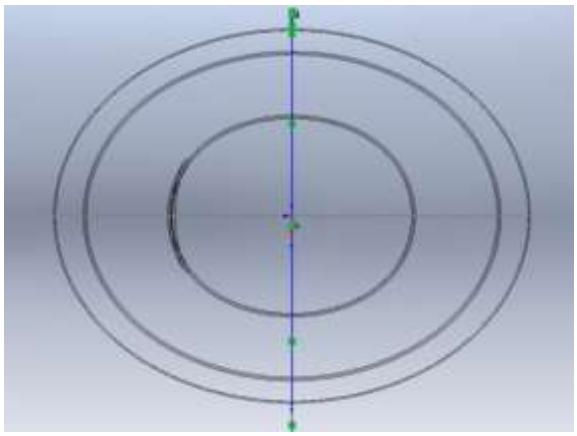

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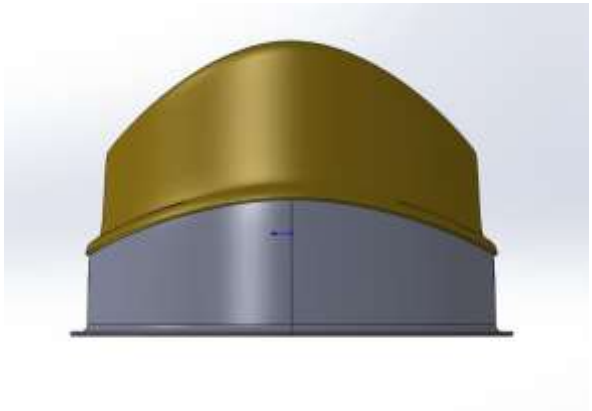
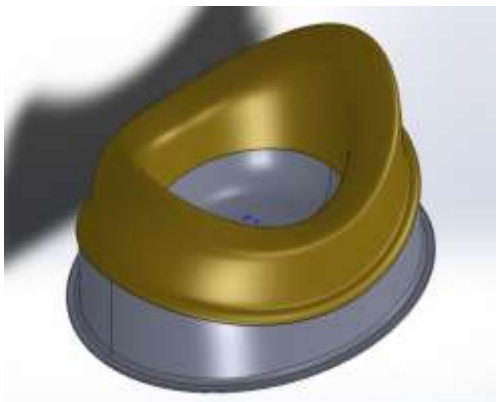

