



Haptic control and feedback in mobile gaming

Tommi Urtti

Presentation outline

- Why to use haptics?
- Haptics in pervasive games
- Multitouch
- Accelerometer
- Lots of games!

Haptics - is it a big deal?

“Stunning graphics can fool the eyes into believing a few lines of code and a few electrons really are an intricate world, but only with haptics can players reach in, touch, and manipulate that as if it were real.”

- D. Chang, Immersion, 2002

“...vibrotactile feedback provides players with increased levels of realism and immersion.”

- S.-Y. Kim, 2007

Immersion – challenge, sounds, visuals, (plot, characters),
controls..

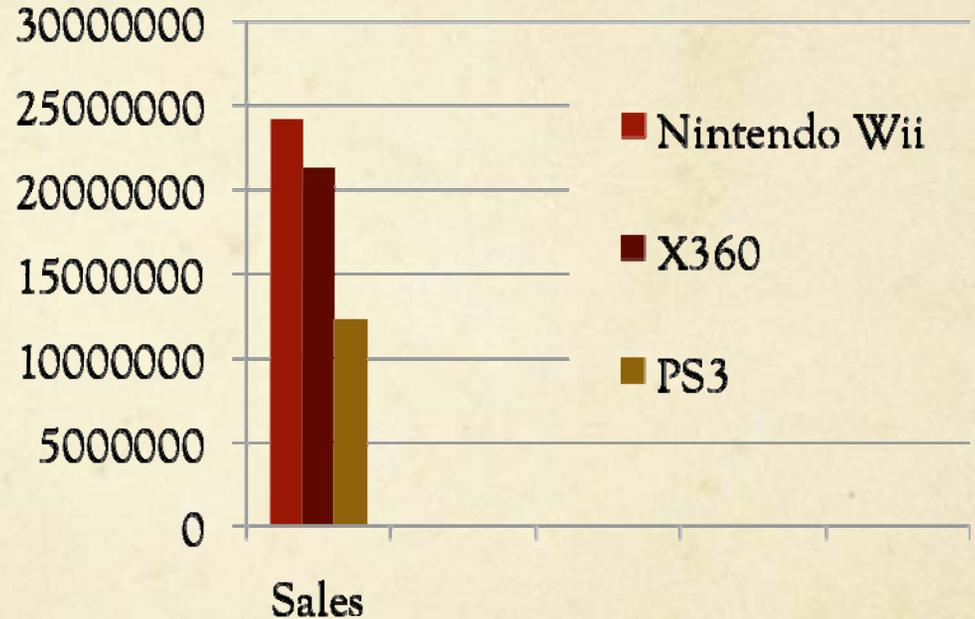
Haptics a factor in sales?

- Xbox 360 (22.11.2005)

- PS3 (11.11.2006)

- Wii (19.11.2006)

- Appealing to a wider audience



PainStation

- Unique, effective
- Mistake in the game punished with pain
 - Heat, electric shock, whip (exchangeable)
- Tilman Reiff and Volker Morawe, *//////////fur////*



Haptics in pervasive gaming

- Ullmer and Ishii
 - Representation level
 - Physical object provides haptic sensations (such as Airbat) compared to digital image – intangible
 - Interaction level
 - Physical object and digital information interact
 - Stronger bond physical-digital

