

Integration Tools For Interactive Teaching

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May 10, 2013



Computer Science
UNIVERSITY OF TORONTO

Outline

- 1 Introduction
 - In the beginning ...
- 2 Hardware
- 3 Software
- 4 Demonstration



Outline

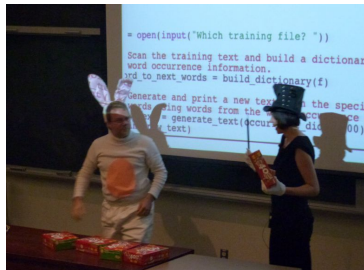
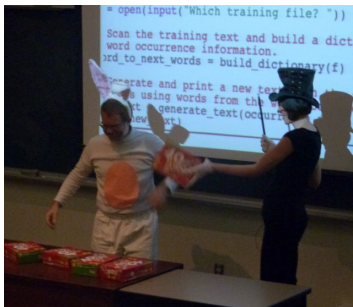
- 1 Introduction
- 2 Hardware
- 3 Software
- 4 Demonstration



- 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/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.

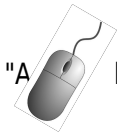
How do I work quickly with such diverse content?

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...



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

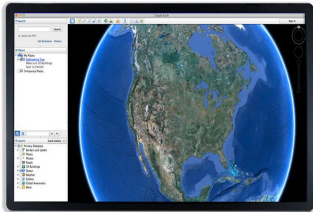


Touch Boards and Screens:

Infrared tracking or resistive grid tracking

Touch Screen vs Touch Whiteboard

PRESENTER 55 TOUCH WALL



Infrared Scan and Resistive Touch Boards

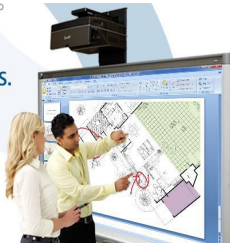
- Smartboard (company)
- Microsoft Surface (1st Generation)



SMART TECH Smartboard

Crisper visuals.
More engaging meetings.
Better results.

The new SMART Board 885ix2 interactive whiteboard system ▶



From US Government Pricing sheet ([Pennsylvania](#))

SB660	SB660	SMART Board 660	\$	1,263.00	each	SMART Technologies Corporation	SB660
SB680	SB680	SMART Board 680	\$	1,579.00	each	SMART Technologies Corporation	SB680
SBX880	SBX880	SMART Board X880	\$	2,369.00	each	SMART Technologies Corporation	SBX880
SB685	SB685	SMART Board 685	\$	2,053.00	each	SMART Technologies Corporation	SB685
SBX885	SBX885	SMART Board X885	\$	2,764.00	each	SMART Technologies Corporation	SBX885
SB690	SB690	SMART Board 690	\$	2,369.00	each	SMART Technologies Corporation	SB690
SB660i4	SB660i4	SMART Board 660 with UF65 projector	\$	2,922.00	each	SMART Technologies Corporation	SB660i4
SB660i5	SB660i5	SMART Board 660 with UF75 projector	\$	3,475.00	each	SMART Technologies Corporation	SB660i5
SB680i4	SB680i4	SMART Board 680 with UF65 projector	\$	3,159.00	each	SMART Technologies Corporation	SB680i4
SB680i5	SB680i5	SMART Board 680 with UF75 projector	\$	3,712.00	each	SMART Technologies Corporation	SB680i5
SB685i4	SB685i4	SMART Board 685 with UF65w projector	\$	3,712.00	each	SMART Technologies Corporation	SB685i4
SB685i5	SB685i5	SMART Board 685 with UF75w projector	\$	4,265.00	each	SMART Technologies Corporation	SB685i5
SB685ix	SB685ix	SMART Board 685 with UX60 projector	\$	4,739.00	each	SMART Technologies Corporation	SB685ix
SB690i5	SB690i5	SMART Board 690 with UF75w projector	\$	4,423.00	each	SMART Technologies Corporation	SB690i5
SBX880i4	SBX880i4	SMART Board X880 with UF65 Projector	\$	3,870.00	each	SMART Technologies Corporation	SBX880i4
SBX880i5	SBX880i5	SMART Board X880 with UF75 Projector	\$	4,107.00	each	SMART Technologies Corporation	SBX880i5
SBX885i4	SBX885i4	SMART Board X885 with UF65w Projector	\$	4,423.00	each	SMART Technologies Corporation	SBX885i4
SBX885i5	SBX885i5	SMART Board X885 with UF75w Projector	\$	4,660.00	each	SMART Technologies Corporation	SBX885i5
SBX885ix	SBX885ix	SMART Board X885 with UX60 Projector	\$	5,134.00	each	SMART Technologies Corporation	SBX885ix

