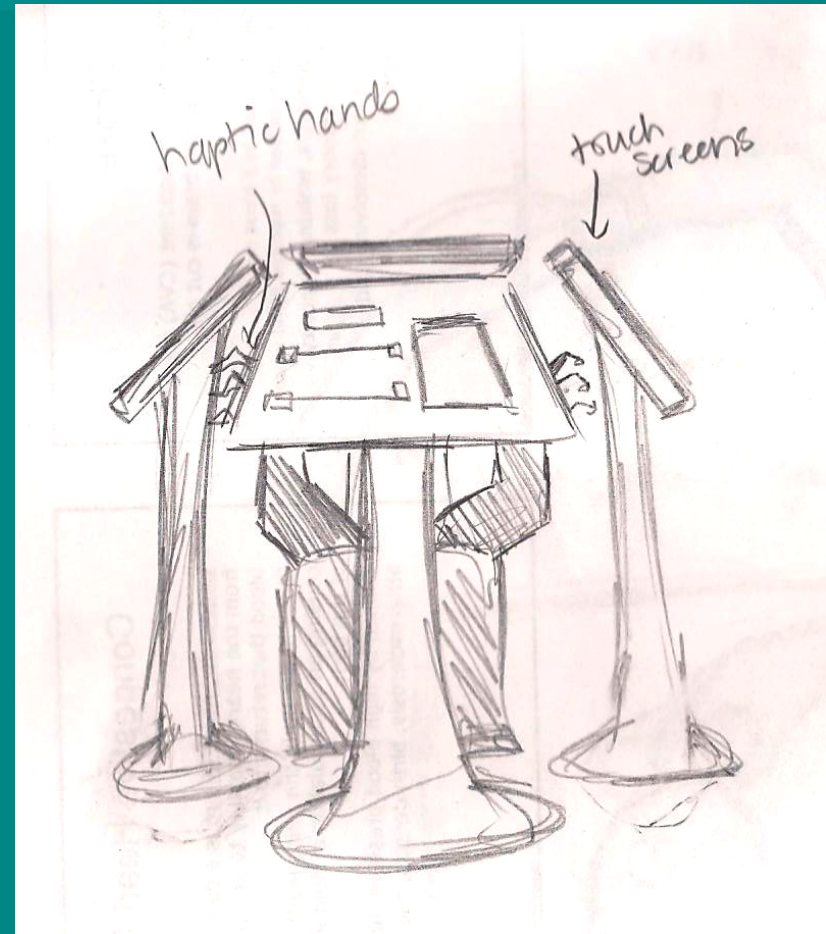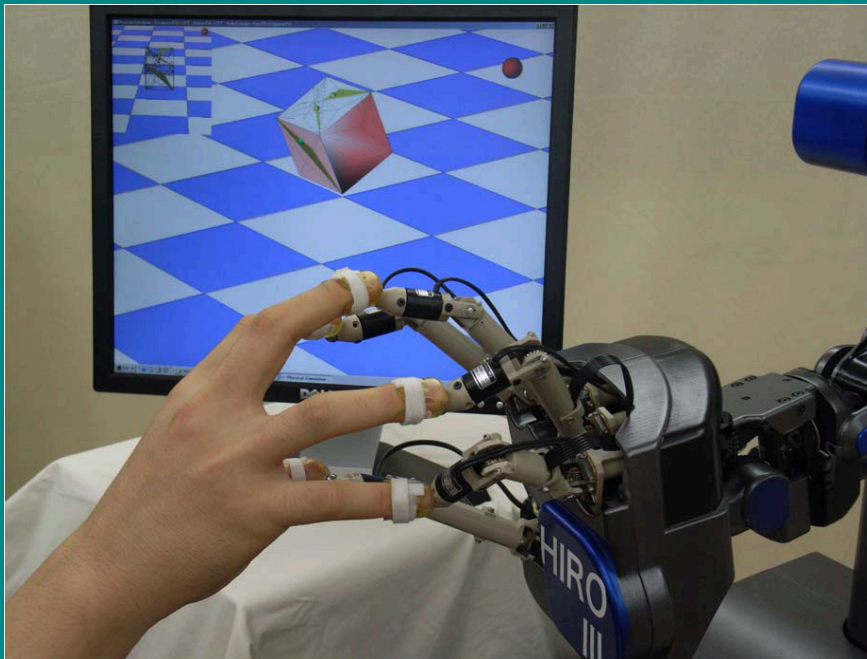# Expand The Vision