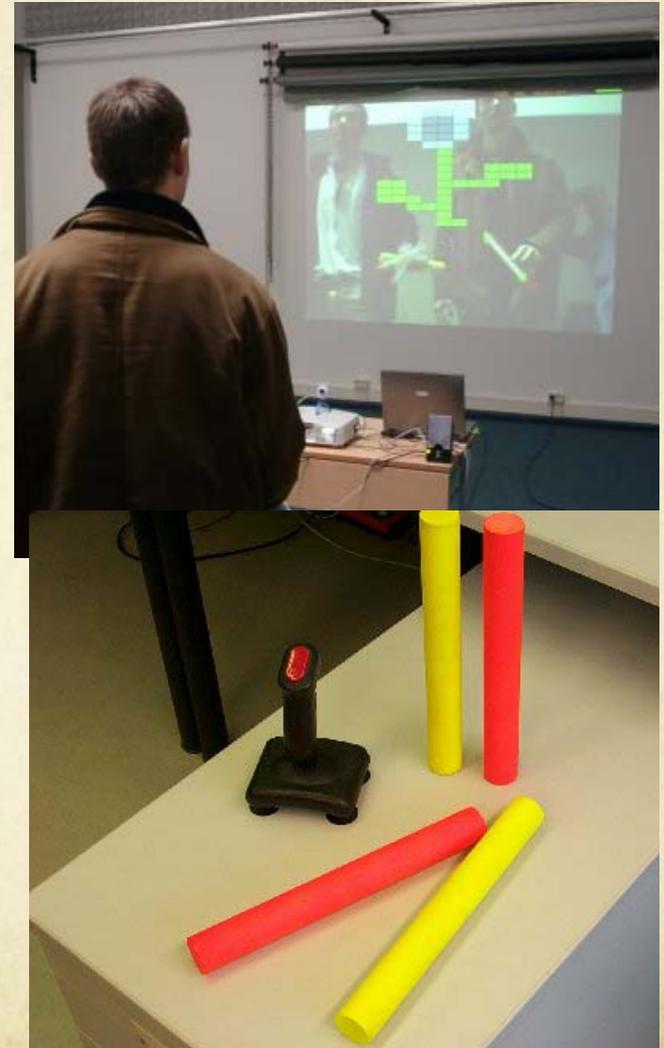
Doom 3 PDA Mod (Faust)

- Virtual in-game PDA
- Real PDA modded to be used as a pervasive game element



Haptic Airkanoid

- Original Airkanoid, 1985, Taito
- Mixed reality
- Airbats equipped with 2 vibration elements
- Vibration feedback with each hit
 - All participants - more fun
 - "good but not realistic"



iPhone justification

- App Store working well
 - Fuelling the mobile software market
 - 25% downloaded SW is games
- Apple targeting the gaming market
- First one to really put these techs in use

iPhone multitouch screen

- Capacitive multitouch screen, no stylus
- Flick, tap, pinch and other gestures



Advantages of multitouch

- Less required physical buttons (on device)
 - Enables larger screen resulting in better immersion
- Controls can be more intuitive instead of assigned similar buttons
 - Gestures vs. generic buttons
- No more ignored commands (compared to older gen touch screens)
- Disadvantages:
 - Fingers block view, not good for co-op games

Games using Multitouch

- Air hockey
- Multitouch capabilities, 2 players on same iPhone (or via Wi-fi)
- Simcity will use zoom functions
 - Compare stylus vs. multitouch
- Pinch 'n Pop
 - <http://www.youtube.com/watch?v=XFySwWXfEbg>



iPhone accelerometer

- A digital accelerometer
- Silicon mass, silicon springs, electrical current
- Rotate -> fluctuation in the current
- Registered -> software



Labyrinth game

- New implementation of an old game
 - <http://www.youtube.com/watch?v=KymENgK15ms>
- Personal opinion
 - Intuitive controls, natural gameplay
 - Ball movement fairly realistic



Trism success story

- Uses touch-screen and accelerometer
- 4 months coding (nights, weekends)
- 250,000\$ profits first 2 months of sales
- Steve Demiter, Demiforce
- <http://www.youtube.com/watch?v=hy0ptZisr70>



Accelerometer

- Other games
 - Racing
 - Snowboarding
 - Flying (BiiPlane)
 - <http://www.youtube.com/watch?v=QFuRRUhdk9A>
- Accelerometer devices
 - Models from Nokia, Samsung, Motorola
- Keeper or a trend?

NiiMe & NiiWheel

- Nokia2MovingExperience
- Accelerometer in N95
- Data sent via Bluetooth, SW in PC and S60 phone
- Drums, mario, flight simulator, racing
- <http://www.youtube.com/watch?v=00PKV5xCL24>



..And now for something
completely different.

<http://www.youtube.com/watch?v=2Y8oX1ZxSuM&feature=related>

Thanks

.