Microsoft Surface



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

Other Examples.....



Samsung SyncMaster 650TS-2 65" LCD Touchscreen Monitor - 16:9

- * Brightness: 500 cd/m2
- * Contrast Ratio: 5000:1
- * D-Sub: 1
- * DVI: 1
- * Model #: LH65TCQMB/CZA
- * Item #: N82E16824001723CVF
- * Return Policy: Monitor Replacement Only Return Policy

☐ Compare

\$7,527⁹⁹

\$64.99 Shipping

ADD TO CART



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 #: E891542
- * Item #: N82E16824638070CVF
- * Return Policy: Limited Replacement Only Return Policy

☐ Compare

\$4,424⁹⁹

\$59.32 Shipping

ADD TO CART

IMAGE
COMING SOON

Handheld tablets and pens

- Presentor (Handheld) Mouse
- Wacom Tablet
- Iris Notes
- iPad/Android mouse software
- Aver Teacher Pen



Rank	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
10-9 Excellent	Logitech R800	Microsoft Presenter Mouse R000	SAM-LINK Presentation Pilot P10	V-pointner V-800	SAGE CF-WR000 12-51	Satechi SP900	Kensington K72336US	Thruus AMP13US	JOGEAR GME422RW6	Alps Utrahite
8-6 Good										
5-4 Average	Buy Now	Buy Now	Buy Now	Buy Now	Buy Now	Buy Now	Buy Now	Buy Now	Buy Now	Buy Now
3-2 Poor	\$68.33	\$80.00	\$54.99	\$39.95	\$40.99	\$47.99	\$50.95	\$43.11	\$29.24	\$79.95
1-0 Bad	9.75	9.48	8.85	8.78	8.63	8.28	8.03	7.95	7.60	7.48
Ratings										
■ Overall Rating										
■ Features										
■ Design										
■ Support										
10										
9										
8										
7										
6										
5										
4										
3										
2										
1										
Features										
Wireless Range (Feet)	100	30	50	65	50	100	60	50	30	30
Laser Pointer Color	Green	Red	Red	Red	Red	Green	Red	Red	Red	Red
Batteries Included	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Low-battery Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Signal Strength Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Countdown Timer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Universal Compatibility	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Design										
Battery Type	AAA	AAA	CR2025	AAA	AAA	AAA	AAA	AAA	AA Rechargeable	CR2032
Number of Buttons	5	11	7	12	5	7	4	7	6	12
Length (Inches)	5.2	3.68	4.65	4.84	4.25	4.5	8.9	4.75	5.95	3.37
Width (Inches)	1.5	2.22	2.04	1.8	1.5	1.6	6.1	1.5	2.65	1.12
Height (Inches)	0.8	1.47	1.05	0.43	0.75	0.7	2.2	1	2.25	0.19
Weight (Ounces)	8	4.5	2			11.2	5.6	4.64	6.4	7

Many many many wireless presenters mice and touchpad mini keyboards.....

