

Virtual Drum Set

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Motivation

- Expensive
- Cumbersome
- Heavy
- Excessively Loud



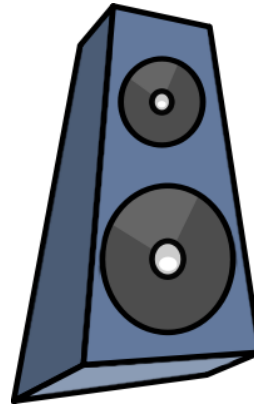
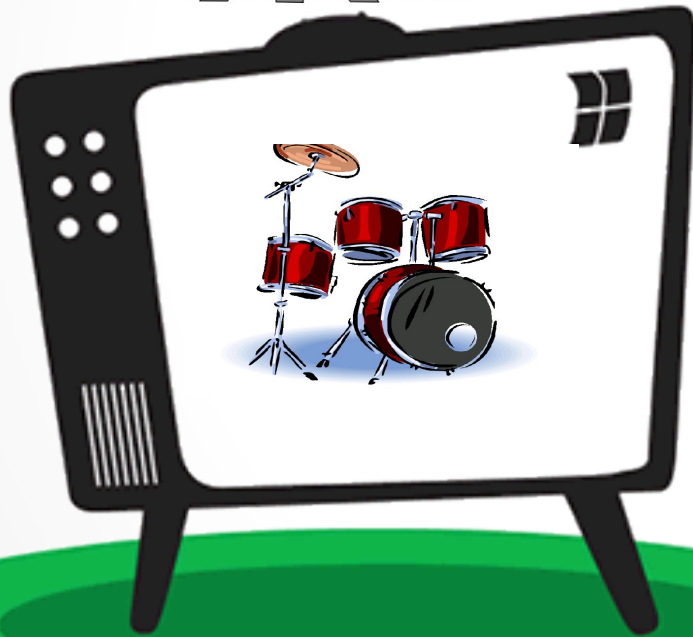
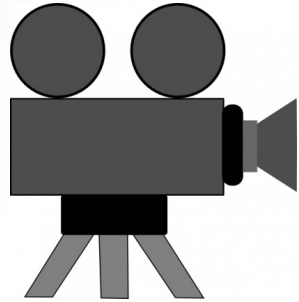
Motivation

