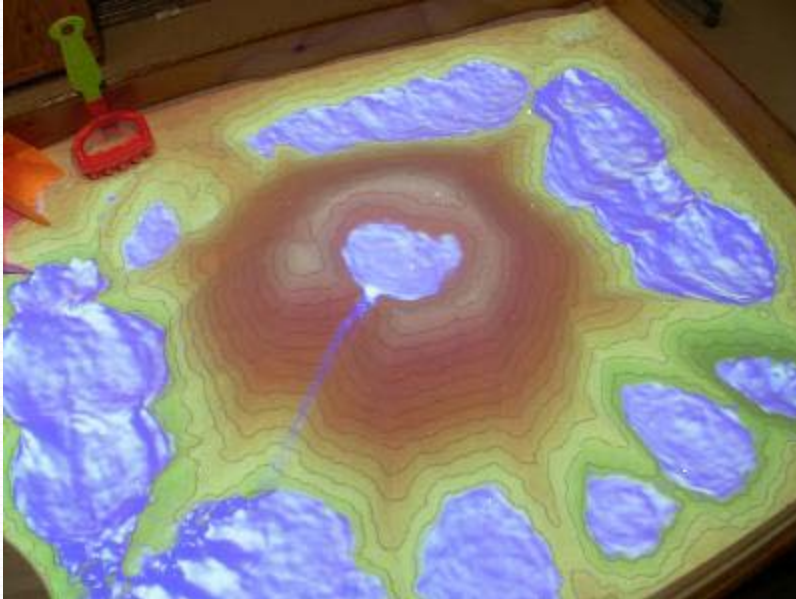


Building a Virtual Sandbox

- Chad Lucht
- Tommy Springer



What is needed?

Materials

• Sand	\$135.86
• Computer	\$1,240.00
• Short Throw Projector	\$485.99
• X-box 360 Camera (Kinect)	\$166.34
• Box (raw materials)	\$96.63
• Brackets (raw materials)	<u>\$25.65</u>
Total	\$2,150.47

Labor

• Staff (assembly, calibration, etc)	≈ 40 hours
• Welder (bracket fabrication)	≈ 5 hours

Sand

- 200 pounds
- Sandtastik Sparkling White Play Sand (silica free)
- Very Reflective
- 50 lb ~ \$40

Other Sand Option

- Kinetic Sand
- Brown/Tan Color
- 10 lb ~ \$50

Computer

- Tower Case
- Linux Operating System (free software)
- High End Video Card – 970 graphic card
- 750 Watt Power Supply
- 8 GB RAM (minimum)
- i7 processor
- **2.0 USB port** (most important!)