 Remove AZIO KB338BP Black Bluetooth Wireless Keyboard w/Trackpad \$75.00 \$50.99 Save: 34% \$11.49 Shipping ADD TO CART ► ADD TO WISH LIST ►	 Remove SolidTek KB-3462B-BT Black Bluetooth Wireless 6" x 9" Keyboard w/ Touchpad \$99.00 \$62.99 Save: 37% \$7.49 Shipping ADD TO CART ► ADD TO WISH LIST ►	 Remove SolidTek KB-3962B-BT Black Bluetooth Wireless Keyboard with Touch-Pad Built-in \$129.00 \$62.99 Save: 52% \$7.74 Shipping ADD TO CART ► ADD TO WISH LIST ►
★★★★ (1)	★★★★ (13)	★★★★ (4)

 Remove ADESSO GP-410UB Black Wired Smart Cat 4 Button Gkdepoint Touchpad \$66.99 \$61.99 Save: 7% \$6.99 Shipping ADD TO CART ► ADD TO WISH LIST ►	 Remove Logitech T650 910-003057 RF Wireless Touchpad \$79.99 \$9.99 Shipping ADD TO CART ► ADD TO WISH LIST ►	 Remove SMK-LINK VP6366 Silver RF Wireless Touchpad Keyboard \$11.99 \$67.99 Save: 13% \$6.99 Shipping ADD TO CART ► ADD TO WISH LIST ►
★★★★ (2)	★★★★ (21)	

Many many many wireless presenters mice and touchpad mini keyboards.....



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.



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 »](#)



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.

[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 inking, and general navigation using multi-touch gestures.

[more info »](#)

Wacom tablets (with display)

Wacom tablets (no display)



Wacom Wireless Kit for
Bamboo Capture...

\$39.71

See offer

DirectCanada



Wacom Bamboo
Splash Pen Graphic...

\$55.71

See offer

DirectCanada



Wacom@ Cintiq 12VWX
Interactive...

\$865.75

See offer

STAPLES



WACOM BAMBOO
SMALL TABLET

\$34.50

See offer

Ebiz electronics



WACOM GRAPHIRE3
BLUETOOTH PEN

\$39.99

See offer

HENRY'S
paint • tools • décor

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.

AVer AP20t Teacher Pen

[Home](#) | [Products](#) | [AP20t](#)

AP20t Interactive Wireless Pen

“Wireless cursor, arrow and annotation control”



[The teacher spot](#) [Spec](#) [Warranty](#) [Download](#) [Buy Now](#)

Our ground-breaking slate alternative that works on virtually any surface without a bulky board or hefty price tag. With the comfort of a new pen design that is lightweight and ergonomic, you can control any software on your PC or Mac from 50 feet away and at \$129.99 MSRP, it's the ultimate in mobile curriculum control.

Bundled A+ Interactive software allows 6 student pens and a teacher pen to interact concurrently

Mobile Mouse (Remote/Mouse/Trackpad) FREE

[View More By This Developer](#)

By R.P.A. Tech

Open iTunes to buy and download apps.



[View in iTunes](#)

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.

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



Air Keyboard



iPhone

Simple and free. This helpful app allows you to use your iPhone for presentations, controlling your desktop from any Wi-Fi-connected part of an area; play games sitting in a comfortable position; control your PC- or Mac-based home cinema distantly when resting on your sofa.



iPad

Advanced version with the built-in layout editor. A wide low-latency touch pad, native iPad keyboard, full-size computer keyboard with 93 keys or create your own. You can create keyboard layouts by yourself for your own needs. Clone existing layout or create it from scratch, add touch pad or buttons of any size to any position and assign keys or hotkeys to them.



Android

Simple and free. Enjoy a wide low-latency touch pad, native Android keyboard and a full-size computer keyboard with 93 keys. Why do you have to spend your money on a bulky wireless keyboard and mouse? Try Air Keyboard and feel the ultimate universality of your table!

