Final Product Review

Team SmartDesk
April 20th, 2018
Meet the Team

Aidan Fitzpatrick
EE, Team Leader and Hardware Lead

Tristan Koopman
EE
Website and Software Lead

Dan Mathieu
EE & CSE
Hardware Lead

John Melloni
CSE
Software Lead
Needs Analysis

• Problem Statement:
  • Difficult for users to be productive with a messy work environment.
  • SmartDesk eliminates need for physical resources by offering digital versions for both use and storage.
  • System maintains characteristics of a conventional desk while offering the functionality of a touchscreen that interfaces with your current computer.
  • Current market lacks cost-effective and durable touchscreens.

Advisor: Siqueira
1. Touch screen desk with accuracy up to a fingertip.
2. Design retains the versatility of a conventional desk.
3. Desk interfaces with a standard desktop computer via USB and HDMI.
4. System has applications which replace the need for physical resources.
5. Touch processing has real-time response.
6. Screen will have sufficient resolution and brightness.
7. Surface is resistant to scratches and spills.
8. Interface to control touch screen power.
Original FPR Deliverables

• Image processing moved from laptop to Raspberry Pi
• Increased touch accuracy
• PCB manufactured and installed
• Custom touch gestures for increased usability
• Hardware switch to control touch power
Actual FPR Deliverables

- PCB manufactured and installed
- Stylus created for writing and drawing
- Social engineering (calibration, feedback, etc.)
- Increased touch accuracy
- Increased ease of touch
- Plan Demo
Volunteer Statistics

Standard Deviation: 8.05 pixels     Mean: 14.37 pixels (6.35 mm)
# Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectre 32” TV</td>
<td>$119.00</td>
</tr>
<tr>
<td>IR LEDs</td>
<td>$29.90</td>
</tr>
<tr>
<td>Sony PS EYE Camera</td>
<td>$1.99</td>
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<tr>
<td>IR BPF</td>
<td>$5.00</td>
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<tr>
<td>m12x0.5 lens mount</td>
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<tr>
<td>2.1mm m12 lens</td>
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<tr>
<td>Endlighten Acrylic</td>
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<td>Clear Acrylic</td>
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<tr>
<td>Light Diffuser</td>
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<tr>
<td>Additional Backlighting</td>
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<tr>
<td>Trim</td>
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<tr>
<td>Fan</td>
<td>$26.00</td>
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<tr>
<td>PCB Spin</td>
<td>$27.00</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$386.45</strong></td>
</tr>
</tbody>
</table>

50% less than a comparable 32in touch screen monitor
Demo!
PCB Design

Power Supply 12V

12V to 5V Buck Converter

5V

GND

Trigger

Electro-mechanical Relay

Cooling Fan

Department of Electrical and Computer Engineering

Advisor: Siqueira