- Fun
- Inexpensive
- Portable
- Volume Control

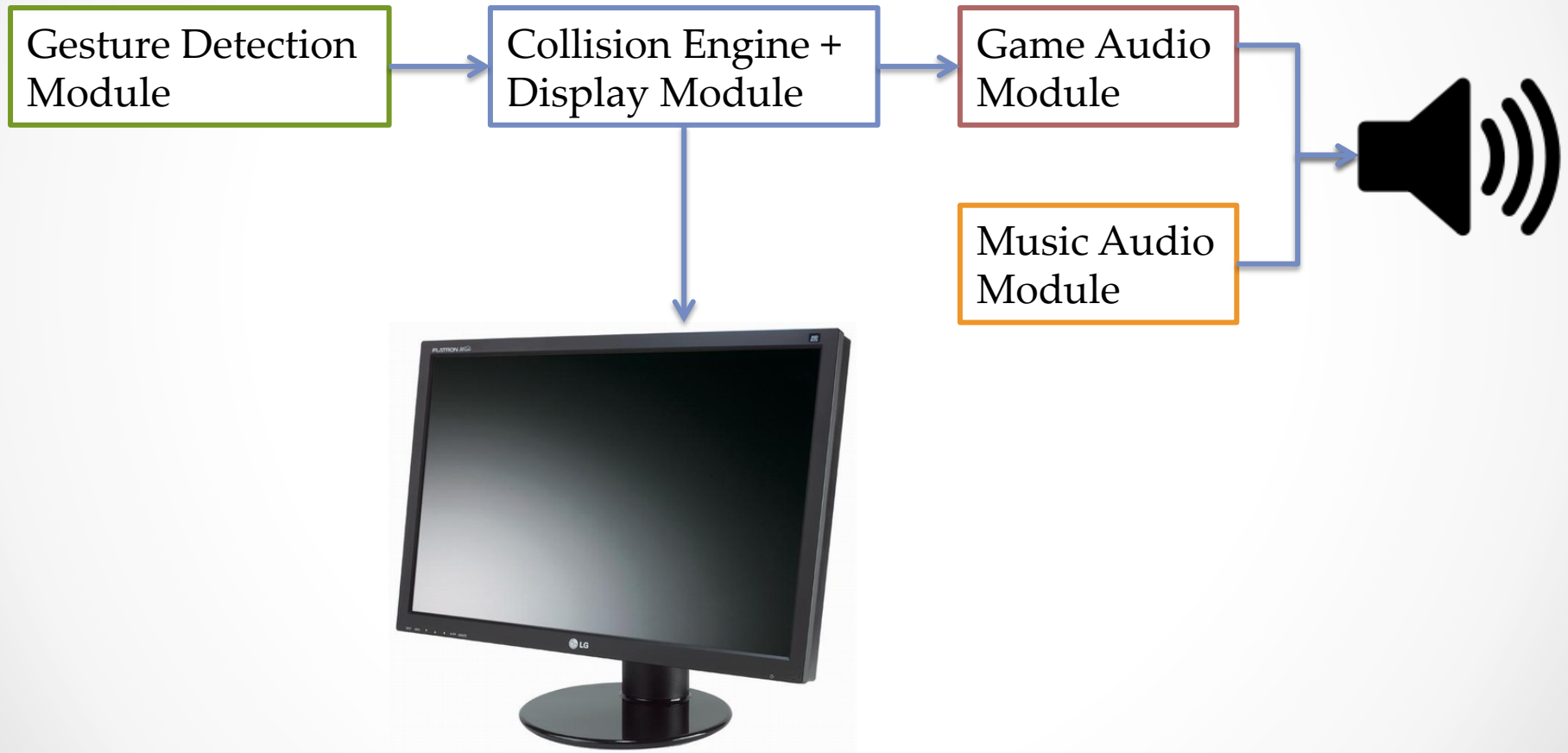


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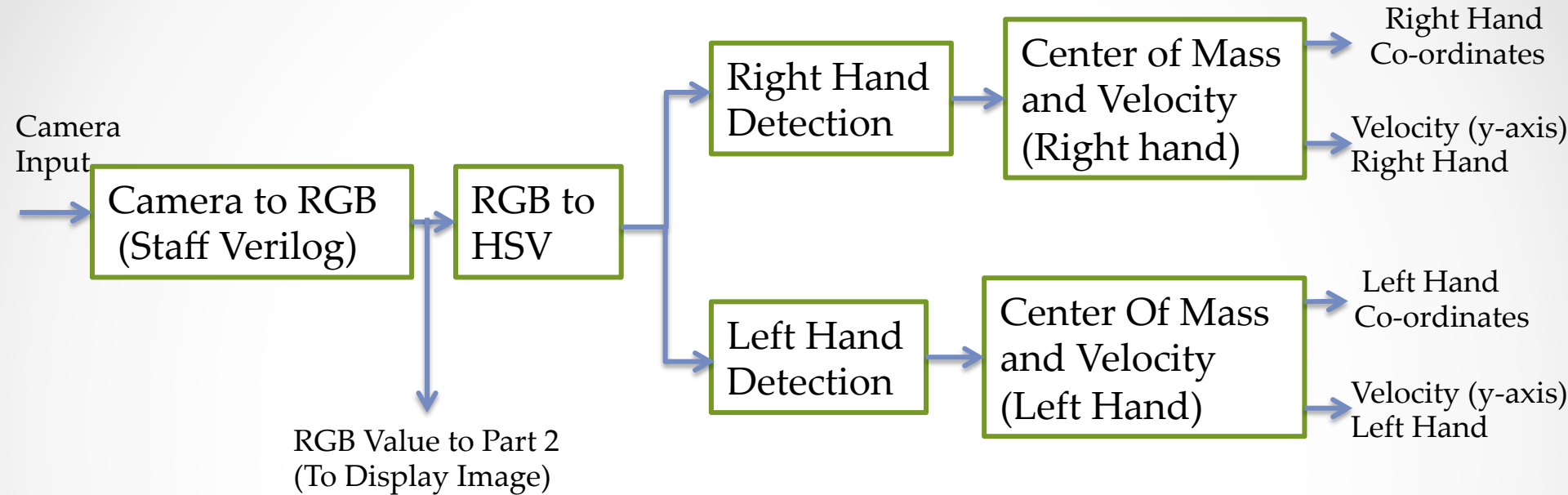
Overview