Linux download

<http://www.ubuntu.com/download/desktop>

Projector

- Short Throw Projector
- Ben Q MX631ST



Camera

- X-Box 360
- Model 1414
- AC Power Supply Adapter



Sandbox

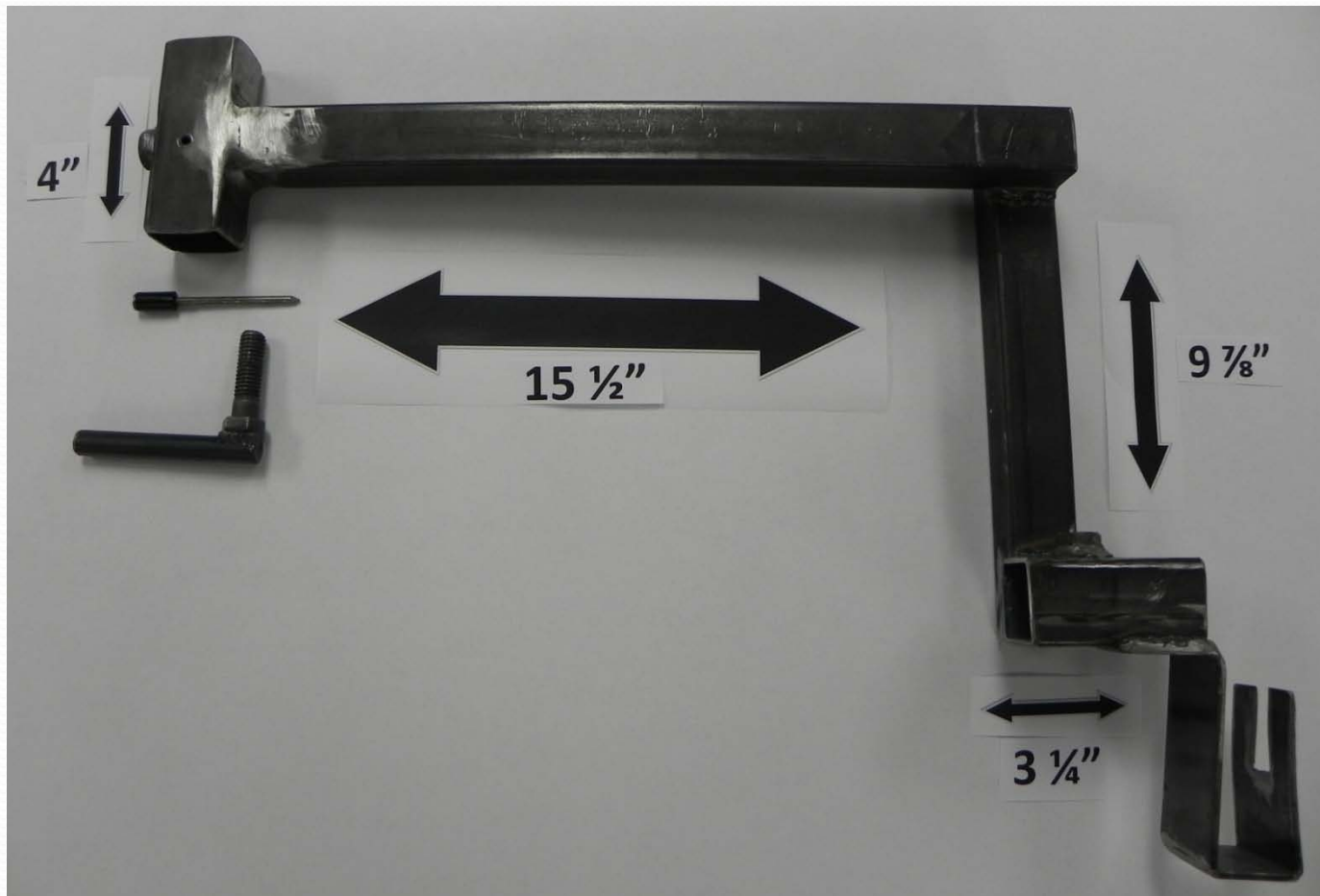
- (2) 43” – 2x6
- (2) 30” – 2x6
- 33” x 43” 1/2” plywood
- (8) Screws
- (4) Chest Handles
- (4) 6 inch bolts w/ washers



Brackets

- Sandbox Bracket
- Camera Bracket
- Projector Bracket
- Support Bracket

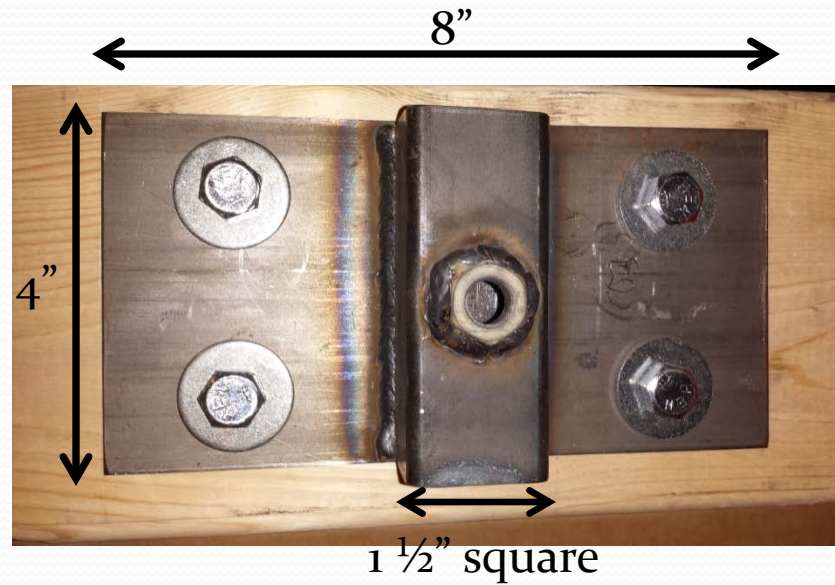
Camera Bracket



Projector Bracket



Sandbox Bracket



Support Bracket



Free software & download

Website:

<http://idav.ucdavis.edu/~okreylos/ResDev/SARndbox/>

Google Search:

virtual sandbox or ar sandbox

Select “Augmented Reality Sandbox – UC Davis”

Installation/Calibration

YouTube!!

