




Touch on the Desktop

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Agenda

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About NextWindow

□ NextWindow

- ◆ Develops & manufactures optical touchscreens
- ◆ Currently focused on two touch-screen markets
 - Windows-7 consumer monitors and all-in-one computers
 - Large-format display applications such as interactive digital signage
- ◆ Global presence
 - New Zealand (HQ), Singapore (Ops), USA, Taiwan, Korea, Japan
 - Manufacturing in China, Thailand and Malaysia
 - 119 employees, 55 in engineering
- ◆ Brief history
 - 2000: Founded by CTO and private investors
 - 2003: First product to market (optical touch for large displays)
 - 2005: Entered USA market
 - 2006: First major volume contract signed (HP TouchSmart AiO)
 - 2008: Entered Taiwan market with ODM focus
 - 2009: Engaged with many PC OEMs & ODMs on Win-7 products
 - 2010: Acquired by SMART Technologies

Is This All There Is?



Is this all there is?

Is touch really all about **200M** mobile phones and everything else is mostly irrelevant?

No! Touch Is Spreading Everywhere

❑ Touch was everywhere at CES 2010

- ◆ There seemed to be a built-in assumption that everything should be touch-enabled



Desktop Touch Before Windows 7

- ❑ Vertical-application monitors (1990s)
- ❑ HP TouchSmart AiO (2007-2009)



Source: Elo TouchSystems



Source: HP

The Significance of Windows 7

□ Windows 7 fully enables desktop touch (10/22/09)

- ◆ Touch & multi-touch is a highly visible characteristic of Win-7
 - Win-7 supports up to ~100 touch points
- ◆ Touch API is easy for ISVs to use to touch-enable apps
 - Applications can define their own custom gestures
- ◆ Most PC OEMs have launched multiple desktop touch products
 - ~90% AiOs, ~10% monitors



Consumer Desktop Hardware

❑ **AiOs & monitors with Win-7 touch**

- ◆ 27 products from 13 OEMs
- ◆ Acer, Asus, Dell, Fujitsu, Gateway, HP, Iiyama, Lenovo, Medion, MSI, NEC, Samsung, Sony

❑ **AiOs with single-touch**

- ◆ Estimated at 15

❑ **AiOs with no touch**

- ◆ Estimated at 25

❑ **Monitors with single-touch**

- ◆ None

Examples

HP



Medion



NEC



Sony



Dell



Lenovo



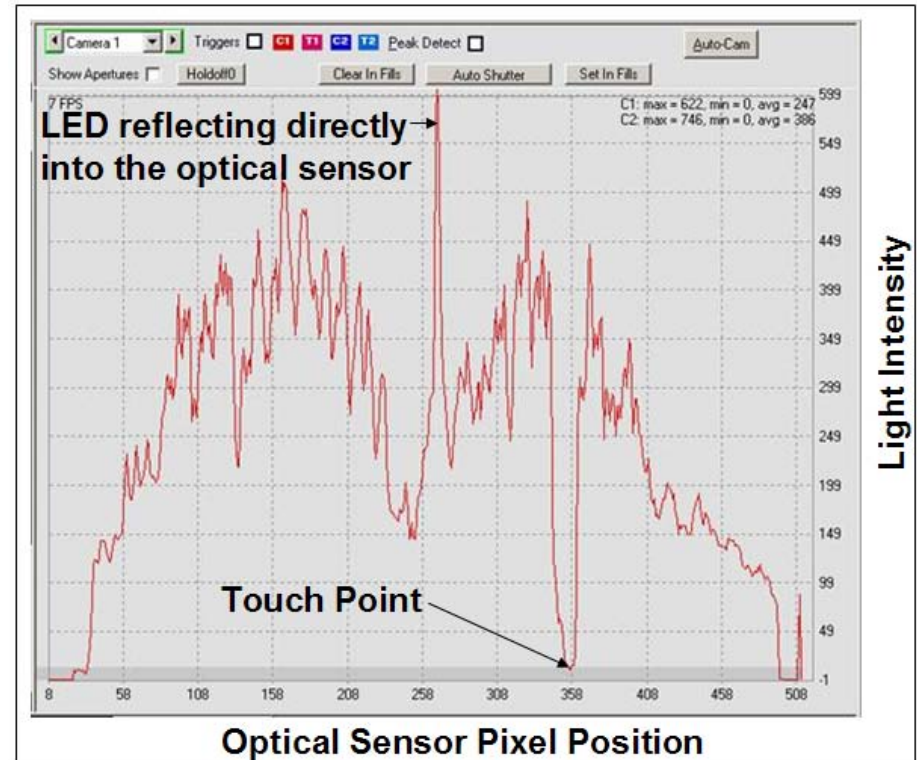
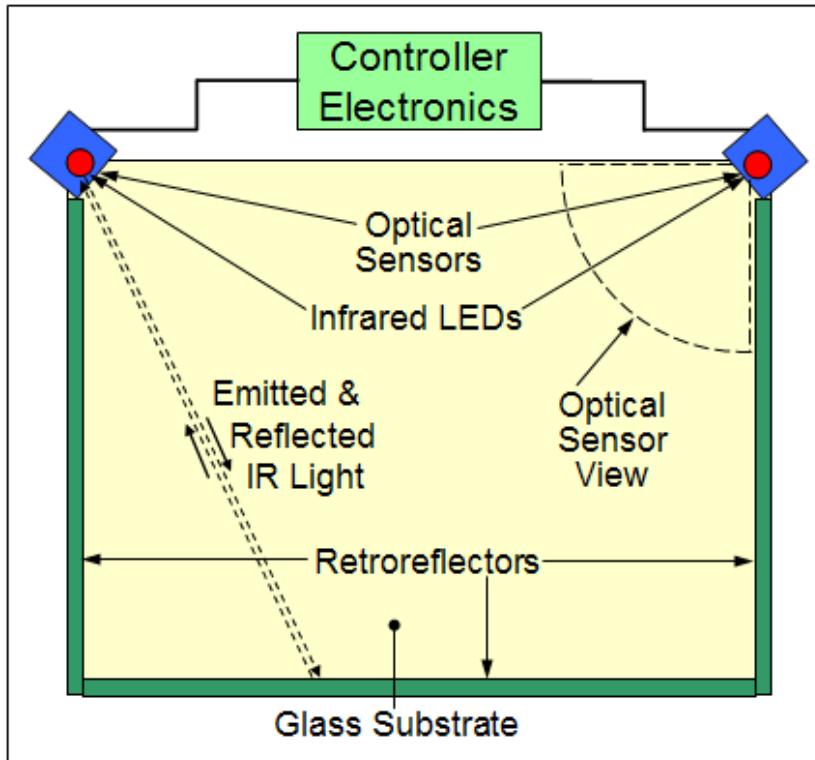
Desktop Applications