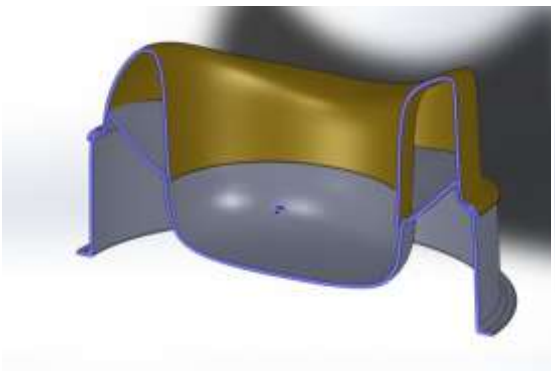

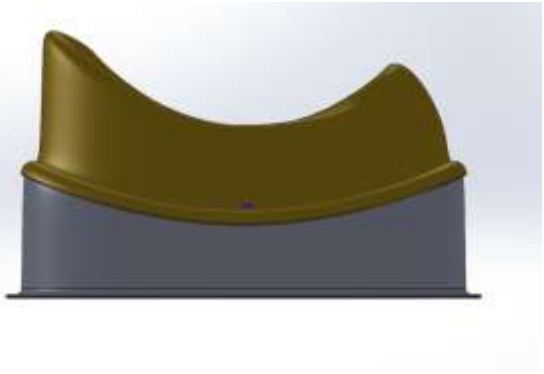

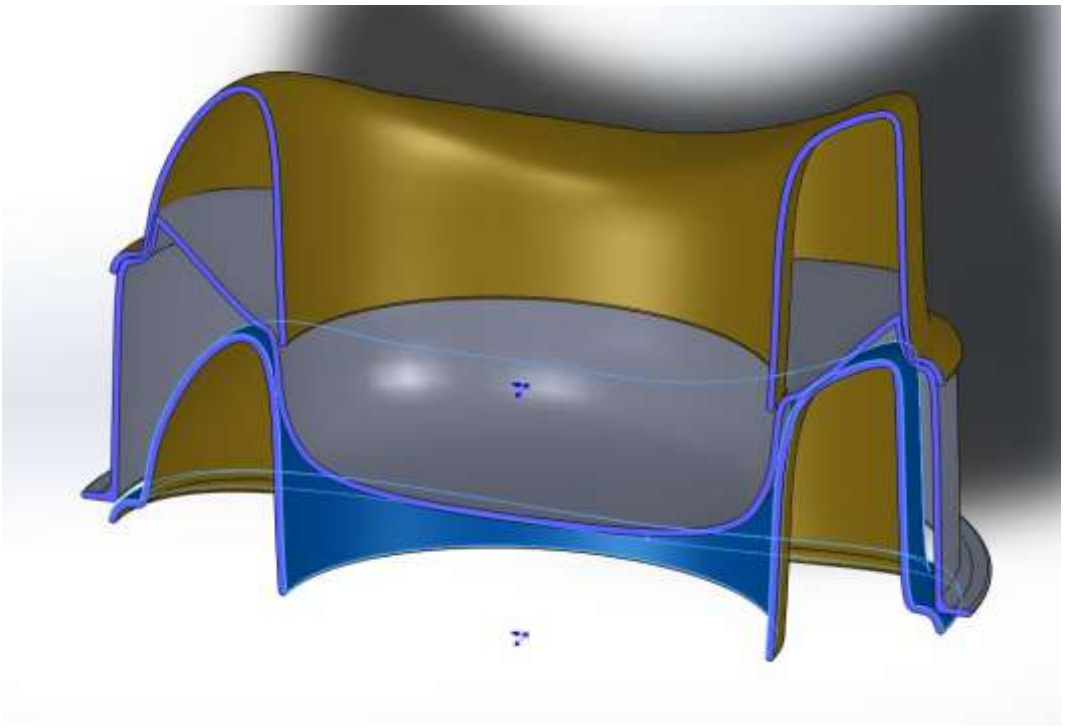

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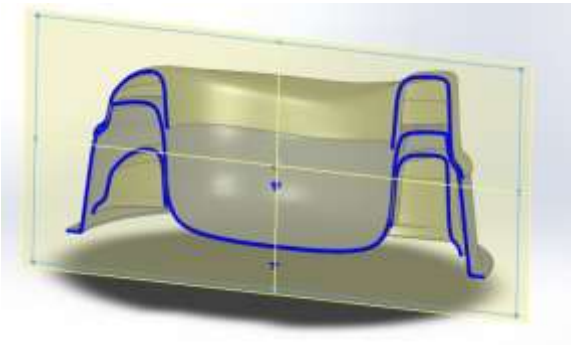

