MISSION STATEMENT: The purpose of the project is to increase the capacity of an ion selective paste dispense machine.

Apparent Design Flaws:
- Paste Stitch Pattern
- Too Many Laser Reads
- Slower, Outdated Control Device

Current Process:
1. Laser Scan to Measure Electrode Elevation
2. Dispense Paste using Stitch Pattern Onto Electrode
3. Move to Next Laser Read Location

Time Breakdown of Paste Dispense Process:

Areas of Focus:
Paste Stitch Time (67%)
Laser Reads (26%)

Key Customer Wants To Metrics:
1. Productivity - 170s/per plate
2. Simplicity - Minimal Hardware Changes
3. Quality - Paste Width of 0.024 to 0.036 inch
4. Low Cost - Below $5,000
5. Accuracy - 95% Acceptable Lines of Paste

Cost:

<table>
<thead>
<tr>
<th>Prototype</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Benchtop Paste Dispense Machine</td>
<td>$160</td>
</tr>
<tr>
<td>Vacuum Plates</td>
<td>$170</td>
</tr>
<tr>
<td>Total</td>
<td>$320</td>
</tr>
</tbody>
</table>

Cost of Implementation for Dade:
- Testing Using Toothpaste Method
- Programmer Costs to Change C Control Code

Part 1 Results:
- Metric 1 - Paste Line Dispensed in 3s
- Metric 2 - No Hardware Changes
- Metric 3 - Paste Width Average of 0.700 inch
- Metric 4 - Low Cost
- Metric 5 - 96% Acceptable Lines of Paste

Part 2 Results:
- Metric 1 - Electrodes all within 0.002 inch
- Metric 2 - Number of Scans can be reduced to 4.
- Metric 3 - Reduces Total Production Time by 56s.
- Metric 4 - One Hardware Change of New Vacuum Plate
- Metric 5 - Low Cost to Make Vacuum Plate

Implementation for Dade:
- Fabricate a Vacuum Plate Using Our New Design
- Perform Their Own Testing Using New Vacuum Plate Design

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