Virtual Pitch and Catch

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Virtual games are the future

http://en.wikipedia.org/wiki/Wii

- Baseball is one of the most popular games for kids and adults alike.

- Virtualizing a sport allows it to be played safely, indoors.

- The gaming industry is moving towards virtual, motion-capturing games. We want to do this with baseball.


http://commons.wikimedia.org/wiki/File:Xbox-360-Kinect-Standalone.png

Our Virtual Pitch and Catch game will be implemented as follows

- Players "throw" a virtual ball. This motion is tracked in two ways: sensors on the glove and visual color tracking.

- The game is rendered on a monitor in lab, using the sprites shown above.

- The physics of the ball will be computed and displayed on the screen.

High Level Block Diagram
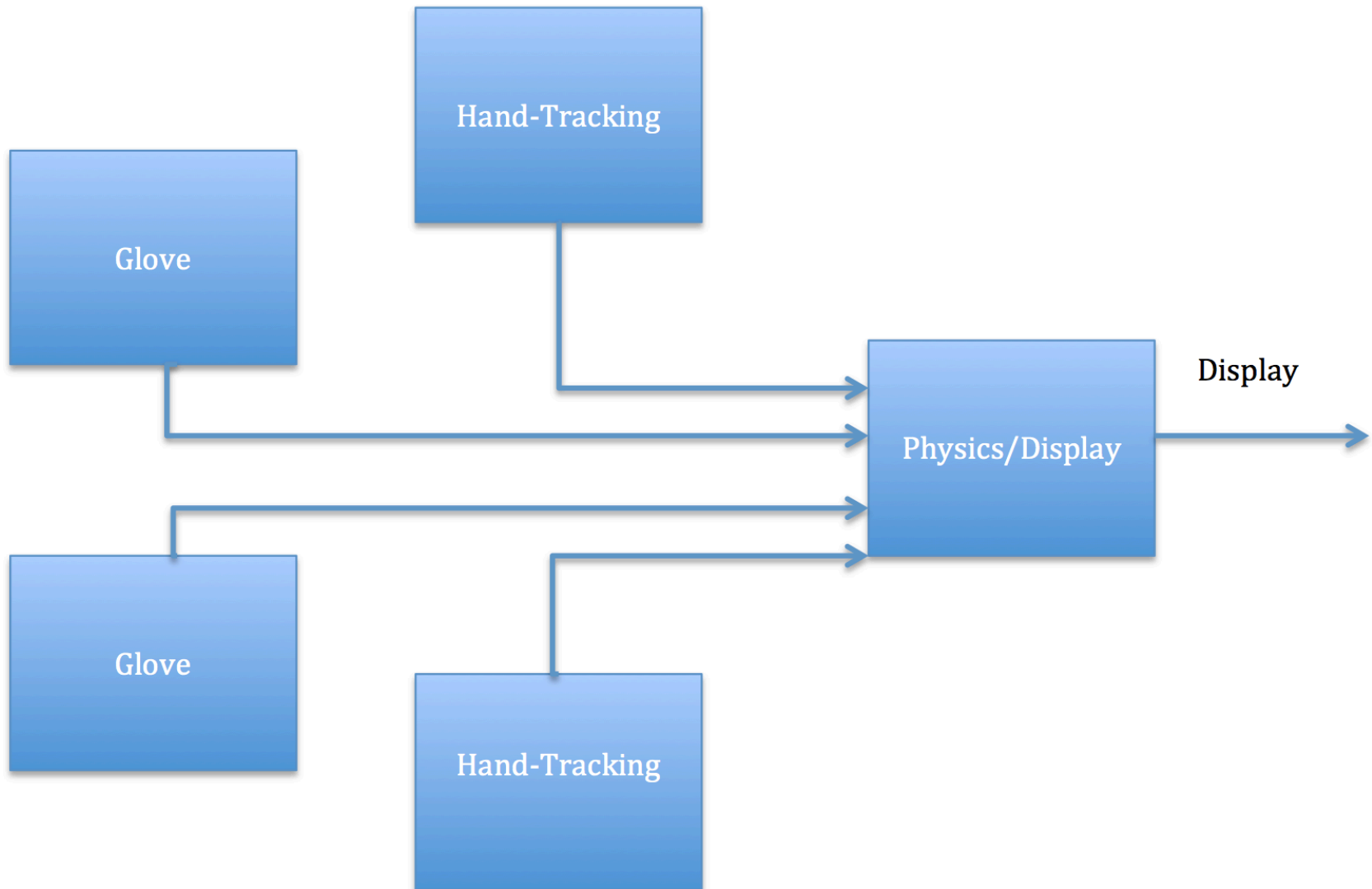
The "Smart Glove" is fitted with sensors to track the user's actions.