Brenna Osborn
Artst130

Abstract

- This project will be in a gallery setting
- Four touch screens arranged in a circle around the Haptic Robot Hands
- Images on some touch screens are projected on the walls
- Visitors will create their own monsters on the touch screen and then interact with them tactilely
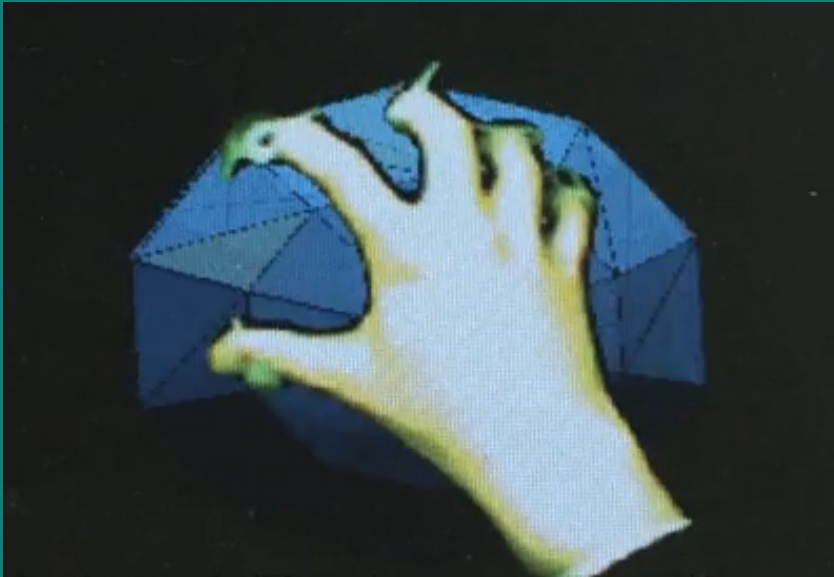 - Using haptic technology, you can touch the 3D pet and feel its texture

Haptic Robots

- HIRO III
- Uses a robot hand that controls how far your hand travels
- Applies resistance when you come into contact with something on the 3D interface
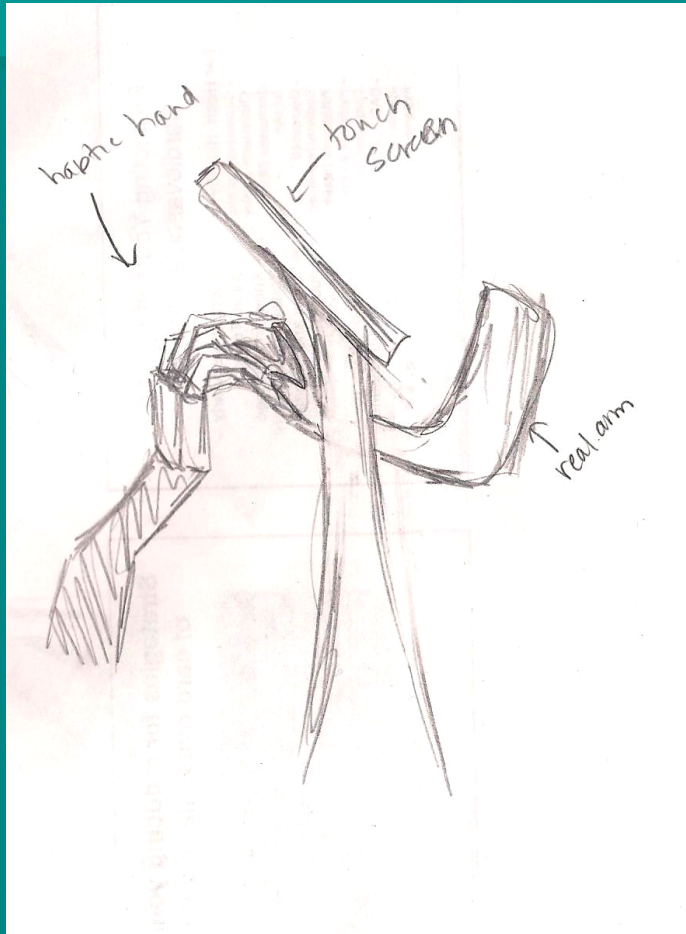
Haptic Robots

- HIRO III also uses a 3D interface that allows the viewer to see what they are touching
- Click here for video (http://www.youtube.com/watch?v=XxlYY0xo4gk&feature=player_embedded#!)

