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Electronic Whisper: Disney Research Technology Transmits Audio Messages Via Finger's Touch

"Ishin-Den-Shin" Wins Honorable Mention in Prix Ars Electronica 2013 Competition

Disney Research, Pittsburgh, has added a new dimension to interpersonal communication, creating a microphone that enables a person to record an audio message, transmit it silently through his body and reproduce it with the touch of a finger.

Called "Ishin-Den-Shin," a Japanese expression for communicating through an unspoken mutual understanding, the technology turns an audio message into an inaudible signal that is relayed by the body. When the communicator's finger slightly rubs an everyday object, the physical interaction creates an ad hoc speaker that makes it possible to hear the recorded sounds.

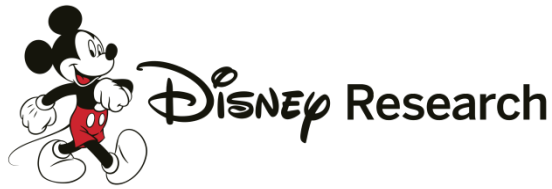
If the finger touches a recipient's ear, the message can be heard just by the recipient.

"Ishin-Den-Shin lends an unequaled level of intimacy to digital communications," said Ivan Poupyrev, principal research scientist and head of the interaction technology group at Disney Research, Pittsburgh. "It explores the continued blurring of the boundaries between the human body, the messages we generate and the world around us. It's almost as if a person's finger can whisper in your ear or playback a message hidden in an everyday physical object."

The technology also makes it possible for a group of people who are in physical contact to turn their bodies into a transmission medium, with the signal passing silently from one to another until someone touches an object.

Ishin-Den-Shin won an honorable mention in the interactive art category in Prix Ars Electronica 2013, the International Competition for CyberArts.

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The Ishin-Den-Shin system includes a handheld microphone connected to a computer's sound card. When someone speaks into the microphone, the computer turns the sound into a looped recording. The recording is then converted into a high-voltage, low-current inaudible signal that flows into a thin wire connected to the exterior of the microphone. This looped, inaudible signal creates a modulated electrostatic field around the body of the person who is holding the microphone and can be transmitted from person to person via any sort of physical contact. The modulated electrostatic field produces a very small vibration of a finger touching an object, which forms a speaker. The Ishin-Den-Shin technology thus can turn everyday artifacts into interactive sound devices without the need to instrument them with any apparatus.

The Disney Research, Pittsburgh, team that created Ishin-Den-Shin includes Olivier Bau, an interaction researcher, and Yuri Suzuki, a design associate, as well as Poupyrev.

More information, including a video, is available on the project website, <http://www.disneyresearch.com/project/ishin-den-shin/>.

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About Disney Research

Disney Research (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 Zürich. 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.