Scratch with LeapMotion

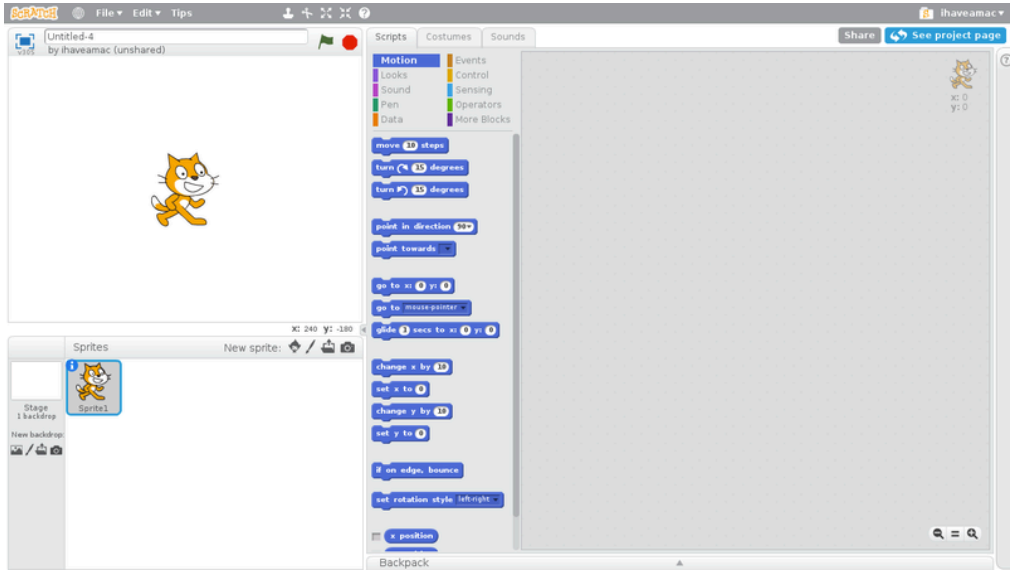
Inspired by Kreg Hanning's work
(@khanning88 / http://khanning.com/)

Leap Motion?

- A small USB peripheral device
- Observes a roughly hemispherical area
- Synthesize 3D position
- Perform tasks such as
  - navigating a website,
  - pinch-to-zoom gestures on maps,
  - high-precision drawing,
  - manipulating complex 3D data visualizations

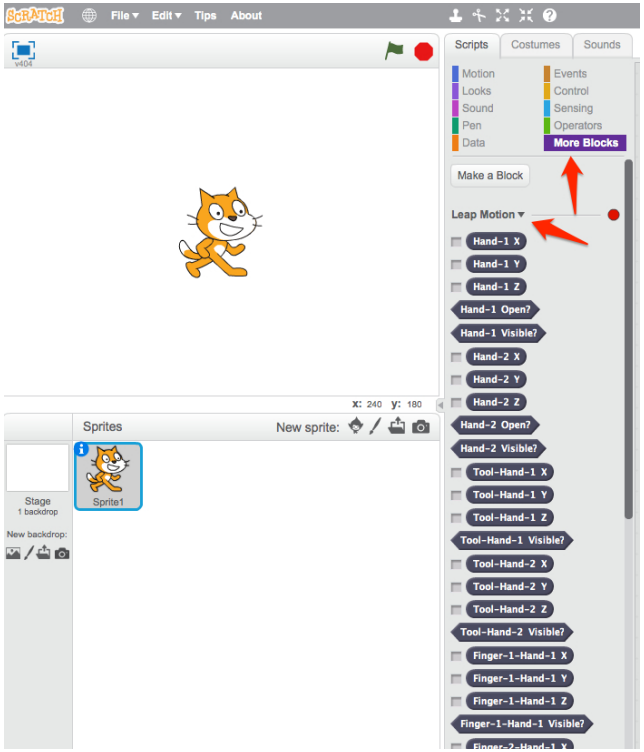
Scratch ?

- A multimedia authoring tool
- Event driven programming with multiple active objects
  - Events
    - Mouse
    - Keyboard
    - Webcam
    - Collision
    - Etc



LeapMotion and Scratch

- Use the Leap Motion Controller as a new set of sensors/blocks in Scratch
  - 2 hands
  - 10 fingers

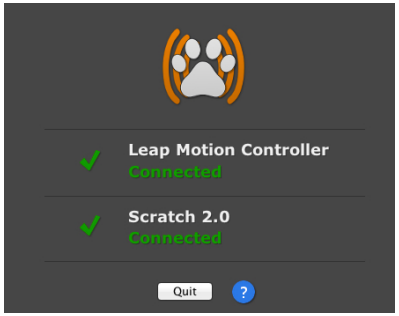


Installation

- Download and install the offline version of Scratch 2.0 (Adobe Air required) http://scratch.mit.edu/scratch2download/
- Install the LeapMotion Software
  - Download and install LeapMotion driver https://www.leapmotion.com/setup
  - In AirSpace (LeapMotion AppStore), install the Scratch 2.0 plug-in for LeapMotion and start it https://airspace.leapmotion.com/
  - Connect the LeapMotion controler to USB
  - Save the LeapMotion.jsp file (https://github.com/khanning/LeapScratch) in your computer

Scratch Project Prep.