Haptic Robots

- Cybergrasp
- Applies the same concept of resistive force feedback to each finger
- Developed for the US Navy and telerobotic applications
- Click here for video (http:// www.cyberglovesystems. com/products/ cybergrasp/photos-video)

Implementation

- I will use the a robotic hand like the HIRO III to simulate grasping a 3D object – in this case a pet that the viewer has created
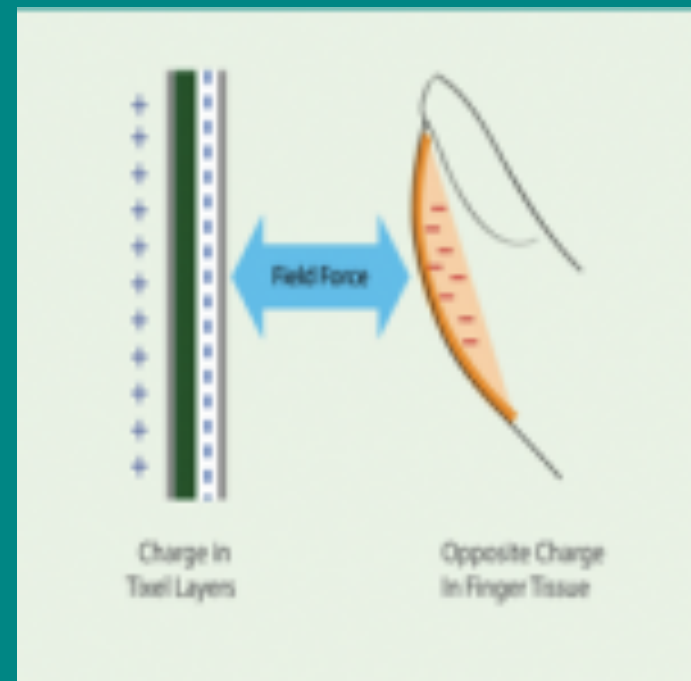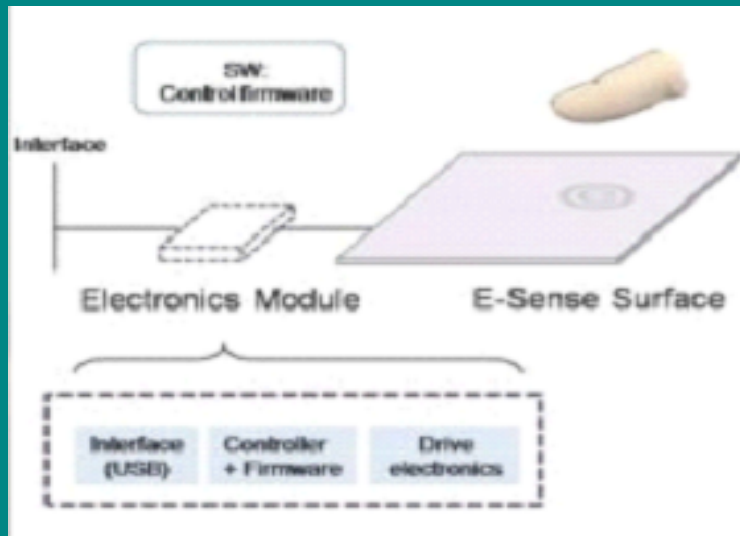
Tactile Touch Screens

- Senseg is one of the leading companies exploring tactile touch screens
- They are exploring how to make screens feel as if they have texture

Tactile Touch Screens

- Uses Columb Force or electrostatic force
- Electrostatic force is the attraction or repulsion of particles or objects because of their electric charge
- If you create a charge difference between two nonconductive objects, there will be a pull

