Integration Tools For Interactive Teaching

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Outline

1 Introduction
   - In the beginning ...

2 Hardware

3 Software

4 Demonstration
MOOC: Massive Open Online Course

Learn to Program: The Fundamentals with Jen and Paul
– dealing with 20 - 30 hour additional hour work week

https://www.coursera.org/course/course/programming1
Profs in Action!
Challenges

1. The time required to get information into a presentable form is excessive.

2. Creating content in the studio is location limiting and doesn't allow freedom.

General Goals Identified

Create lessons and presentations quickly using existing material and integrating these diverse sources without the need of a dedicated space but in the comfort of one's office or home, lecture room, TA space etc, returning to the studio for final production integration.

Capture content through interactive spaces to create a library of re-usable, relevant material to expand the richness of the lessons and future lessons.

Create familiarity with interactive technology to allow new and richer teaching experiences.
How do I work quickly with such diverse content?

How do I work in diverse spaces to capture content as it is being created?

What tools are available that could assist?

How can I get technology to help me rather than hinder or commit me to one specific mode of working?

What is out there and available for me to choose from to fit my needs and style...
"A by any other name would smell as sweet"

Adapting computer interaction.....
Outline

1 Introduction

2 Hardware
   - Infrared Scan and Resistive Touch Boards
   - Handheld tablets and pens
   - Infrared/magnetic Sensor units
   - Integrated Projectors
   - Body Movement Sensors and new developments

3 Software

4 Demonstration
Touch Boards and Screens:

Infrared tracking or resistive grid tracking

Touch Screen  vs  Touch Whiteboard
- Smartboard (company)
- Microsoft Surface (1st Generation)
SMART TECH Smartboard

Crisper visuals.
More engaging meetings.
Better results.

The new SMART Board 885i2 interactive whiteboard system

From US Government Pricing sheet (Pennsylvania)

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Microsoft Surface

A "treasured" unit from DGP Computer Science - ask John about replacing the hard drive....

Other Examples.....

Samsung SyncMaster 650TS-Z 65" LCD Touchscreen Monitor - 16:9
- Brightness: 500 cd/m2
- Contrast Ratio: 6000:1
- D-Sub: 1
- DVI: 1
- Model #: LH65TCGMBZA
- Item #: ND2E1882401723CVF
- Return Policy: Monitor Replacement Only Return Policy

$7,527.99
$64.99 Shipping

Elo 5500L 55" LED LCD Touchscreen Monitor - 16:9 - 6.50 ms
- Recommended Resolution: 1920 x 1080
- Brightness: 405 cd/m2
- Contrast Ratio: 4000:1
- Response Time: 6.5ms
- Model #: E901542
- Item #: N92E1882463870CVF
- Return Policy: Limited Replacement Only Return Policy

$4,424.99
$59.32 Shipping
Handheld tablets and pens

- Presentor (Handheld) Mouse
- Wacom Tablet
- Iris Notes
- iPad/Android mouse software
- Aver Teacher Pen
Many many many wireless presenters mice and touchpad mini keyboards.....
Many many many wireless presenters mice and touchpad mini keyboards.....
Wacom tablets (no display)

Cintiq

The Cintiq family of interactive pen displays combines the advantages of an LCD monitor with the natural feel and superior performance of Wacom’s patented, professional pen technology. When working on a Cintiq, you’ll gain all the benefits of working digitally in a creative experience that replicates traditional media.

Intuos

Intuos5 delivers a revolutionary new pen tablet experience, combining our finest pen capabilities with an intuitive multi-touch surface and new productivity features. It’s the ideal choice for professionals and anyone with a serious creative passion in photography, art, or design.

Wacom tablets (with display)

DTUs

Wacom’s line of interactive pen displays for specialty industries provide high-performance solutions for individuals seeking to improve the level of detail, accuracy and efficiency in their work.

more info »

STUs

Wacom’s line of signature solutions is designed to capture an electronic signature, replacing the need for a signature on paper.

more info »

Bamboo

Our Bamboo™ family of tablets offers a whole new way to work on your computer, with great options for activities like photography, art and sketching, digital linking, and general navigation using multi-touch gestures.

more info »
Wacom products with an idea of pricing
IrisNotes Executive 2 Digital Pen

The initial advantage over the Digimemo (see Digital Pens for Distance Learning 1) is immediately obvious, in that there is no large heavy board to carry around, only a small receiver 72mm x 32mm x 15mm and the pen itself.

