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.

Final Assembly

- Electronics Box
- Linear Motion
- Wiping Arm
- Drain
- Mounting Plate
- Chemical Metering
- LCD User Interface

Hardware Components

- X&Z Axes Stepper Motors
- Perlastic Pumps
- Main PCB
- LED PCB
- Load Cells
- 24V & 5V Power Supply
- Stepper Motor Drivers
- Camera
- LCD

Test

<table>
<thead>
<tr>
<th>Objective</th>
<th>Test</th>
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<tbody>
<tr>
<td>Provide accurate force readings when the object is wiped</td>
<td>Load Cell</td>
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<tr>
<td>Pumping speed and controlled amount of chemical fluid applied</td>
<td>Pump</td>
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<tr>
<td>Verify movement in the x-axis and z-axis</td>
<td>Linear Motion</td>
</tr>
<tr>
<td>Ability to apply force onto object and gather force feedback for analysis</td>
<td>Wiping Arm</td>
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</tbody>
</table>

Our Team

Mechanical Engineering Team
- Lauren Jansen: ME Team Lead
- Jared Meeks: Design Lead
- Jackson Cruise: Manufacturing Lead
- Sean Eckstein: Procurement Lead
- Lori Voong: Quality Lead

Electrical and Computer Engineering Team
- Jason Bahayev: ECE Team Lead
- Abdulaziz Al rashid: Hardware Lead
- Ahmad Bandar: Power System Lead
- Luka Emrashvili: Testing Lead
- Kamal Mirza Hussein: Software Lead

System Level Diagram

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