

# Touch your philodendron and control your computer

Eurekaalert!

PITTSBURGH – A yucca plant might make your office desk look nice, but with a new technology developed at Disney Research, Pittsburgh, that little shrub could possibly control your computer. And the jade plant nearby? Put your hand close to it and your iPod could start playing your favorite tunes.

Any houseplant — real or artificial — could control a computer or any digital device with this technology, called *Botanicus Interactus*. Once a single wire is placed anywhere in the plant's soil, the technology can detect if and where a plant is touched, or even if someone gets near the plant.

Disney researchers will demonstrate an interactive garden of real and artificial plants at SIGGRAPH Emerging Technology, Aug. 5-9 at the Los Angeles Convention Center.

Turning a houseplant into a device for interacting with computers and digital media no longer seems all that strange, contends Ivan Poupyrev, senior research scientist at Disney Research, Pittsburgh.

"Computing is rapidly fusing with our dwelling places and, thanks to touchpads and Microsoft Kinect, interaction with computers is increasingly tactile and gestural," he explained. "Still, this interaction is limited to computing devices. We wondered — what if a broad variety of everyday objects around us could interact with us?"

*Botanicus Interactus* is built upon capacitive touch sensing, the same principle underlying the touchscreens used in most smartphones. But instead of sensing electrical signals at a single frequency like the typical touchscreen, this technology uses Swept Frequency Capacitive Sensing (SFCS) technique to monitor capacitive signals across a broad range of frequencies. This makes it possible to detect not only if the plant is being touched, but to estimate where and how the plant is being touched. Machine-learning algorithms are used to recognize frequency changes associated with touches in particular locations on the plant.

"Giving plants a voice, a possibility to respond and engage us, could lead to new forms of entertainment, enhance our lifestyles and create a new computational platform that could be used for both education and entertainment," Poupyrev said. "In a sense, we are creating a new 'species' of plant that we call *Botanicus Interactus*."

In addition to Poupyrev, developers of this new technology include Philipp Schoessler of the Berlin University of the Arts, Jonas Loh of Studio NAND, Germany, and Munehiko Sato of the University of Tokyo. Christian Riekoff and the studio

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TheGreenEyl joined Disney Research on designing and producing the SIGGRAPH exhibition.

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For more information, please visit the web site at

[http://www.disneyresearch.com/research/projects/hci\\_botanicus\\_drp.htm](http://www.disneyresearch.com/research/projects/hci_botanicus_drp.htm)

### About Disney Research

Disney Research ([www.disneyresearch.com](http://www.disneyresearch.com)) is a network of research laboratories supporting The Walt Disney Company. Its purpose is to pursue scientific and technological innovation to advance the company's broad media and entertainment efforts. Disney Research is managed by an internal Disney Research Council co-chaired by Disney-Pixar's Ed Catmull and Walt Disney Imagineering's Bruce Vaughn, and including the directors of the individual labs. It has facilities in Los Angeles, San Francisco, Pittsburgh, Boston and Zurich. Research topics include computer graphics, video processing, computer vision, robotics, radio and antennas, wireless communications, human-computer interaction, displays, data mining, machine learning and behavioral sciences.

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