Fusion 360 Project Report

3D Water Bottle – Modeling, Assembly & Animation

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Software: Autodesk Fusion 360

Units: mm

Overview

This project presents the parametric modeling of a basic reusable water bottle. The workflow covers solid creation using extrusion, application of reference geometry (planes and axes), emboss detailing, assembly of the cap and bottle body, and animation for product visualization.

Objectives

1. Create accurate 3D parts from sketches.
2. Apply extrusion and finishing operations.
3. Use planes and axes for precise alignment.
4. Assemble multiple components.
5. Demonstrate motion using animation.

Modeling

The bottle body was formed by extruding circular profiles to generate the cylindrical shape, followed by development of the neck. Fillets were added to improve realism and manufacturability. The cap was modeled as a separate component with matching dimensions to ensure proper fit. Emboss features enhanced the surface appearance.

Assembly

Both parts were inserted into the assembly environment and connected using joints. Constraints maintained concentric alignment and functional positioning.

Animation

Animation tools were used to visualize the interaction between the bottle and cap, supporting clear presentation of the design intent.

Outcomes

1. Understanding of parametric CAD workflow.
2. Experience in part modeling and detailing.
3. Knowledge of assembly relationships.
4. Ability to present designs visually.

Project Snapshot