Overall Block Diagram

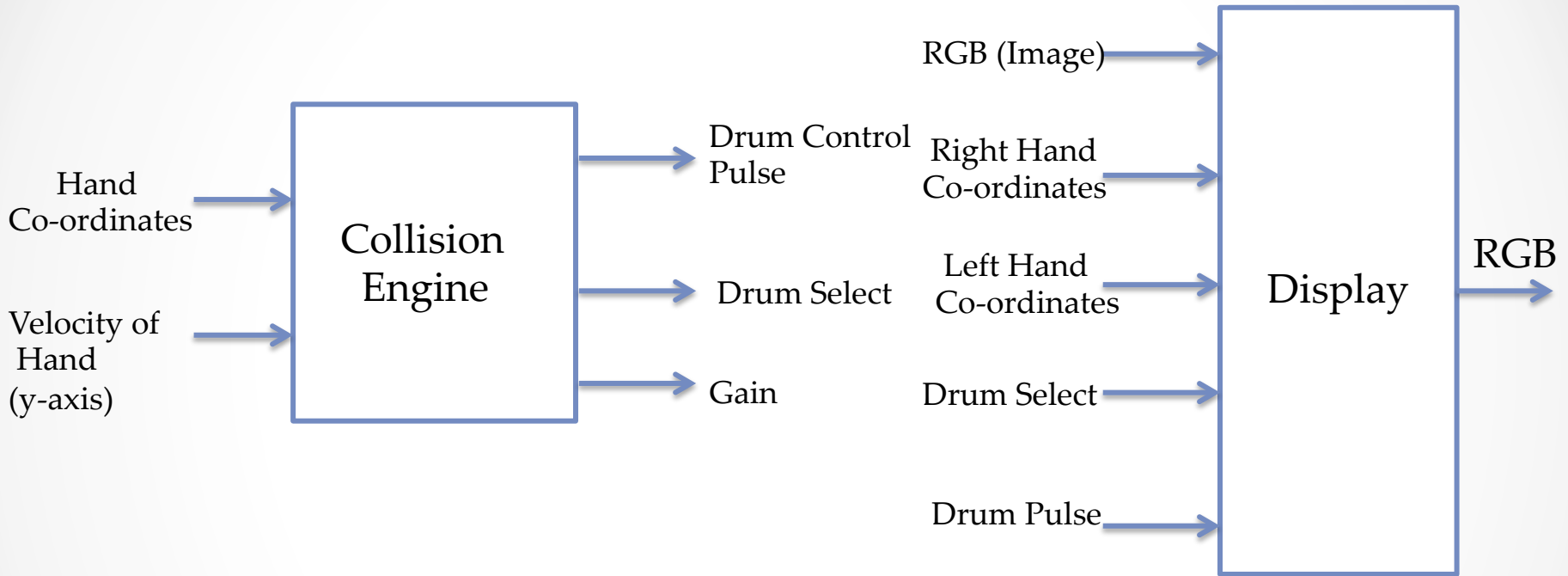


Gesture Detection Module



- 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

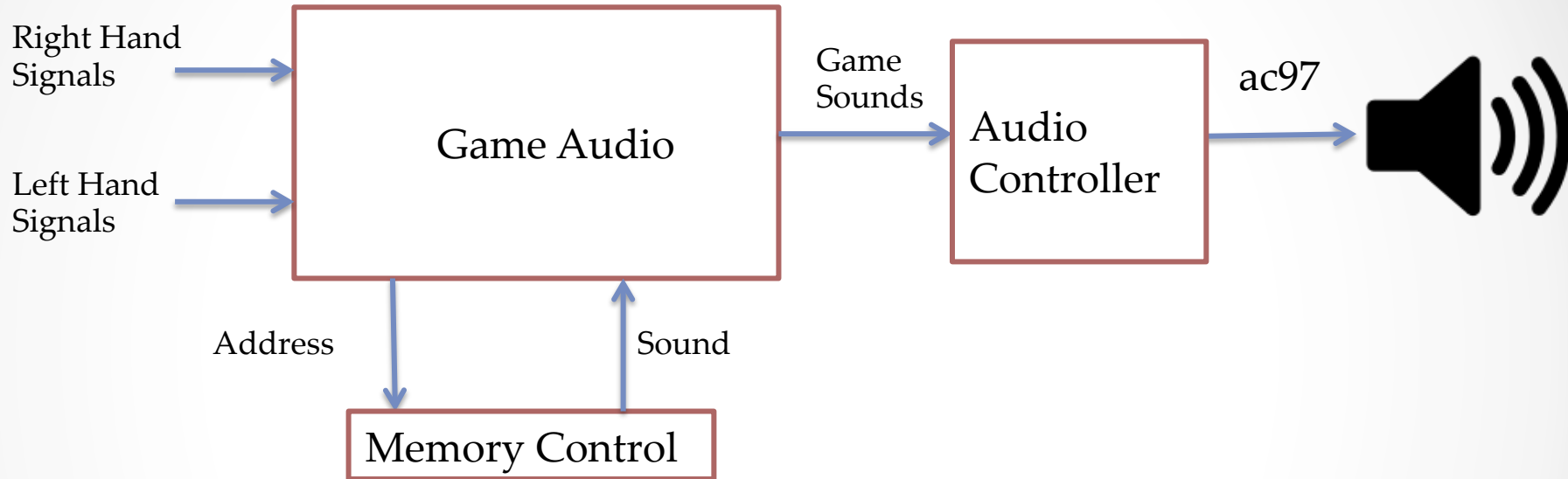


- Collision Engine is 3 state FSM
- Gain determines the Intensity of Hit