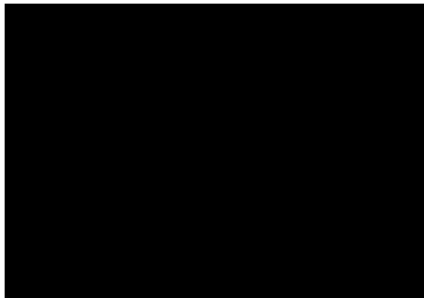


Infrared/magnetic Sensor units

- Wii Board (Johnny Lee)
- vMarker
- Ebeam Edge / Engage
- Epson BrightLink SOLO
- Indesign Infrared Pen
- many related Chinese "knockoff" products

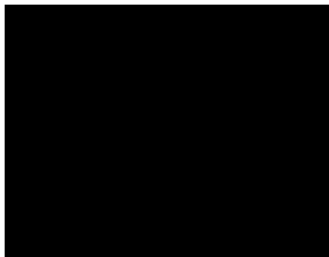


<http://johnnylee.net/projects/wii/>



Low cost interactive whiteboard

Minority Report with Wii



What's a Vmarker™?

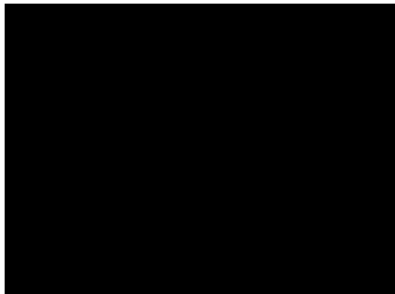
Using the Vmarker™ you transform your computer and projector into a **interactive** digital whiteboard. With use of an IR-pen you can interact with software programs on the whiteboard. A common example is drawing on the whiteboard....

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 Wimote 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 scrol-functionality.
- Like the Wimote, the Vmarker recognizes up to 4 IR dots, so multi-touch is supported.



Ebeam Edge – Editors Choice



\$649.00

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 Flickr 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



Get to know more about eBeam Engage [PLAY VIDEO](#)



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.

Epson Brightlink SOLO



Education Pricing Canada

**BrightLink SOLO™
V12H415020
\$264**

**BrightLink SOLO
(with RM Easiteach)
V12H415020RM
\$366**



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.

<http://www.indesign-tech.com/en/product.asp?ProdNum=24&parentid=48&k=6>

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



Whiteboard software is unintuitive but useful, major driver issues for anything other than windows XP, complete lack of support. Lack of product quality and consistency.

IR portable interactive whiteboard with multitouch software



[Add to Inquiry Cart](#) [★ Add to My Favorites](#) [Share to:](#)

FOB Price: US \$ 99 - 159 / Piece | [Get Latest Price](#)
 Port: shenzhen
 Minimum Order Quantity: 50 Piece/Pieces sample also okay
 Supply Ability: 1000 Piece/Pieces per Month
 Payment Terms: T/T,Western Union,paypal

Ms. Echo Min

Chat Now

Contact Supplier

Place Order via [ESCROW](#)



Infrared Whiteboard for Short-focus Projector

Min. Order: 100 Pieces
 FOB Price: US \$160-220 / Piece

Type: **Whiteboard** ; Place of Origin: **CHINA** ; Whiteboard Type: **Electronic Whiteboard** ; Model Number: **HT-VP200S** ; Brand Name: **HITOUCH** ;

Contact Supplier

I'm Away

☐ Compare

[HONGKONG VABORN TECHNOLOGY LIMITED](#)
[Contact Details](#)

Hong Kong



[View 60+ similar products](#)

Short focus portable interactive whiteboard VP300



[Add to Inquiry Cart](#) [★ Add to My Favorites](#) [Share to:](#)

FOB Price: US \$ 99 - 159 / Piece | [Get Latest Price](#)
 Port: shenzhen
 Minimum Order Quantity: 50 Piece/Pieces sample also okay
 Supply Ability: 1000 Piece/Pieces per Month
 Payment Terms: T/T,Western Union,paypal

Mr. LILY Huang

Offline

Contact Supplier

Place Order via [ESCROW](#)

Another approach

infrared whiteboard (65 Products)

Select Products to

[Contact Supplier](#)

View as:     5 of 5 Page



Multi Touch Panel Overlay frame 55" 65"
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

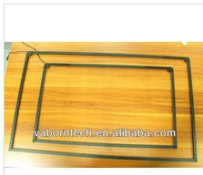
FOB Price: US \$ 119 - 380 / Piece



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.



