Virtual Drum Set

Luis A Fernandez
Rishi Naidu
Motivation

- Expensive
- Cumbersome
- Heavy
- Excessively Loud
Motivation

• Fun
• Inexpensive
• Portable
• Volume Control
Overview
Overall Block Diagram

Gesture Detection Module → Collision Engine + Display Module → Game Audio Module

Music Audio Module
Gesture Detection Module

- RGB Values are stored in ZBT Memory
- Color Detection is in HSV space
- Using Red and Yellow gloves for Hand Detection
Collision Engine + Display Module

- Collision Engine is 3 state FSM
- Gain determines the Intensity of Hit
- Storing Images in ROM
• Drum sounds in ROM or Flash
• Hand Signals include Gain, Drum select, Drum Control Pulse
• Song is for playback with Drum Sounds
• Song is about 1-2 min in Length
• Stored in Compact Flash Card
Timeline

• Week of 11/05:
  - Start implementing video modules
  - Block diagram conference

• Week of 11/12:
  - Finish implementation of video modules
  - Project design presentation
  - Checklist conference
  - Start implementing audio modules

• Week of 11/19:
  - Debug and testing of video modules
  - Debug audio modules
Timeline

• Week of 11/26:
  - Finish implementing audio modules
  - Wrap up video modules testing
  - Start testing and debug of audio modules

• Week of 12/3:
  - Debug all modules
  - Test whole design
  - Prepare final presentation
Questions?