- ❑ **Consumer software applications enhanced to take advantage of Windows-7 touch**
 - ◆ Estimated at 50
 - Art & creativity, media management, reading, games, educational...
 - Mostly consumption-oriented
 - ◆ It will take until the end of 2010 or mid 2011 until there are a substantial number of applications available
- ❑ **Enterprise vertical (e.g., CAD, GIS)**
 - ◆ Beginning to see some specialized applications
- ❑ **Enterprise horizontal (e.g., Office)**
 - ◆ No significant applications yet

Market Growth Factors

- ❑ **Touch on the desktop is best for consuming information rather than creating information**
- ❑ **Touch-enabled applications are slow to market**
 - ◆ Consumers won't buy touch-enabled hardware without compelling touch applications
- ❑ **Microsoft's support for multi-touch**
 - ◆ Enhancements such as “No touch left behind” (in the latest Windows-7 SDK) may make a BIG difference for ISVs
- ❑ **Incremental BOM cost for touch**
 - ◆ Cost is much less of an issue in all-in-ones vs. monitors
- ❑ **Ergonomic issues may be significant on the desktop**
 - ◆ So-called “gorilla arm”
 - Reclining monitors? (palm rejection & viewing angle must change)

How Optical Touch Works



Desktop Touch Technology Comparison

Requirement	Optical	Pro-Cap	AMR	SAW
Size range 17" - 26"				
Multi-touch				
Low profile (flush surface)				
Shipping in high volume				
Touch with any object				
Light touch				
Scaleable				
High durability				
High optical performance				
Narrow border width				
Easy integration				
Low cost				
Windows 7 Logo				

	Best
	OK
	Worst



Thank You!

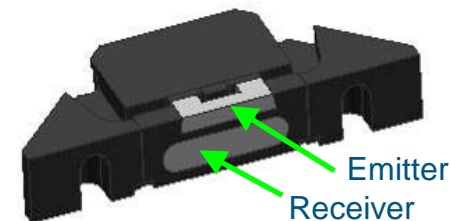
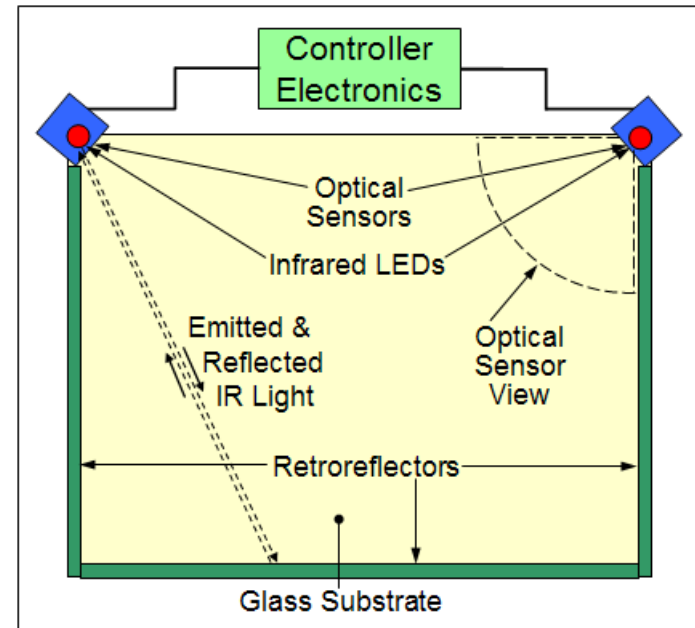
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NextWindow's Optical Touch

Basic Elements

- ❑ Two CMOS linear image sensors with lenses
- ❑ Single IR light source in each optical sensor module
- ❑ Backlighting created by retro-reflective border
- ❑ Image sensors aligned for maximum return signal
- ❑ Digital signal processor (DSP)
- ❑ USB and serial interface



NextWindow's Optical Touch...2

How It Works

- ❑ Optical system senses touches by looking across the substrate
- ❑ Optical sensors emit infrared light across the substrate
- ❑ Light is reflected back by retro-reflectors around the substrate
- ❑ Touch creates a shadow; the position is calculated by triangulation
- ❑ Zero contact pressure & no special coatings are required

