

## Conceptual Design of Suction Cup Lifting System

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**Abstract :** In industries, to transfer fragile materials like glasses, a holding, lifting, and manipulation system are required. In this report, we designed and analysed a suction cup holding, lifting, and manipulation system that is attached to a head plate and must be able to grip/hold securely, the largest glass panel with 3m x 2.5m x 20mm thick with a mass of 115 kg. The system is able to rotate the panel through 180 degrees in the X, Y, and Z axis in any direction from the outer reach of the robotic arm. The structural analysis is performed to verify the structural strength of the suction cup's head plate system.

**Keywords :** designing, mechanical, engineering, suction

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