Field Force

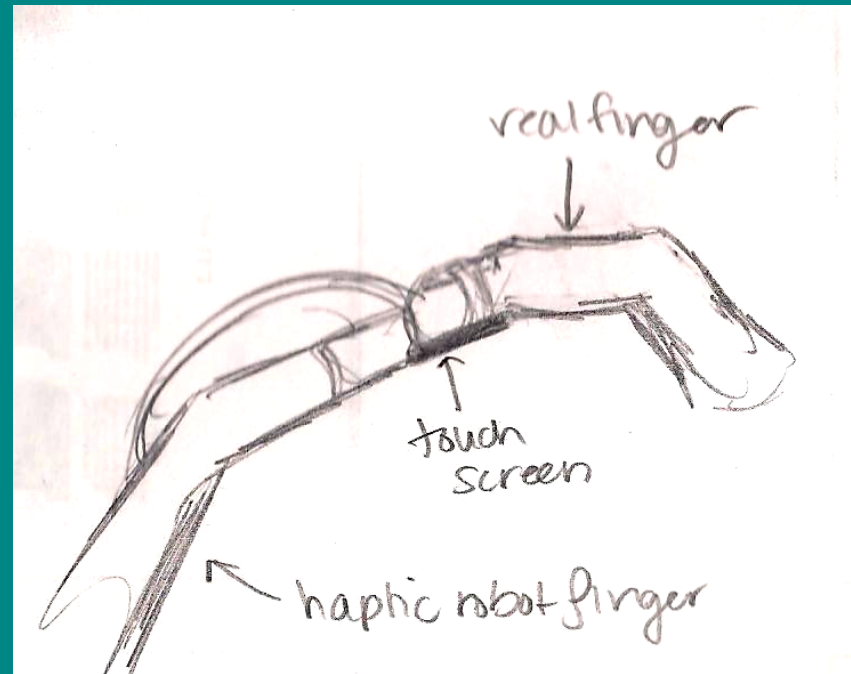Charge in Txel Layers   Opposite Charge in Finger Tissue

Tactile Touch Screens

- Tablets use this technology by creating high-voltage electric fields running in a grid under the surface
- This results in tixels which can individually controlled to create different electrostatic charges

Implementation

- By attaching small tactile touch screens to the fingertips of the haptic robot, electrostatic charges can reach the fingers and simulate different textures
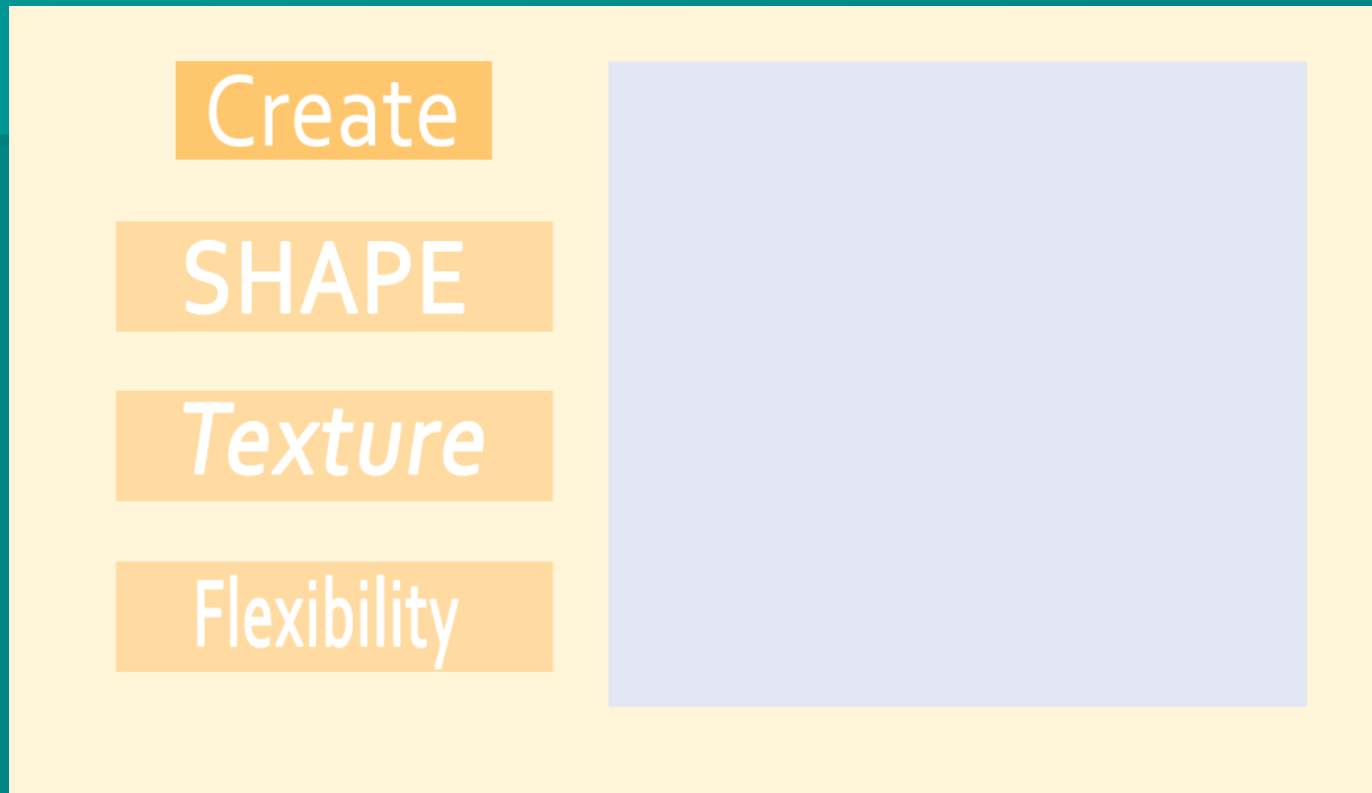
Software

