Automated Chemical Wiping System
Team All Suds No Duds
Sponsored by Masimo

Devices used in a medical setting must have proper labeling on the exterior casing to maintain FDA certification.

Team All Suds No Duds worked with sponsor Masimo to create a test device that is capable of completing up to 100,000 cycles autonomously to test material degradation of devices. This device consists of multiple subsystems for linear motion, drainage, wiping, camera, chemical application, and electrical components.

Project Overview

Final Assembly

Hardware Components

Test

Objective

Load Cell
Provide accurate force readings when the object is wiped

Pump
Pumping speed and controlled amount of chemical fluid applied

Linear Motion
Verify movement in the x-axis and z-axis

Wiping Arm
Ability to apply force onto object and gather force feedback for analysis

Our Team

Mechanical Engineering Team

Lauren Jansen
ME Team Lead
Jared Meeks
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Manufacturing Lead
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Electrical and Computer Engineering Team

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ECE Team Lead
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Hardware Lead
Ahmad Bandar
Power System Lead
Luka Enardshvili
Testing Lead
Kamar Mirza Hussein
Software Lead

Hardware Components

X&Z Axes
Stepper Motors
Perlastic Pumps
Main PCB
LED PCB

Load Cells
24V & 5V Power Supply
Stepper Motor Drivers

Camera
LCD

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System Level Diagram

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