Head-Mounted & Arm-Mounted Art Design System

Week 9 Group Presentation

Team 1:
Sirisha Muppidi
Becky Lussier
Nemi Kotadiya
Current Budget

- $867.06 used
- $632.94 balance remaining
- Total budget allocated for 2 projects
  - $1500
Work Done

This past week
Compass

• Finishing Compass
  - Removal of sharp edges
  - Smooth movement
  - Drill slot for screw head

• Machined shatter proof plastic utensil holder to attach to the compass
Compass to Speedometer

- Testing showed that side attachment is best
- Milled out small groove on side of compass
- Encase square part of speedometer cable with thin milled plate
- Held in place with 4 screws
Pulse to Motor Function Interface

- Signal from Eye blink sensor
- One Shot Multivibrator signal filter
- Flip Flop
- Mosfet Circuit
- Motor Function (ON/OFF)

- Chip 74HC73
- 3 Free wheeling diodes to protect circuit components
M o s f e t

- N-channel enhancement Mosfet
- Drain current at 0 or 1 volts
- Saturates at 4 volts
Reversible Motor

- Reversible Motor circuit for the TASH soft switch
- Recalculated component values
- Dr. Northrop donated chips for our eye blink circuit
  - two 74123’s
  - two 7400’s
Gooseneck to Helmet

- Attached gooseneck to helmet with three plastic brackets (3/8 inch)

- Nylon captive nuts
  - Hold brackets in place

- Testing:
  - Comfortable ✓
  - Balanced ✓
  - Not too heavy ✓
Neoprene Sewing

- Helmet chin strap
  - Line with neoprene for comfort

- Forehead
  - Need to line the forehead part of the helmet with neoprene because of discomfort

- Attach gooseneck to wrist guard with neoprene fabric
  - Tested with cotton thread
  - Need stronger thread
Head Speedometer Cable

- Speedometer cable not long enough for the head mounted system

- Coupling 2 speedometer cables
  - Not enough space to fit coupling mechanism
  - Point of weakness at coupling point
  - Last resort

- Ordered 53 inch speedometer cable
  - Spoke with representative
  - Are unaware of the outer diameter
  - 60 Day return policy
Future Work

To be completed by week 5
Future Work

• Order
  - Circuit elements
  - Buy art supplies for system
  - Plastic boxes for encasing circuit elements

• Build & Start Testing / Troubleshooting
  - Eye Blink circuit
  - Reversible Motor Circuit

• Attach chin straps to helmet
Future Work

• Get stronger thread for sewing neoprene fabric
  – Metrosene, Molynecke, or Gutermann

• Sew neoprene
  – Forehead, Arm gooseneck system, chin straps

• Machine shop
  – For speedometer to compass attachment
  – Attach utensil holders to compasses
  – Trim metal plate in wrist cuff
Project Review

Project analysis
Progress Analysis

• Everything is starting to accelerate

• The sooner we start building the circuits the sooner we will be able to troubleshoot and make modifications

• Delay on arm assembly due to ordering of new lighter arm gooseneck
# Hours Worked

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<thead>
<tr>
<th>Member</th>
<th>In Lab</th>
<th>Outside Lab</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Sirisha</td>
<td>6</td>
<td>12</td>
<td>18 hours</td>
</tr>
<tr>
<td>Becky</td>
<td>6</td>
<td>8</td>
<td>14 hours</td>
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<tr>
<td>Nemi</td>
<td>6</td>
<td>8</td>
<td>14 hours</td>
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Thank You!

Any Questions?