

ABSTRACT

Every University student require water to survive. Water makes up over 90% of a person's body. As a result, dehydration is the primary issue when someone is dehydrated. Dehydration occurs when the body's water supply is insufficient to support normal physiological processes. Many University's students do not recognize they are dehydrated until it is too late. Due to the hot and cold water dispensers are scarce at Telkom University, particularly in the Industrial Engineering Faculty Building. The majority of water dispensers are only available to lecturers and staff, but not for students yet.

In this research, the design was made to develop an automated water dispenser utilizing the Pahl and Beitz method, which can be customized to student preferences via a questionnaire survey and benchmarking for several existing product designs already on the market.

The automated dispenser is designed using Solidwork software with a duo gallon design (top and bottom loading) with a lid for the top loading gallon and a lid for the faucet to keep it clean. After completing the design in Solidwork software, then material selection is carried out by conducting static structural simulations using ANSYS workbench 19.0 with a maximum load of the gallon.

The alternative material chosen is ABS Plastic. And the results of the static structural automated dispenser test are safe using ABS Plastic material because the minimum equivalent (von – mises) stress value is 0.0087047 MPa and maximum is 10,722 MPa, for minimum deformation is 0 mm and maximum is 5.4749 mm.

Keywords: Automated Dispenser, Pahl and Beitz, ABS Plastic, Duo Gallon.