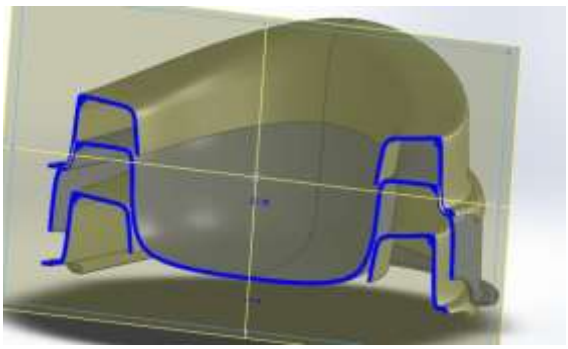

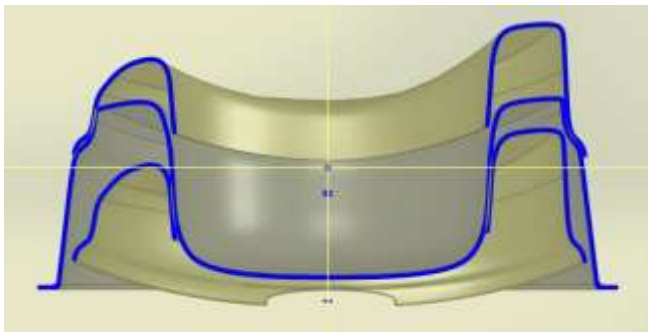

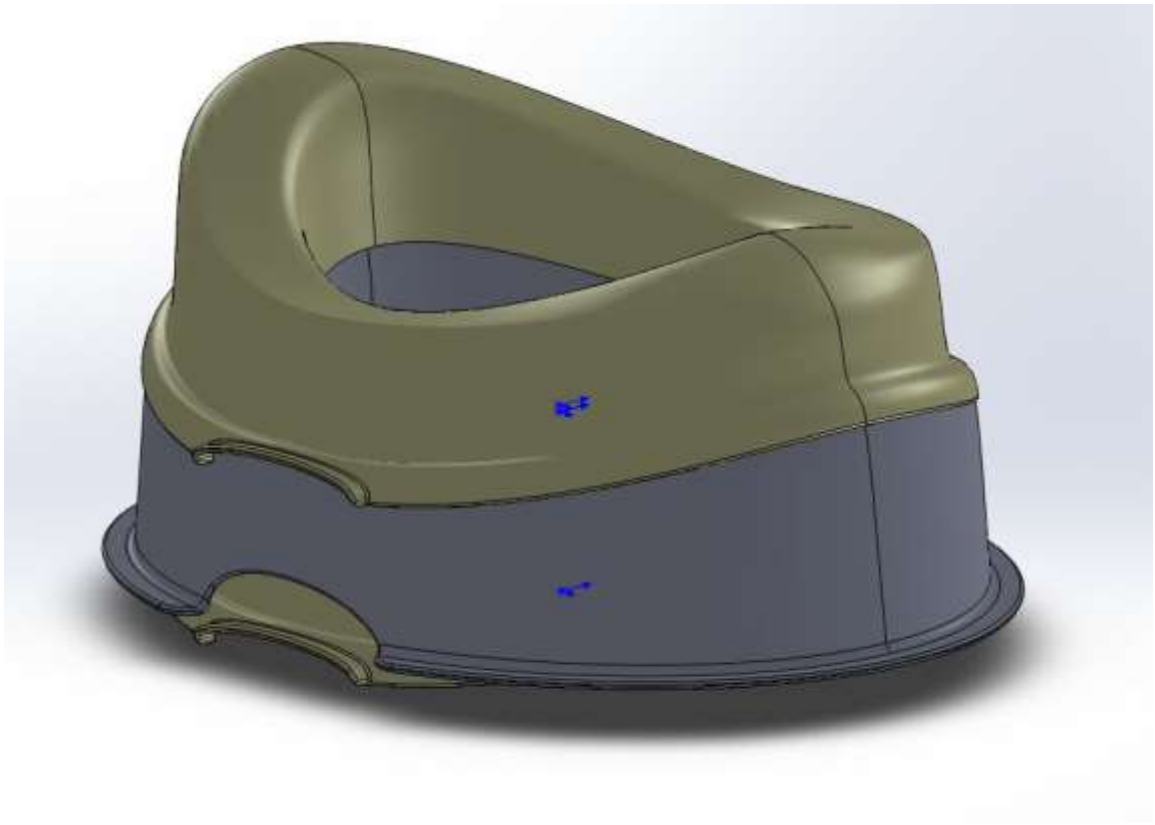

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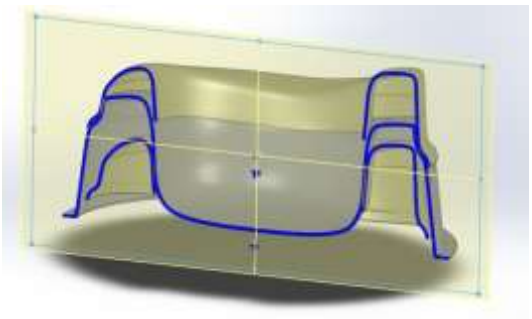