- Storing Images in ROM

VIRTUAL DRUM SET

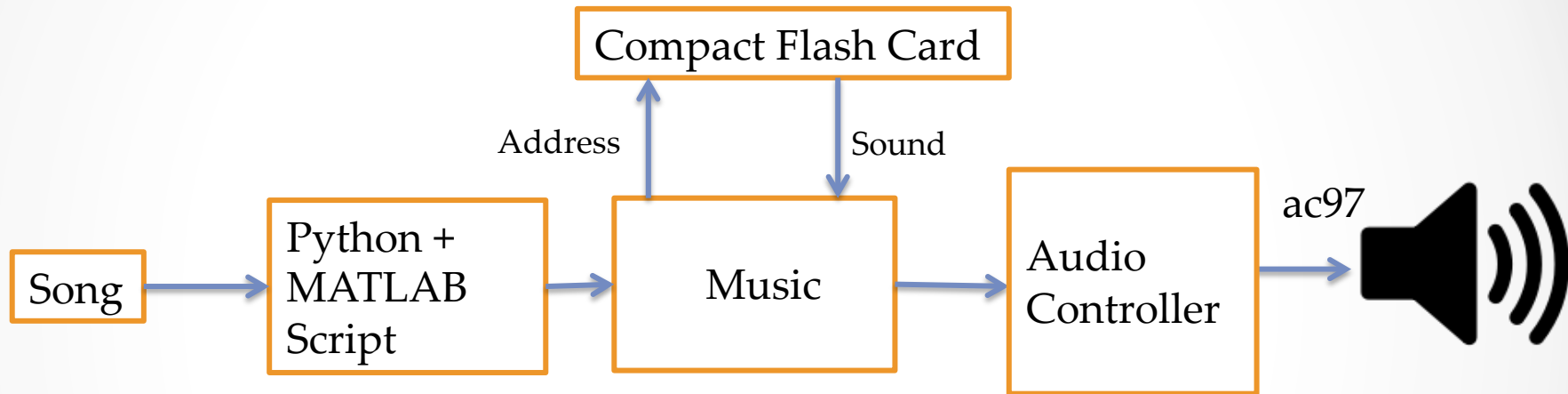


Game Audio Module



- Drum sounds in ROM or Flash
- Hand Signals include Gain, Drum select, Drum Control Pulse

Music Audio Module



- 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?