

Researchers explore how a desk surface can serve as a touchscreen

5 July 2017, by Nancy Owano



(Tech Xplore)—The digitally augmented desk is a focus area for Carnegie Mellon's Future Interfaces Group and they are on to something quite interesting.

"Supporting responsive cohabitation between virtual interfaces and physical objects on everyday surfaces" is the title of their paper, by Robert Xiao, Scott Hudson and Chris Harrison.

They have succeeded in presenting their "[Desktopography](#)" prototype and they prepared the paper discussing their work for the Symposium on Engineering Interactive Computing Systems in Lisbon recently.

Basically, they take on the question of what if you could turn your desk into a touchscreen. Their proof-of-concept is about turning your desktop into a virtual touch display using a standard-size lightbulb socket.

Andrew Liszewski, *Gizmodo*: "What if all those apps you rely on at work weren't trapped on your smartphone's tiny screen? ...Researchers at Carnegie Mellon University's Future Interfaces

Group lab have come up with a novel way for your smartphone to spill out onto your desk while still letting you interact with apps you rely on using your [fingers](#)."

What do the researchers mean by desktopography? Their concept is about allowing digital interfaces projected on desk surfaces to respond to and cohabit with physical objects. This would enable mixed physical-virtual interactions.

Rachel Metz in *MIT Technology Review* wrote "Desktopography can project things like a calculator or map onto a desk, and then you can interact with it or move it around by using [multiple](#) fingers."

The components: Paul Lilly in *PC Gamer* described a device consisting of overhead projector and depth [camera](#) shaped like a lamp that beams images onto a [desk surface](#).

What is quite interesting is the way the technology is able to move things around for efficiency. The system is able to reposition an app if something should get in the way. "If a co-worker carelessly puts their mug of coffee down on your virtual notepad, the app will move itself to the nearest open space," said Liszewski.

This attracted Lilly's attention too and he used a similar example. "If you have a virtual calculator open on your desk and place a soda can on top of it, the beamed image will relocate itself."

The authors wrote, "because [physical objects](#) cannot move or resize on their own, the burden of responsiveness falls to the digital elements. Thus, digital applications must employ a variety of strategies to successfully cohabit a work surface with physical artifacts."

Xiao was quoted in *MIT Technology Review*: "It's about trying to break interaction out from our screens and our devices, where they're separated

from reality, and a separate world, really ... and try to merge those onto our environment."

Their work is still confined to the lab, said Metz, but reader comments on several sites were encouraging. One comment said the person could not wait for something like this to hit the stores or, better still, to go open source. Another comment, on *Gizmodo*, said, so basically this is what Tony Stark does.

More information:

www.robertxiao.ca/research/desktopography/

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