... Your notes are perfect:
You can save them in ‘notes’ format as they are, or export them to Word or as a jpg (picture) format. There is also an icon for sending direct as an email.
Comment - export options quite limited.

....You can edit / annotate the page on screen.
Comment 1 - OK if you have a tablet and you only want to use the electronic version.
Comment 2 - If you want to edit the original document and the ‘on screen’ copy at the same time it does not work. Why? Because the two are no longer synchronized (because of a change in dimensions and the position of the receiver).

....Live writing in the classroom?
Do you want to write notes that simultaneously appear on a screen or whiteboard for the students to see at the same time (and then maybe send to them afterwards)?
Comment: A bit of a problem here.
Bundled A+ Interactive software allows 6 student pens and a teacher pen to interact concurrently.
Mobile Mouse (Remote/Mouse/Trackpad) FREE
By R.P.A. Tech

Open iTunes to buy and download apps.

Description

Mobile Mouse instantly transforms your iPhone or iPod touch into a free in-air, wireless remote and mouse for your computer! Sit back and surf the web, browse your photo library or control your music player from the comfort of your couch. Mobile Mouse is an essential part of any home theater PC and a presenter's best friend.

Features (FREE Version):
- Trackpad mouse
- Application notifications
- Remote keyboard
- Modifier Keys
- On screen typing
- Password protection
- Foreign language keyboards
- Supports Bonjour or static IP
- Ability to hide keyboard (shake to hide/show)
- Scroll pad
- Left and Right mouse buttons
- Multitouch gestures (scroll & right-click)

There is also a PRO version which features:
- In-air mouse control
- Application switcher (works just like the dock in OS X)
- File Browser
- Advanced, programmable multitouch gestures, including all found in Lion

Free
Category: Utilities
Updated: Jan 24, 2013
Version: 2.7.2
Size: 9.9 MB
Seller: RPA Tech, Inc
© 2013 RPA Tech, Inc
Rated 4+

Requirements: Compatible with iPhone, iPod touch, and iPad. Requires iOS 4.3 or later.
Infrared/magnetic Sensor units

- Wii Board (Johnny Lee)
- vMarker
- Ebeam Edge / Engage
- Epson BrightLink SOLO
- Indesign Infrared Pen
- many related Chinese ”knockoff” products
http://johnnylee.net/projects/wii/

Minority Report with Wii

Low cost interactive whiteboard
What's a Vmarker™?

Using the Vmarker™ you transform your computer and projector into a interactive digital whiteboard. With use of an IR-pen you can interact with software programs on the whiteboard. A common example is drawing on the whiteboard....

With use of the Vmarker™ you are able to write with an IR pen on the whiteboard without actually writing with ink, thus virtual. Hence the name Vmarker™ (vmarker), a shortening of virtual marker.

Benefits of the Vmarker™...

- No software necessary to use the Vmarker™. Not even a driver. (the standard OS driver is used...)
- The computer recognises the Vmarker™ as a regular pointing device. So you only need a free USB-port.
- The calibration data is stored in the Vmarker™ itself, if you connect it to a different computer, you do not have to recalibrate.
- The Vmarker™ has its own processor and takes care of the necessary calculations.
- The IR-pens used with the Wiimote solution are compatible and can be used with the Vmarker™.
- With the special Vmarker IR-pen Touch™ even more functions are possible, like both left and right mouse button and scroll-functionality.
- Like the Wiimote, the Vmarker recognizes up to 4 IR dots, so multi-touch is supported.
Ebeam Edge – Editors Choice

Overall Rating

Product Summary

The Good: Easy to set up (less than 10 mins), Easy to use, Responsiveness, Portable, Retrofit current whiteboards. Sleek. Added value features like web sharing and Hdr: integration make this solution extremely powerful.

The Bad: Not well marketed and hard to find.

The Bottom Line: The best in overall features, quality and value.

eBeam Engage

Create a complete interactive multimedia environment with one simple product. eBeam Engage has a collection of multimedia and navigational tools to easily bring every subject to life.

Luidia’s Ebeam Edge Smartboard Review

Overview Hardware Software Documentation

One slim console is all you need

Welcome to the next generation of interactivity. With its built-in high fidelity JBL speakers and microphone, one-touch recording, intuitive scroll knob and interactive stylus, eBeam Engage quickly transforms your classroom into an interactive multimedia experience.