https://www.sparkfun.com/products/10264
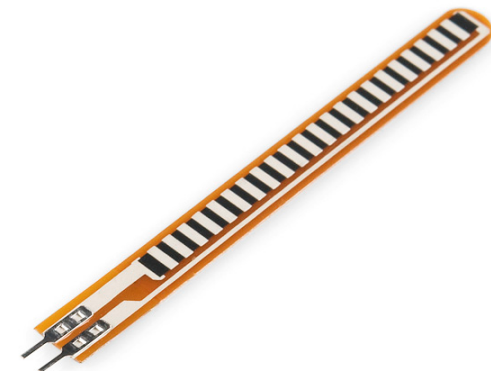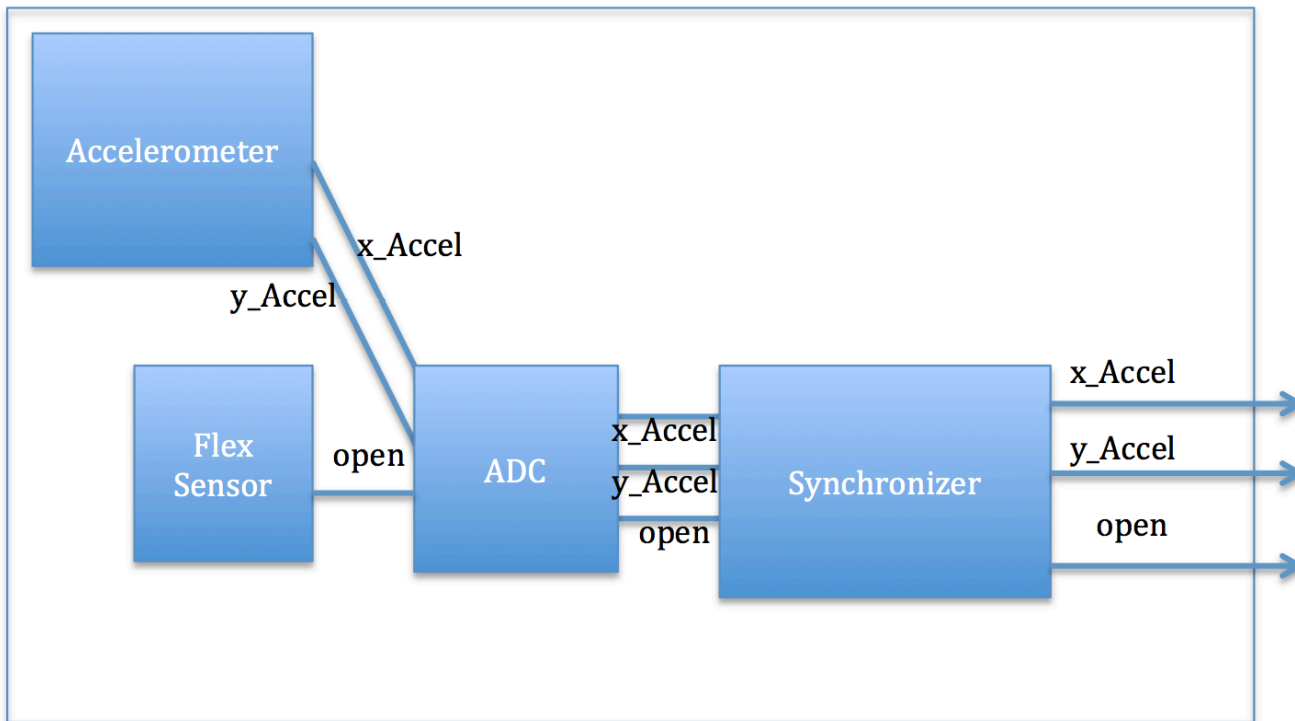
The hand-tracking module will find pixels within an acceptable color range.

- Input will be in terms of hcount, vcount, hsv.

- Will define an acceptable range in hsv as "real" orange.

- Once a contiguous region of acceptable pixels has been found we will add them to a buffer.

- Will average over the x-y location of all acceptable pixels to find center of glove.