BrightLink 475Wi Interactive Projector with Mount

WXGA interactive projector

- 3x Brighter Colours with Epson¹
- 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 Epson¹
- Colour Brightness: 3100 lumens
- White Brightness: 3100 lumens
- Ultra-short throw
- Includes mount and 2 interactive module pens

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.

Review Contents
Introduction
Strong Points
Testing
Limitations and Conclusion



PROJ
ECTOR
CENTRAL
HIGHERLY RATED

Performance
★★★★★

Features
★★★★★

Ease of Use
★★★★★

Value
★★★★★

Intended Use:
Education



Epson BrightLink 436Wi
(add to Compare List)
Go to My Compare List

3000:1 Contrast Ratio
3000 Lumens
\$1,578 Street Price
\$1,490 MSRP

Epson BrightLink 436Wi Interactive WXGA Projector

Marc Davidson, April 8, 2013
ProjectorCentral.com

The Epson [BrightLink 436Wi](#) Interactive WXGA 3LCD Projector is Epson's first short throw interactive model using its latest—which is to say, third generation—interactive technology. That, in turn, means its the first short throw model with the same slick features, and essentially the same capabilities, that you'll find in Epson's current ultra short throw interactive models.

Like Epson's other projectors, the 1280x800 436Wi is built around an LCD engine. Unlike most DLP-based projectors, it lacks support for 3D. However it has the advantage over most DLP projectors of being guaranteed rainbow-free and having matching color brightness and white brightness, with both rated at 3000 lumens. There's also no separate interactive mode to turn on, which means no loss of brightness when you use it interactively.

Some of the more noteworthy interactive features include automatic calibration between the pen and projector, support for working with two pens at once, and a PC-free whiteboard feature, which lets you interact with other image sources besides computers or just use it as a whiteboard with no image source at all. The 436Wi lacks the ultra short throw of Epson's other interactive models, of course, but at \$1,490 street, or \$1,250 with an education discount, it significantly lowers the price for Epson's more sophisticated interactive extras. You might even consider it a bargain.

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)



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

☐	 BenQ MP780 ST	1280x800 (WXGA)	2,500 lumens	3.8 kg	\$1,340
☐	 BenQ MP780 ST+	1280x800 (WXGA)	2,500 lumens	3.8 kg	\$1,309
☐	 BenQ MW860USTi	1280x800 (WXGA)	3,000 lumens	4.1 kg	\$1,499
☐	 BenQ MX822ST	1024x768 (XGA)	3,500 lumens	3.9 kg	\$1,279

Review Contents

- Introduction
- Key Features
- Limitations and Conclusion

Performance



Features



Ease of Use



Value



Intended Use:

Education



Acer S5201M

(add to Compare List)
[Go to My Compare List](#)

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 S5201M 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



Using Kinect to emulate an Interactive Whiteboard - Master Degree Thesis Video



Mattia Avancini · 3 videos



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Video Master Degree Thesis in Computer Science at University of Trento - Using Kinect to emulate an Interactive Whiteboard
I based my implementation on the awesome library SimpleOpenNI <http://code.google.com/p/simple-openni/>. It's a Processing (language derived from Java) wrapper on the famous frameworks OpenNI and NITE. I integrated the Processing code (since Processing is derived from Java, you can easily integrate it) inside a more complex Java project where I implemented the calibration phase that you see in this video and the finger calibration procedure. The result is this emulation of an Interactive Whiteboard. The click for the moment is performed using a mouse with the other hand, but in the future maybe we can try to eliminate completely the use of any kind of device.

Projects that are beginning to emerge to use the Kinect to work as an interactive whiteboard.