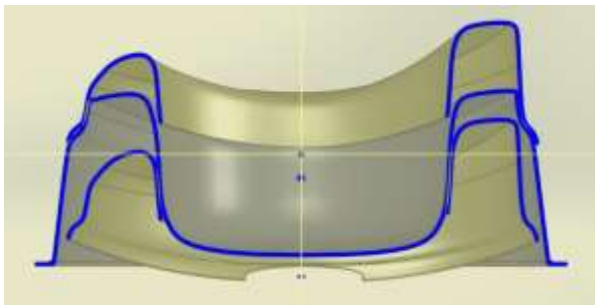

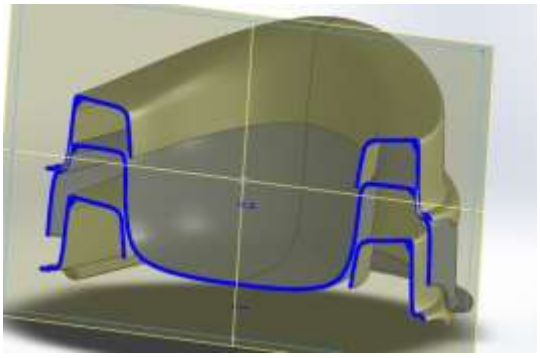

Final Design Visualisations Colour selection:

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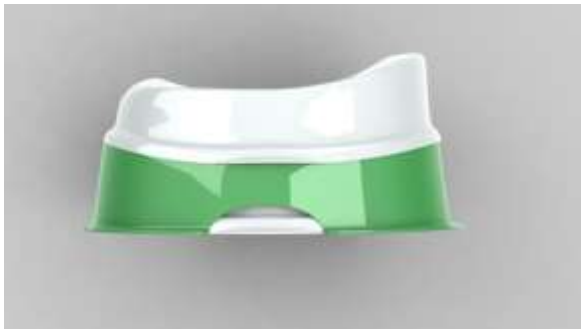



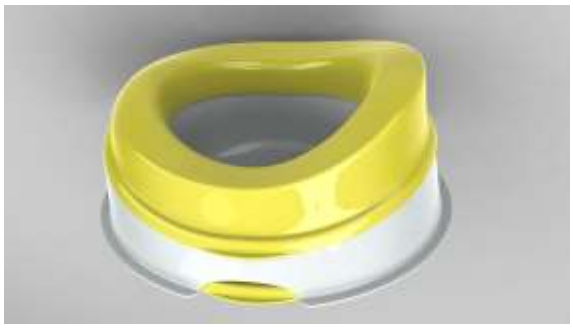


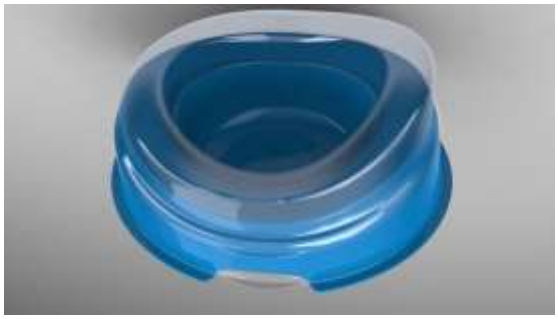
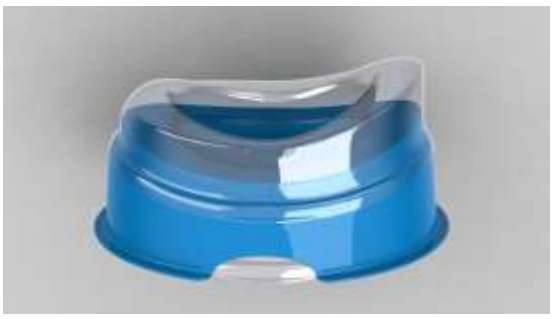

