System Overview

- Develop a real-time human detection and tracking system
  - Implement an efficient eye extraction algorithm
  - Create a system to integrate with artwork component
Skin Extraction

- Use the HSV color model
  - Provides more lighting-independent detection results
Eye Detection

- Create vertical histogram to detect potential eye regions
- Generate image strip
- Create horizontal histogram to detect eye location
Eye Detection – cont.

- After a lock has been acquired, utilize vector history to reduce computational requirements for future frames
Software Systems

- Uses internal TCP/IP to allow for processor offloading, potential network usage
- Client sources the webcam due to C++ messiness
Bill of Materials

- 2 x Microsoft Lifecam VX-6000 Webcam
- 2 x Projectors – Must have wide-angle lens
- Extension cables –
  - 2 x 50 ft. USB Extender
  - 2 x 50 ft. VGA Extender
- 1 x Projector right-angle box
- 1 x PC with Cygwin, Flex Builder
Questions and Discussion