No more running back and forth between the computer sound system and other devices. Engage puts everything you need at arm’s length, keeping your lesson delivery seamless and fun.
Interactive learning made easy and affordable.

Get premium interactive whiteboard quality and functionality at a fraction of the price. The Epson BrightLink Solo is an interactive module that connects directly to your computer, via a USB cable, and works with new or existing projectors. No need to worry about which size interactive board you can afford. The BrightLink Solo gives you an interactive area as large as 96" (WXGA) and 102" (XGA), all for one low price. Now, it's easy to transform virtually any wall or whiteboard into an interactive learning area. With easy installation and setup, the Epson BrightLink Solo offers an affordable interactive solution that will help you engage your audience and bring interactivity to more students and classrooms than ever before.
Whiteboard software is unintuitive but useful, major driver issues for anything other than windows XP, complete lack of support. Lack of product quality and consistancy.

Model No.: P-2000, Ultra Short-focus

Another approach

infrared whiteboard (65 Products)

Multi Touch Panel Overlay frame 55" 85" Surface Light Wave touch scr...
Min. Order: 1 Piece/Pieces
FOB Price: US $ 119 - 380 / Piece

46" Multi Touch overlay for kiosk/plasma/computer
Min. Order: 1 Piece/Pieces
FOB Price: US $ 119 - 380 / Piece

With USB interface Multi touch screen touch panel touch frame Interact...
Min. Order: 1 Piece/Pieces
FOB Price: US $ 119 - 380 / Piece
Integrated Projectors

- Epson BrightLink
- Hitachi BZ 1
- BenQ Interactive
- Acer S5201M
Interactive Projectors

Epson has changed the game when it comes to instructional interactivity. Educators can easily make a table or wall interactive with the ultra-short throw BrightLink Interactive Projector. All BrightLink models include a 16 watt speaker and options for wireless networking and mounts. When installed on a wall, the projected image size can vary from 59" to 96" WXGA, allowing the ability to adjust the interactive area to fit the learning environment.

The BrightLink Solo module transforms most existing projectors into high-performance, interactive instructional tools.

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**BrightLink 475Wi Interactive Projector with Mount**
WXGA interactive projector

- 3x Brighter Colours with Epson
- Colour Brightness:
  2600 lumens
- White Brightness:
  2600 lumens
- Ultra-short throw
- Includes mount and 2 interactive module pens

**BrightLink 485Wi Interactive Projector with Mount**
WXGA interactive projector

- 3x Brighter Colours with Epson
- Colour Brightness:
  3100 lumens
- White Brightness:
  3100 lumens
- Ultra-short throw
- Includes mount and 2 interactive module pens

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Automatic Pen Calibration

LCD Engine - no DLP rainbow, consistent brightness

No loss of brightness in interactive mode

Good Educational Pricing
Epson's portable short throw interactive projector

Same basic features as the 485wi.

Can also be mounted with a wall mount.
From Projector Central review:

First Place: Epson BrightLink 485Wi (see review)

The Epson 485Wi comes in first in most categories, with the best video image quality, brightest interactive image, best audio system, and more. It even edges out the DLP projectors on interactive features, thanks to its automatic calibration and its ability to work with two pens at once. It comes in second to the Sony VPL-SW535C for data image quality, but it's a close second. Unless your budget is too tight, or you absolutely must have the VPL-SW535C's slightly better data image quality, or you need one of the interactive features that's built into TI's technology, the Epson 485Wi is a compelling choice.

http://www.projectorcentral.com/interactive_projector_shootout.htm

BenQ Interactive (USD price)

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<th>Model</th>
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<th>Lumens</th>
<th>Weight</th>
<th>Price</th>
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<td>BenQ MP780 ST</td>
<td>1280x800 (WXGA)</td>
<td>2,500 lumens</td>
<td>3.8 kg</td>
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<td>BenQ MP780 ST+</td>
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<td>3.9 kg</td>
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The Hitachi BZ-1 stands apart from the rest of ultra short throw interactive crowd in more ways than one. To begin with, most are DLP-based, while the BZ-1 is LCD-based. That's enough to make it of interest to anyone concerned that people in the audience may be sensitive to DLP rainbow artifacts.