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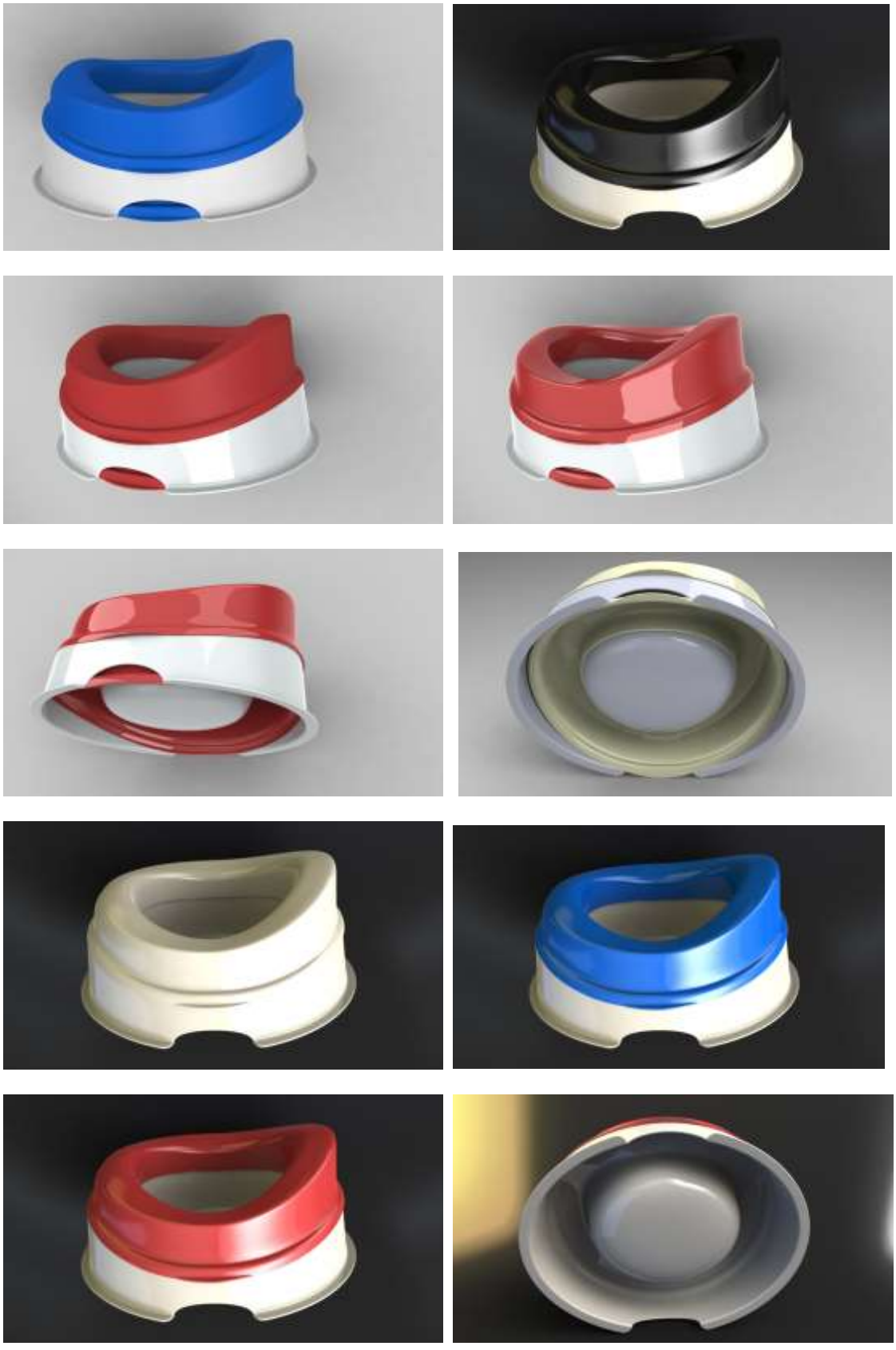

