



Computer Engineering Department
CE102L: Computer Aided Engineering Design Lab

Lab 12

Open Ended Lab: Design a real-life project on SolidWorks that resolves the issue faced by you at home. Also print using 3D printer and present the resolved issue.

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Selection of Problem:

The materials for dishwashing were always scattered around in the kitchen. A lot of plastic bottles also got wasted each time new soap is bought. The kitchen sink was always a mess and looked unsightly. The scattered soap and sponge also gave off a weird smell which spread throughout the kitchen.

For the sake of organization and making the kitchen eco-friendlier, we decided to make something that could hold all the materials in one place without making it look bad, and conceal the smell.



Solution to the Problem:

To solve the above identified problem, we decided to make a cube shaped soap dispenser that could be filled with soap, it would have a pump which will be used to draw out the soap onto the sponge. The lid of the dispenser would be big enough to accommodate the sponge.

The sponge is to be placed on top of the lid and then pressed downwards, this will activate the pump which sucks the soap from the dispenser and spread it on the sponge.

Design on SolidWorks:

Commands Used:

The following commands were used in the designing of Soap Dispenser:

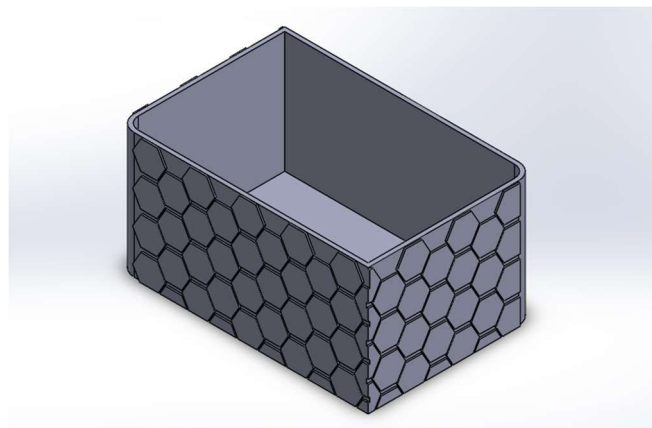
- Extrude Boss
- Extrude Cut
- Convert Entities
- Offset Entities
- Shell
- Wrap

Steps:

The design consists of four-Part Files which are Main Body, Cap, Moveable plate and Spout.

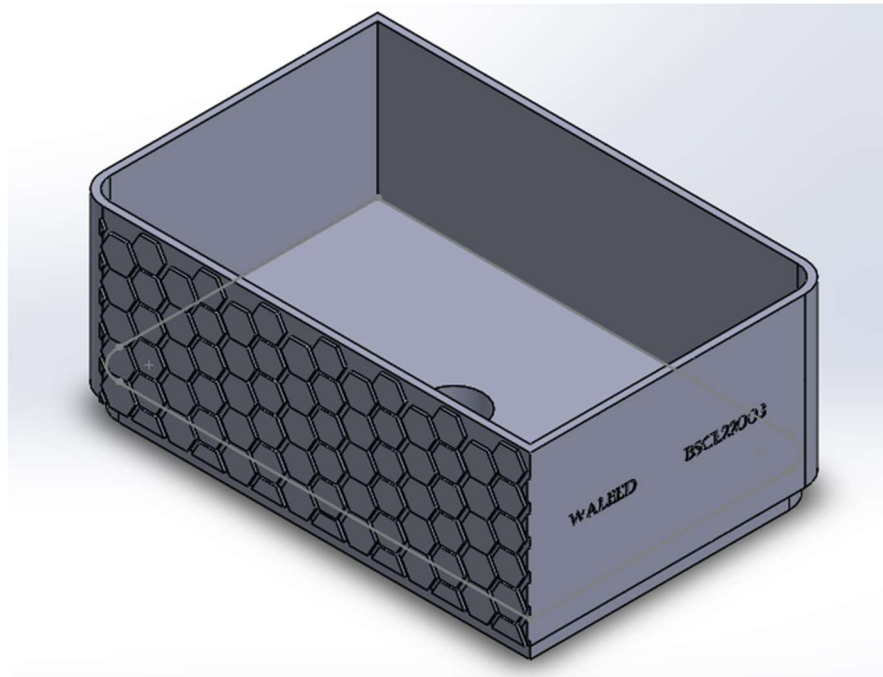
Main Body:

The main body is a simple rectangle. We extrude boss it and then used shell command to make it hollow. Fillet was used to make two of its corners rounded for the sake of beauty. Main Body holds the liquid soap inside it. Wrap command was used to wrap a custom design on the body.



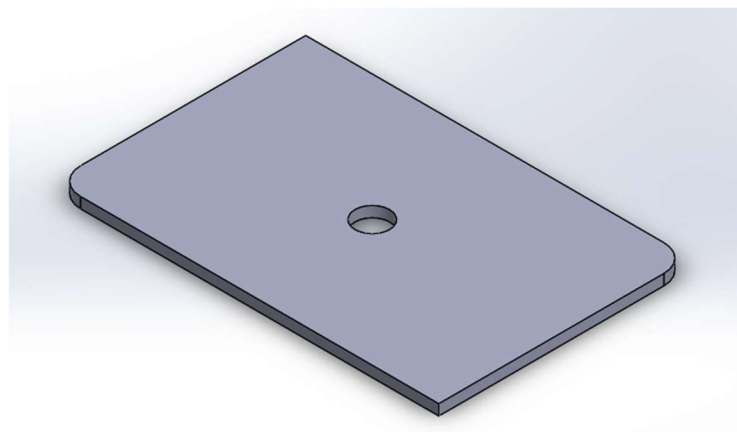
Cap:

The cap of the dispenser sits on top of the main body. The cap is a simple rectangle. We extrude boss it and then designed a small wall along the outer edge of the cap. Fillet was used to make two of its corners rounded for the sake of beauty. Cap holds the sponge on top of it. Wrap command was used to wrap a custom design on the body. There's a hole inside the cap where the dispenser pump sits.



Moveable Plate:

The moveable plate is a simple rectangle. We extrude boss it. Fillet was used to make two of its corners rounded for the sake of beauty. Moveable plate moves inside the cap walls, the sponge is placed on the plate and then pressed down. There's a hole inside the cap from where stem of dispenser comes out.



Spout:

The spout is fixed on top of the dispenser stem. It provides support to plate and is responsible for moving the plate.

