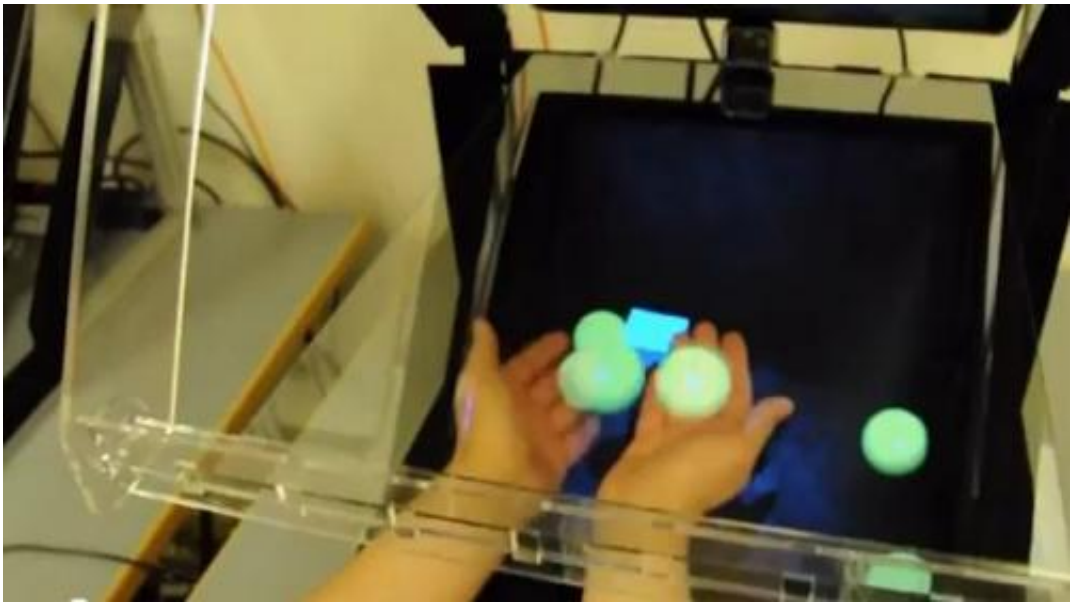
Holodesk prototype puts life in computers (w/ video)

October 20 2011, by Nancy Owano



(PhysOrg.com) -- A research project at Microsoft Research Cambridge has brought forth a prototype called Holodesk, which lets you manipulate virtual objects with your hand. You literally "get your hands on" the virtual display. According to the official description from its creators, there is at work a "novel real-time algorithm for representing hands and other physical objects" allowing physically realistic interaction between real and virtual 3-D objects.

Holodesk does its magic with the help of an optical see-through display plus Kinect camera. The illusion is that the user is directly touching and maneuvering 3-D graphics. According to the project notes, a virtual image of a 3-D scene is rendered through a half-silvered mirror and spatially aligned with the real world for the viewer.

A Holodesk video shows the user looking down on a pane of glass at virtual but very realistic-looking balls and other shaped objects. His hands are positioned underneath the glass and they move in such a way that you think the user is actually moving real objects around. He scoops real balls into cups, or so it seems. The video as a whole is a deft rendering of how the virtual and real meet. While Holodesk is not the only 3-D interaction experiment out there, observers say it stands away from the pack, with its use of optical devices called beam-splitters and a graphic processing algorithm, in providing a life-like experience.

Holodesk is one of the latest innovations within the Sensors and Devices Group (working with technologies such as sensors, flexible electronics, and novel displays)at Microsoft Research. The latter, since its establishment in 1991, has become a large and active software research organization.

Microsoft Research joins today's research hotbeds looking at enhancing interactive computing environments. The name of the game is creating clever ways to enable the user to cross that magical bridge between reality and the virtual. Meantime, Microsoft itself is reportedly working on all fronts on innovations that involve the “natural user interface,” or in software developer parlance, the NUI. A NUI is supported by technology that frees up users to carry out relatively natural movements or gestures that control and manipulate on-screen content. As such, the NUI is elevated as one of the next big things in human-machine interactions.

As for possible applications for Holodesk, easy assumptions might place

it squarely in gaming but its potential may also one day surface in design and research. In this wider sense, the Holodesk debut is one more idea from Microsoft Research that suggests a bright NUI future.

More information: via Microsoft blog