http://www.projectorcentral.com/hitachi_bz1_interactive_projector_review.htm

Acer S5201M

Interactive Short Throw Projector

Jeff Janas, September 20, 2011
ProjectorCentral.com

The Acer S5201M is a new interactive short throw, DLP-based XGA projector rated at 3000 lumens. It provides refined image quality at a street price under $800. The short throw design easily fits a big picture into a small room, the S5201M can produce an image that is 1.6 times wide as the distance of the projector from the screen. The projector includes a full complement of features, including the Acer SmartPen and virtual whiteboard software, 3D capability, dual HDMI inputs and a 4,000 hour eco lamp life. The Acer S5210M makes it easy to engage the audience with a big and bright image, a short throw that provides minimal image interference and a unique software package that enables on-screen interaction between the audience and the presenter.

Best Application:
Body Movement Sensors and new developments

- Microsoft Kinect
- Asus Xtion
- radarTouch
- Thalmic Labs MYO
- Samsung Electronic CMOS Time of Flight sensor
Video of a preliminary whiteboard project using the kinect
Projects that are beginning to emerge to use the Kinect to work as an interactive whiteboard.
Published on Oct 1, 2012

“Nuvixa Inc’s StagePresence™ application enables a presenter to engage an online audience with compelling presentations that “fuse” the speaker, video and slides or desktop content with natural user interfaces; perfect for sales and marketing presentations, training and webinars, education or video-blogging. StagePresence utilizes both the video and depth-sensing technology of the Xtion PRO Live camera to create a virtual green-screen effect on any background, placing the user into their presentation or digital desktop content and recording and uploading the result online in as little as three mouse-clicks. Simple hand gestures easily drive the presentation, infusing it with the speaker’s personality and natural body language, for presentations viewable on any browser or mobile device.”

http://tinyurl.com/stagepresencereview
THE NEXT GENERATION
OF GESTURE CONTROL

WATCH THE VIDEO

25,000 units pre-ordered and counting

$149
Next batch shipping early 2014
Limited number available
Samsung Time of Flight Sensor

Additional info on ToF Sensors

http://www.youtube.com/watch?feature=player_detailpage&v=JkBh71zZKrM#t=3109s
Samsung Electronics Co Ltd developed what it claims is the world's first CMOS sensor that can obtain a range image and a normal RGB (red, green and blue) image at the same time.

The sensor was announced at ISSCC 2012, which took place from Feb 19 to 23, 2012, in the US (thesis number 22.7).

As a method of obtaining a range image, the sensor uses the ToF (time-of-flight) method, which is commonly used. In the past, Samsung Advanced Institute of Technology (SAIT) announced a technology to integrate pixels for obtaining range images (Z pixels) and RGB pixels on one image sensor. But, due to limitations related to near-infrared filter, etc, it cannot simultaneously obtain a range image and an RGB image in a strict sense. It is just an output in a time-sharing manner.

Range image sensors are drawing attention because of the success of Microsoft Corp's "Kinect" gesture-based controller. However, the Kinect is equipped with a range image sensor using the "structured light method." And an image sensor for RGB images is required in addition to the range image sensor. Also, with a stereo method, there need to be two cameras for a parallax.

With the new technology, a normal RGB image and a range image can be obtained at the same time by using a single image sensor, enabling to reduce the sizes of gesture-based controllers, etc. Also, the technology might make it easy to add a range image measurement function to digital cameras, camcorders, etc so that they can recognize gestures.
Outline

1. Introduction
2. Hardware
3. Software
   - Commercial software
   - Open Source software
4. Demonstration
Commercial products

- Epson Team Board
- Ebeam Home, Tool Palate, Scrapbook
- online/web apps
Epson's Team Board software bundled with the Projector

http://www.youtube.com/watch?v=tWz3UtQJWzI
EBeam Engage Software Demonstration

http://www.youtube.com/watch?v=bo727jh6bal
Echo360 Lecturetools

http://vimeo.com/38052642
Open Source products

- Wiimote Whiteboard
- Open-Sankore / myLiveNotes
Wiimote Whiteboard

http://www.youtube.com/watch?v=BSDxc2kFjms
Outline

1. Introduction
2. Hardware
3. Software
4. Demonstration

http://www.cs.toronto.edu/~alex/TKF/tkf3.mp4
Thanks!!!

Glenn from Epson Canada
http://www.epson.ca/cgi-bin/ceStore/jsp/BrighterFutures/Home.do

Andy from Genesis

Scott from Copernicus