- I will create a touch screen interface that allows people to create their own monster based on certain criteria
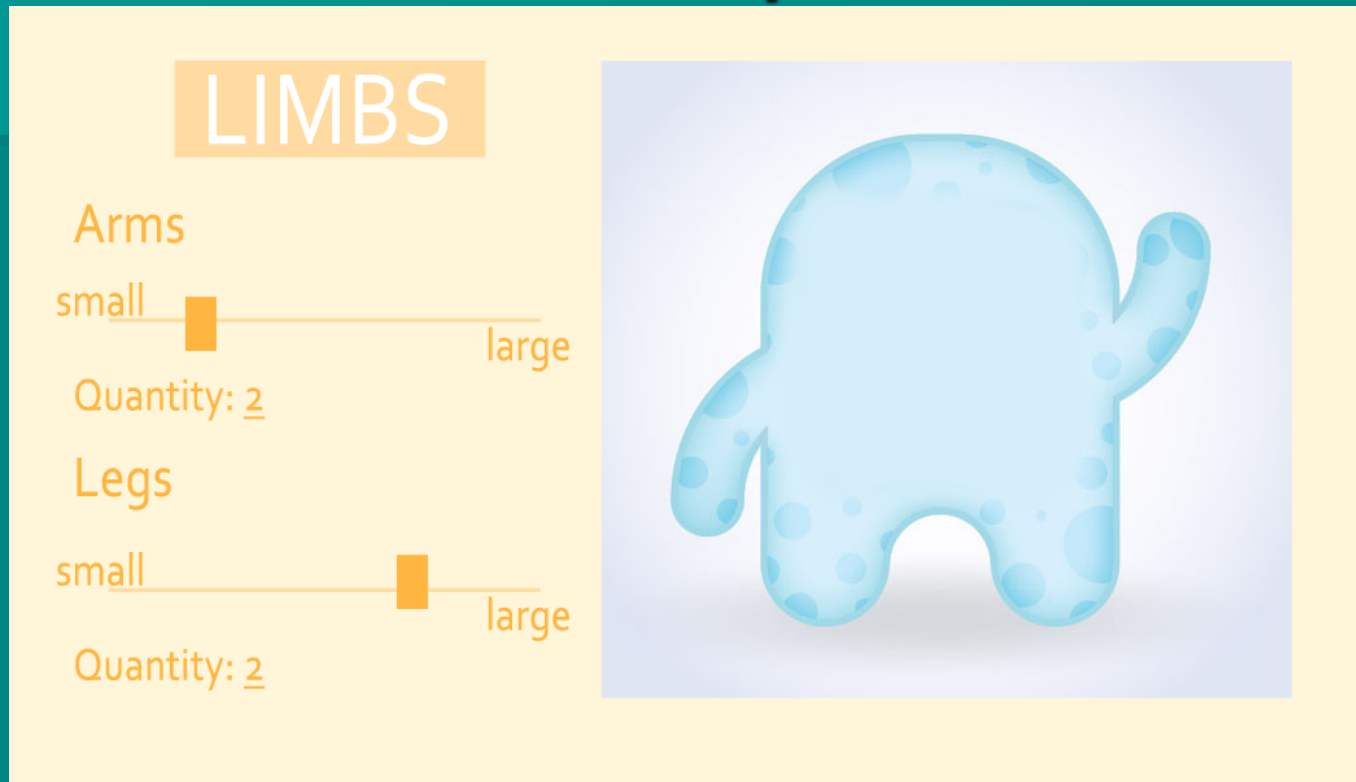- Much like the Sims or other role playing games