- Output the x,y coordinates of center of glove.
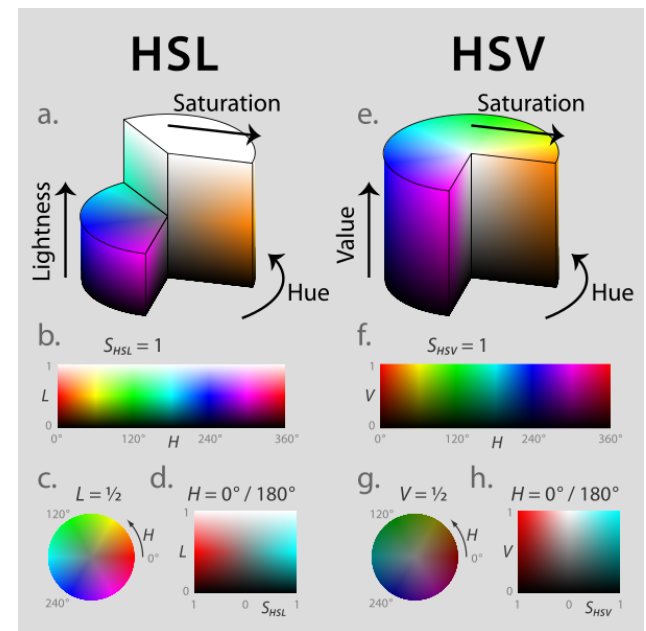
http://en.wikipedia.org/wiki/File:Hsl-hsv_models.svg

Input is processed by the Physics Module to obtain the game state.
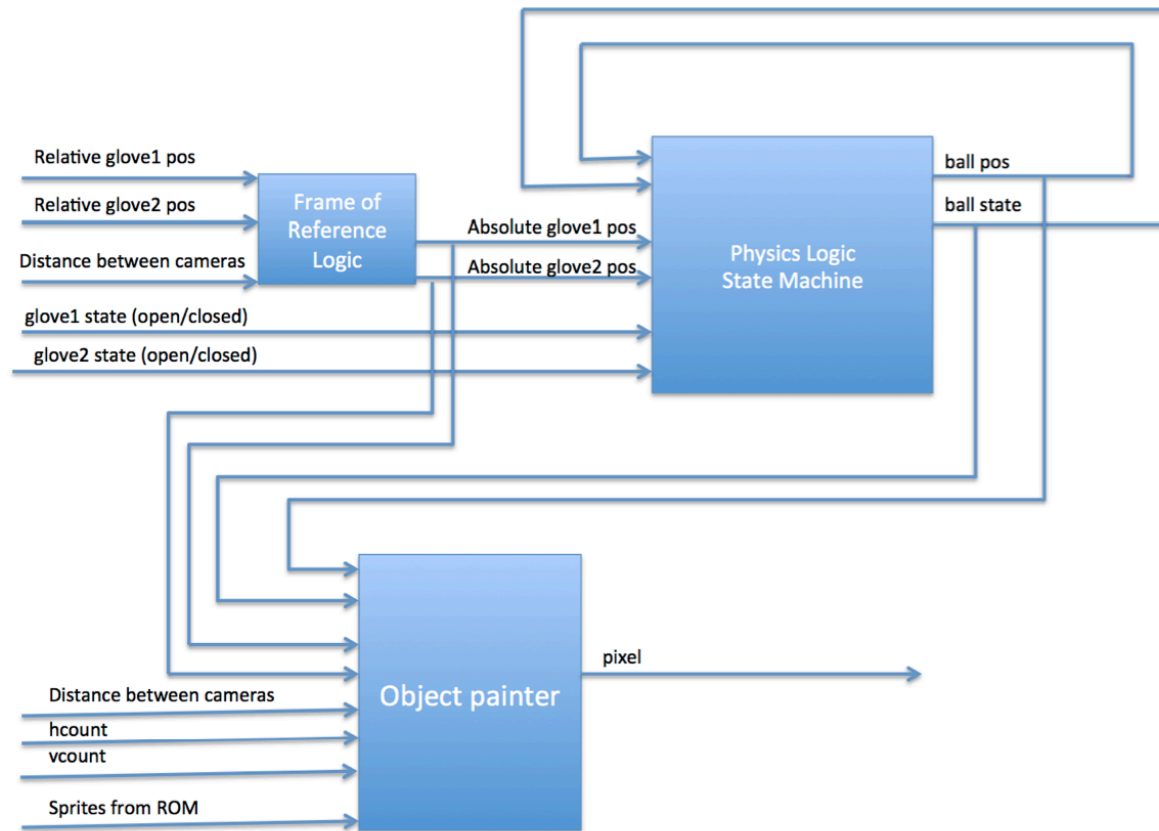
All modules will be tested individually then brought together for a system test.

- ◻ The glove module will be tested through oscilloscope measurements for the range of acceptable actions.

- ◻ The hand-tracking module will be tested first for static behavior then for dynamic behavior.

- ◻ The physics module will be tested by initial input velocities and button inputs.

Debugging

http://sourceforge.net/apps/mediawiki/grayeagle/index.php?title=Logic_Debugging

Our Timeline is aggressive

- 11/21 – Glove, Hand-tracking, Physics modules functional

- 11/28 – All modules tested and integrated, Sound functional

- 12/5 – Finishing touches, extra game modes