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Page(s): 1 - 5

Product Type: Conference Publications

Low-Cost Interactive Whiteboard Using the Kinect

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Abstract—An interactive whiteboard is a large interactive display that connects to a computer and projector. A projector projects the computer's desktop onto the board's surface where users control the computer using a pen, finger, stylus, or other device. The board is typically mounted to a wall or floor stand. The majority of IWBs sold globally involve one of four forms of interaction between the user and the content projected on the whiteboard. These are an infrared scan technology, a resistive, touch-based board, an electromagnetic pen and associated software, and an ultrasonic pen. This paper's purpose is researching the infrared LED pen, and it starts at the foundational infrared scan technology. Taking the interactive whiteboard's advanced achievement using the Kinect as reference, this paper confirms its research routes and innovative points. This paper presents a low-cost interactive whiteboard by positioning the infrared LED pen with particular sign accurately by analyzing depth and IR data of Kinect. The system excluded the interference of Kinect's infrared light and implemented the right-mouse simulation by identifying the infrared LED pen's two brightness modes. It is combined with CUDA platform and OpenCV Library to speed-up image process and obtain high real-time performance. This low-cost interactive whiteboard using the Kinect can be used in a variety of settings, including classrooms at all levels of education, in corporate board rooms and work groups, in training rooms for professional sports coaching, in broadcasting studios and many others. Furthermore, this study demonstrates the potential application of good scientific and practical values.

Keywords—Kinect; whiteboard; CUDA; OpenCV

Digital Desk [2] of Wellner and VIDEODESK [3] of Kruger. Wellner utilizes a microphone to perceive whether the user reaches the board's surface. More recent attempts using a single camera exploit more refined models of the shape of fingertips for tracing or positioning [4, 5]. Marshall [6] et al. fix the position from the color variations of the fingernail when the finger is pressed against a surface. Wren [7] used two cameras to detect scene depth for positioning, which is also applied to Wilson's TouchLight [8] and Malik's Visual Touchpad [9]. Wilson's PlayAnywhere [10] analyzes the shadow cast by the finger to estimate range of the finger to the surface. Benko's DepthTouch [11] applies a depth camera to positioning with high precision. FTIR technology [12] proposed by Jefferson Y. Han uses an acrylic board of a special material as the screen. In 2006, DVIT technology produced by the Calgary, Alberta-based company Smart Technologies, became a milestone of positioning based on machine vision, which satisfied high requirements for location precision for commercial application.

Kinect [13] is a motion sensing input device integrated with an RGB camera, depth sensor and multi-array microphone introduced by Microsoft in November 2010. As the Kinect holds the Guinness World Record of being the "fastest selling consumer electronics device", applications and development based on the Kinect have become a research hotspot.

Asus Xtion Pro Presentation System



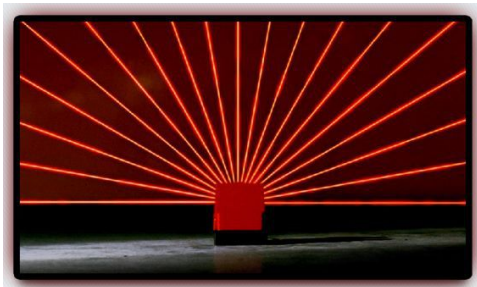
Published on Oct 1, 2012

"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>



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Samsung Time of Flight Sensor



Additional info on ToF Sensors

<http://www.image-sensors.com/paul-danini.aspx>

http://www.youtube.com/watch?feature=player_detailpage&v=JkBh71zZKrM#t=3109s

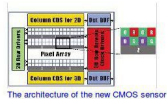
[ISSCC] Samsung's CMOS Sensor Takes Range, RGB Images at Same Time

Feb 25, 2012 14:18

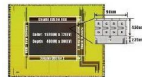
Tomonori Shindo, Nikkei Electronics



A range image taken by the sensor



The architecture of the new CMOS sensor



A picture of the chip

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=bo727jh6baI>

Echo360 Lecturetools

<http://vimeo.com/38052642>

Open Source products

- Wiimote Whiteboard
- Open-Sankore / myLiveNotes



Wiimote Whiteboard

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

Outline

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- 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>

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