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## I've seen the Future - and it's wearing a woolly.

<http://www.tekka.net/03/?EyeToy>

### As Augmented As It Gets

In 1999, David Cronenberg's eXistenZ brought the promise of ultimate game-play. Plug the umbrycord and slip into a seamless, frictionless virtual reality -- perfect immersion. But while the VR in eXistenz quickly spilled over into what appeared to be the "real" real word of the movie, the technology it depicts will not soon leave the big screen. Even if biopods were anywhere near beta, they'd probably be incredibly expensive. Even augmented reality, VR's less costly sibling, is far from marketable: there are too few 3D goggles around to outfit the developers, let alone teenage console owners.

Everything changed this July when Sony Computer Entertainment Europe released EyeToy:Play, a compact USB camera that plugs into a Playstation 2 and controls a set of twelve party-games.

Each game calibrates automatically by superimposing the outline of a roughly human figure onto the TV screen. You stand as close to or as far away from the set as needed to fill the outline, adjust the camera a bit and you're ready to go. You don't have to memorize control settings or keyboard shortcuts. If there is not enough light, the camera warns the player with a flashing red diode. There are no obvious mistakes the novice player (or devious product tester) can make.

### Bounding Boxes

Earlier this year, VR and AR producers met in Darmstadt for TIDSE --Technologies for Interactive Digital Storytelling and Entertainment. From a gadget perspective, one of the most interesting presentation was "Realtime Interactive Boxing Game Based on Gesture Recognition". A team from Sungkyunkwan University, Korea, had docked a gesture recognition system onto a keyboard-controlled Flash game, *Boxing O.J.* (author unknown, available through various game sites). Boxing O.J. is controlled with four keys for left and right movement and left and right punches. The new

system needs to recognize four movements: upper body left and right and punch with left or right hand.

The algorithms behind visual Boxing O.J. accumulate the displacement of the top corners of two bounding boxes towards thresholds that replace key-down and key-up events to trigger hits and misses. There was no live demonstration, but the data and demo videos suggested that the system actually works pretty well. It helps if the player's clothing creates sufficient contrast to the background and she consents to wear big, bright red boxing gloves. With the right outfit and two cameras, as well as two computers (a server which controls camera 1 and registers body-movement and a client for camera 2 and punches), the player can finally get rid of bothersome (and expensive) sensors. The timid suggestion that, for a game, visual Boxing O.J. still comes with too much heavy and costly equipment was welcomed from the floor as well-aimed irony: no sensors or goggles! Only two cameras! A standard computer system! Surely, you cannot get sufficient accuracy with less?

## You are the controls

Enter Sony, with an inexpensive boxed game that makes do with a single camera and a clean well-lighted space. The EyeToy is clearly targeted at a wide possible audience of non-technophiles. The CD starts with a tutorial, and you can plug in the camera on the fly as you watch. The core message is, "Your grandmother could play this," and the grandmother they use to illustrate their claim could be straight out of Disney or from the box of your favorite brand of cookies. When I tell non-tech friends how I spent the weekend, they invariably say, "Eeyew! " My body inside a game -- never! But when they get to stand in front of the camera themselves, the reaction is exhilaration and excitement. Remember: "You are the controls."

Early player reports from before the release -- now washed from Google's results list by raving, commercial evaluations -- complained about the quality of the games, as well as delayed reaction to fast moves. Meanwhile, and perhaps because of the last-minute changes in camera hardware (from OmniVision), accuracy is no longer an issue. I'm afraid my sad performance in the hardest level of high-speed Kung Fu is solely attributable to my own sluggish reactions, short concentration span and minimal stamina. As for the games -- they are merely party games and obviously cater to players with different tastes (football, martial arts, dancing, fictional worlds) and skills (fast movements, precise movements, endurance, mirror-movements). The style remains the same throughout: cartoony, with bits of Far East thrown in. The guide, called the Oracle, appears as the huise old Asian - but with a woolen hat and a monkey sidekick wearing similar headgear.

Among the 12 games, everyone will find instant favorites as well as low-interest quick-dismisses. None of the games is controversial, haunting or captivating, but the level design is superb and the gameplay is excellent. *Spielspass* is the German term I'm looking for: play-fun, enjoyment. The

generic, happiness-exuding cuteness of the game environment certainly plays a role here. But there is something else. The flow state induced by heightened concentration (it's not easy to slap the Rat Boys without hurting the Bunnies) combines with the adrenaline rush from the physical exercise.

The day after I plugged in EyeToy for the first time, I couldn't lift my arms. Forget force feedback controllers.

Of course, the concept behind Sungkyunkwan University's *Boxing O.J.* goes a step or two further. Instead of creating a game that can be controlled by a camera, they wrote a translator that substitutes gestures for keyboard control. The client-server architecture doubles as a loa balancer and prepares the system for networked environments. As soon as the Playstation goes online, this may be their next step. EyeToy already allows two simultaneous players for a couple of games, but only with a single camera: two-player-boxing, for example, could lead to a real donnybrook! As it is, the boxing game from EyeToy is somewhat awkward: the player has to stand sideways to the camera and squint over her left shoulder to be able to see where to hit. Moving the camera helps. A second camera, ideally wireless, would be even better. And without the clutter of dark background, light clothes, red gloves, let alone sensors and goggles and a team of technicians to set things up, the whole kit would still be about as lean as external speakers for the desktop computer. With a gesture-to-keyboard translator, *Minority Report*-style file-browsing could at last be at our fingertips.

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