Beach Ball Sniper

Team Name: Null
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Project Details

- Use image processing to track a moving beach ball
- Shooting beach ball with some sort of projectile
- Tracks the beach ball in a vertical plane
Solution

- Uses OpenCV on a laptop for image processing
- Sends commands through USB to uC board
- uC board will control servos and the firing mechanism
Components

- Webcam – ideally high speed, low resolution
- Laptop
- uC board – Atmega32
- 2x servo
- 2 axis pivoting mechanical mount, actuated by servos
- Debugging with GUI on laptop and/or LCD on uC board
# Cost Objectives

<table>
<thead>
<tr>
<th>Items</th>
<th>Price</th>
<th>Quantity</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servo Motors</td>
<td>$10</td>
<td>x 2</td>
<td>$20</td>
</tr>
<tr>
<td>Web Cam</td>
<td>$20</td>
<td>x 1</td>
<td>$20</td>
</tr>
<tr>
<td>ATMEGA Chip</td>
<td>$7</td>
<td>x 1</td>
<td>$7</td>
</tr>
<tr>
<td>FTDI Chip</td>
<td>$6</td>
<td>x 1</td>
<td>$6</td>
</tr>
<tr>
<td>Airsoft Gun</td>
<td>$15</td>
<td>x 1</td>
<td>$15</td>
</tr>
<tr>
<td>Misc &amp; Electrical Components</td>
<td>$15</td>
<td></td>
<td>$15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$83</strong></td>
</tr>
</tbody>
</table>
Competition

- Skynet
- This project doesn’t really compete on the commercial market.
- Likely has applications in military field

Image source: http://filmonic.com
Gantt Chart

- Planning (Team)
- Research & Project Proposals (Team)
- Mechanical Platform (Mir)
- Board Design (Jeff)
- OpenCV Programing (Jeff)
- ATMEGA Programing (Mir)
- Debugging (Team)
- Completing Mechanical & Software (Team)
- Integrating (Team)
- Testing (Team)
- Finalization & Presentation (Team)

Timeline:
- Start Date
- Duration (days)

Dates:
- 5/11/2009
- 5/21/2009
- 5/31/2009
- 6/10/2009
- 6/20/2009
- 6/30/2009
- 7/10/2009
- 7/20/2009