Software

Create

SHAPE

Texture

Flexibility

- The interface will be basic, with choices of changing Shape, Texture and Flexibility

Shape

LIMBS

Arms

small ▮————————————— large

Quantity: 2

Legs

small —————▮————— large

Quantity: 2

■ The Shape will be determined by factors such as Body type, Limbs, Head, and Facial features
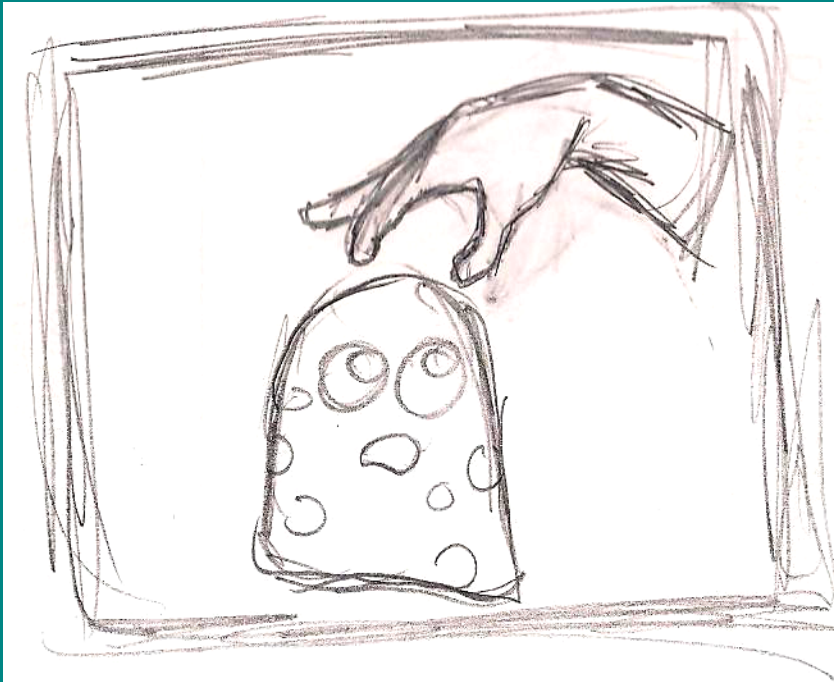
Texture

- The texture will be pulled from a texture library and applied to the individual pet
- The texture can range from anything from fabrics to scales to fur

Flexibility

- This will determine whether your pet is soft and squishy or hard and inflexible

Interactivity

- The user will be able to interact with their pet by picking them up, turning them around, or simply petting them
- The pet will have basic emotional responses to each

Interactivity

- In addition to interacting with your own pets, the way that the four touchscreens are set up allows for other pets that have been made to travel the virtual space in between to different touch screens
- So others in the room can interact with other created pets

Conclusion

- So through this artwork I will explore the extent of artificial life and how extending it to touch creates an even greater sense of reality

- Being able to actually feel virtual life through the use of tactile screens and haptic robots will create a new experience

- Users will be able to interact with others as well as their own pets by extending their touch in the virtual world

Sources

- http://timenerdworld.files.wordpress.com/2012/03/senseg.jpg?w=600&h=400&crop=1
- http://senseg.com/technology/senseg-technology
- http://www.guardian.co.uk/technology/2012/mar/07/ipad-3-touch-senseg-haptic?newsfeed=true
- http://www.switched.com/2010/06/30/in-hiro-iii-researchers-see-scientific-breakthrough-we-see-fee/
- http://www.cyberglovesystems.com/products/cybergrasp/overview