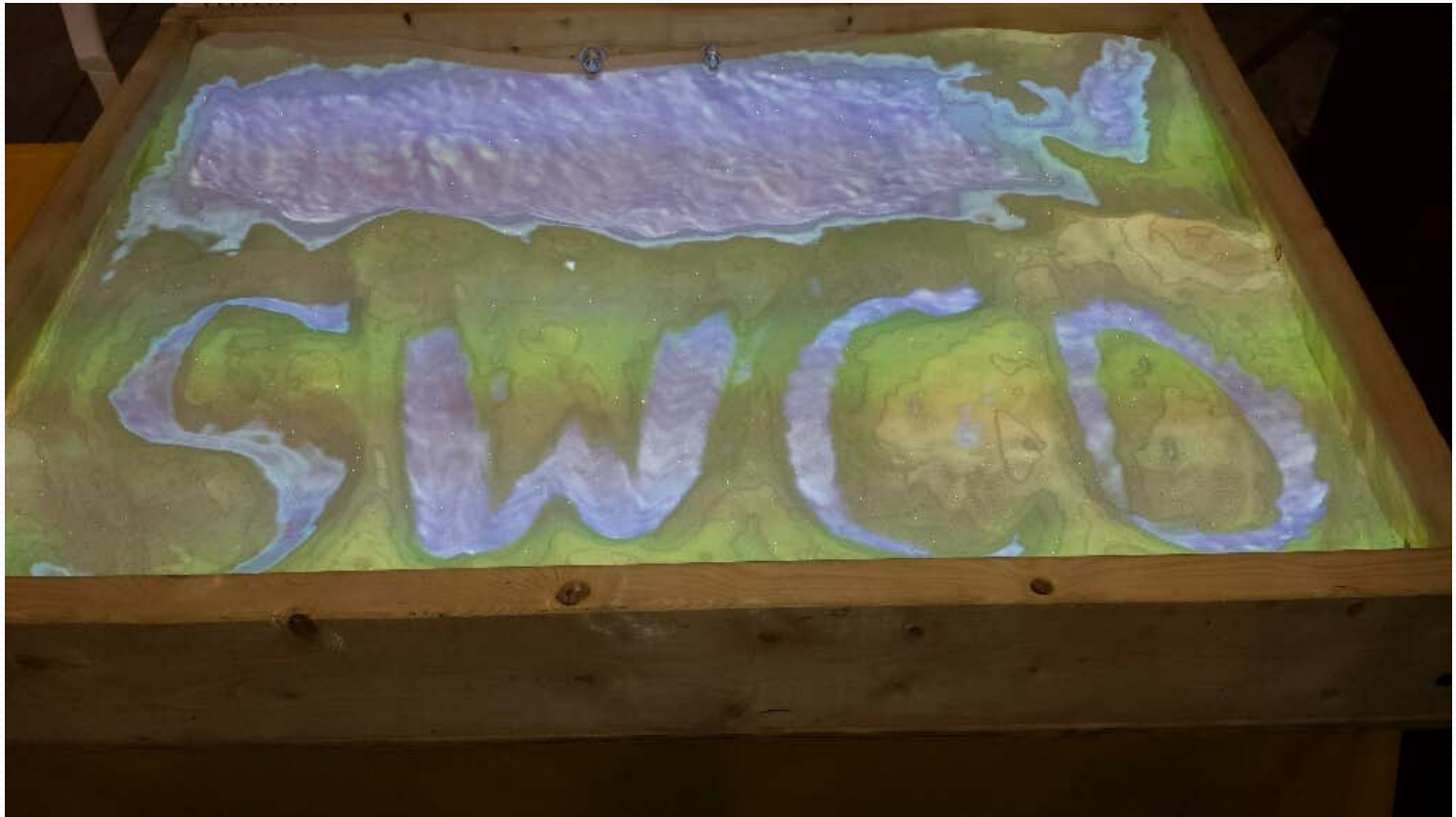
- Install Linux Mint – completed by computer builder
- UC Davis website – links to calibration tutorials
- Watch video on separate computer – pause/rewind
- Cut and paste all the program lines

Dual Projector Setup (Optional)

- Second projector transfers sandbox image to separate screen
- Hands/objects do not show up on projected image, only topographic features
- Great for larger audiences
 - allows those not immediately around sandbox to see what is taking place



Questions? 740-653-8154



This PowerPoint presentation can be found at:
<http://www.fairfieldswcd.org/Education.htm>