iPad Mobile Surgical Console

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Background & Motivation

- Multiple computers in surgical OR for configuration
  - Video, lighting, overlays, etc.
- Cluttered space
- Inconvenient operation
  - Mouse & keyboard input
  - Decentralized
- Sterilization concerns
Project Goals

• Application for centralized control
• GUI for easy systems configuration
• Touchscreen ability - easy to use, easy to clean
• Ultimately, iPad application to control multiple consoles from a mobile unit
Timeline

- Project on schedule

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<tr>
<th>Task</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
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<td>Compile CISST</td>
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<td>Install ICE</td>
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Spring Break:
- In Progress
- In Progress
Compiling cisst for iOS

- Integrated with cmake
- Compiled with ICE flag
- Easily imported into XCode
- Well documented guide for compilation
Using Cmake

- `CMakeList.txt` includes `iphone.cmake`
- `iphone.cmake` adds/modifies compiler settings specific for iOS
- Cmake file generated and compiled as usual
Cmake Settings
XCode Project
GUI Development Started
Review What’s Done

• Milestone 1 Complete
  – Cmake integration of iOS done
  – ICE compiled
  – XCode project created
  – Well documented installation guide

• Milestone 2 Started
  – Familiar with iOS GUI development
  – Sample GUI interface built
What’s Next?

- Continued GUI development
- Interface with module control

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- Spring Break: In Progress
- Summer Break: In Progress

[Image of a computer screen showing a GUI interface with various elements such as a menu bar, command prompt window, and text that reads `What's Next? Continued GUI development Interface with module control`. The image also includes a table outlining tasks and their status with dates from February to May.]
# Plans for EyeRobot Control

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<th>Task</th>
<th>Target Date</th>
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<tr>
<td>Actual control of Video Brightness setting for EyeRobot</td>
<td>4/8/11</td>
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<tr>
<td>GUI development for remaining components</td>
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<td>Tutorial for integration of GUI and component controls on EyeRobot</td>
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<td>Implementation of all other components for EyeRobot control</td>
<td>4/22/11</td>
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<tr>
<td>Add error checking to all components</td>
<td>4/29/11</td>
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<td>Tutorial for handling error checking</td>
<td>5/2/11</td>
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<td>Implement GUI changes based on feedback</td>
<td>5/6/11</td>
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Deliverables

- **Minimum:** *(No longer applicable)*
  - Use iPad as a dummy console to VNC into a computer.
  - Create a GUI system to control the multiple components through the Scenario Manager.

- **Expected:**
  - Compile and build the cisst library on the iPad using CMake. *(completed)*
  - Build a GUI application for the iPad to control the various components. *(in progress)*
  - Perform clinical tests of the iPad control system in a mock OR setting. *(previously maximum)*
  - Perform revisions to the GUI based on user feedback. *(previously maximum)*
  - Detailed tutorial for iOS-cisst interface *(new expected)*

- **Maximum:** *(new maximum)*
  - Implement additional features
New Maximum Deliverables

• Explore other uses of iPad
  – **Video Streaming** of live robot feed
  – **Accelerometer Use** to move robotic arms
  – **Microphone Use** to interface with voice control

• Other suggestions?
Thank You

Questions?