1. Get the 'D4K-Scratch-LeapMotion.sb2' Scratch 2 project from our Website
   - http://www.devoxx4kids.org/materials/workshops/scratch/
2. Open the project in the Scratch 2.0 Offline Editor
3. The Scratch 2.0 plug-in for LeapMotion must show



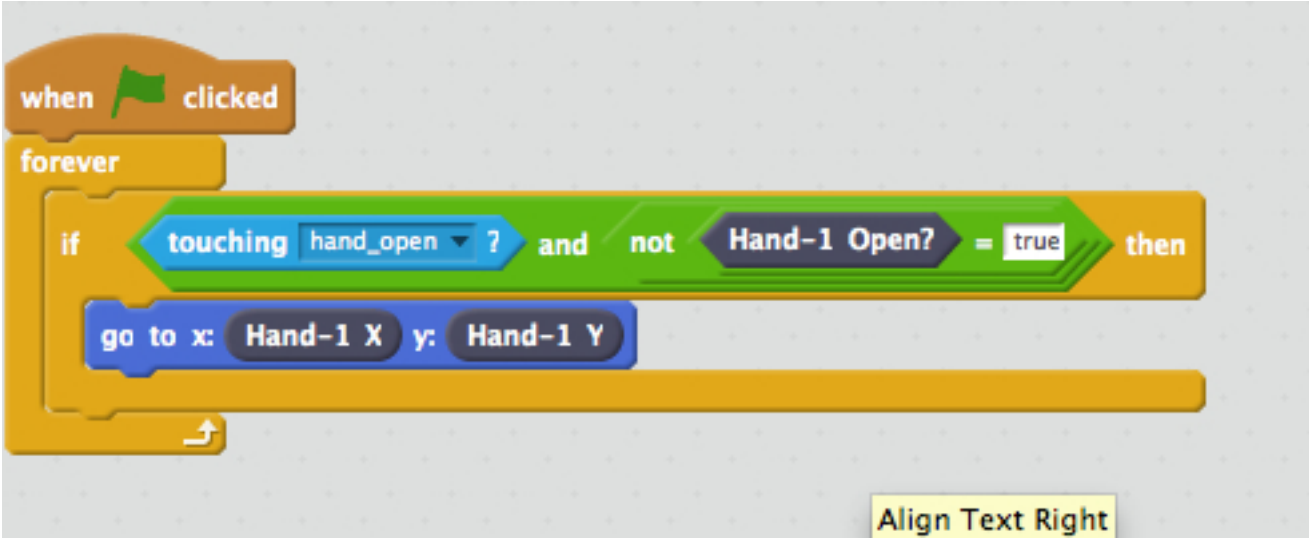
Note: if you want to start from an empty Scratch Project

1. Hold the Shift key on your keyboard and click on the File menu at the top of your project window
2. Click "Import Experimental Extension"
3. Choose the LeapMotion.json file

- Now you'll have access to the "Leap Motion" blocks under the "More Blocks" tab!
  - When you save your project the LeapMotion.json file is saved with it, so you only need to import it once.

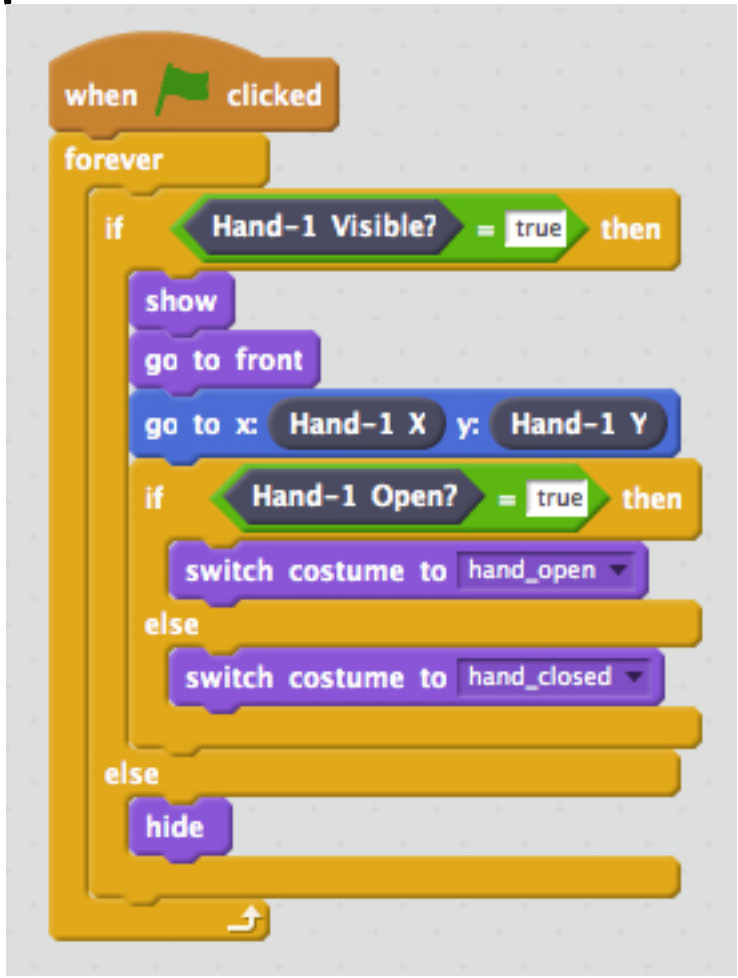
Scratch Grab Sample

- The 'D4K-Scratch-LeapMotion.sb2' project contains all necessary sprites images
  - Now Children need to program the Sprites
- Sprite 1 Script (the Scratch Cat)



Scratch Grab Sample

- Sprite 2 Script (the Hand)



Extend the project

- You can now grab the Scratch Cat with the hand.
  - Open/Close your hand above the LeapMotion (See the hand image change)
  - Grab the Cat by closing your hand when hand image over the Cat image.
- Next, children need to extend the project with additional features, such as
  - Creating a maze game (moving the cat through the maze)
  - See the other available Scratch exercises

Additional Samples

- Check other available Scratch 2 – Leap Motion projects here:
  - http://scratch.mit.edu/studios/236466/