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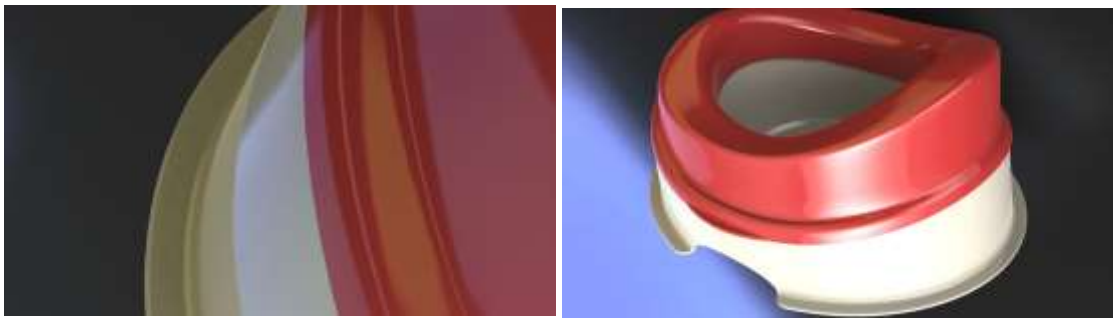

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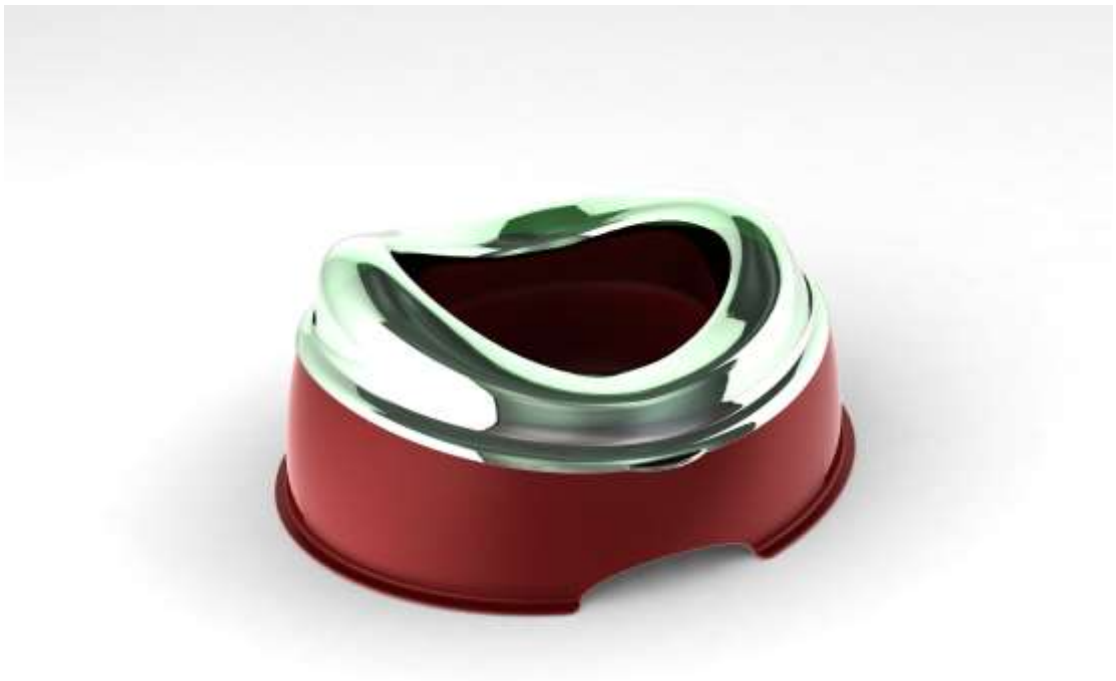

Contextualisation of the Product:

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PETIT EN SUITE DESIGN DEVELOPMENT

MAIN GRAPHIC

The potty is assembled easily and quickly from three interlocking parts, the moulded seat, the moulded chamber (with tent storage unit to the base) and flexible lid to secure tent into storage space.

PROBLEM: Currently there is no means for easy and efficient disposal and cleaning of waste on the move.

SOLUTION: As demonstrated by the process right, the collapsible potty allows a drawstring pouch (or plastic carrier bag) to be placed in the open chamber. The seat is then put onto the base, locking the bag in place. After use and removal of the potty seat, the bag can be easily and hygienically closed and disposed of.

1. Position refuse container around chamber rim.

2. Position potty seat onto potty base to secure container.

3. Use potty.

4. Remove potty seat, remover container, seal and dispose.

Petit en Suite

Child's Pop-up Privacy Room