Controlling Your Phone With Motion

Kent German, CNET

Hillcrest Labs isn't a household name, but if you have a Roku 2 [1] streaming player (and really, you should) the company has entered your home.

Based in Rockville, Md., Hillcrest developed the motion-sensing technology used in Roku's remote. So when you're flipping through menus or playing Angry Birds [2], Hillcrest is behind how it all works. Its first product in the motion space was the Loop [3] controller, which it showed at CES [4] 2007. After that, the company went on to license its technology to Sony and LG, develop the Kylo browser [5], and sue Nintendo [6] over the Wii [7] controller.

For the next year, however, Hillcrest is thinking smaller. And by that I mean right down to the mobile level. Two weeks ago at CTIA [8] in New Orleans, SVP Chad Lucien explained how the company is working to integrate motion control technology into cell phones and tablets [9].

"Our technologies center around sensing motion," Lucien said. "You can rotate your phones around the three axes and get very fine control."

Of course, cell phones that respond to motion are nothing new. Every smartphone has an accelerometer, after all, and Sony (formerly Sony Ericsson) has used "gesture control" in even its basic phones since at least 2008. On certain models, for example, you can silence the ringer by turning the phone over on a table and change tracks on the music player shaking it.

Library of gestures Lucien says that Hillcrest's solutions will include those actions, but will be more sophisticated by taking full advantage of all sensors on a smartphone including the accelerometer, gyroscope, compass, and magnetometer. In all, it has developed 50 distinct gestures that could be used to do everything from unlock a handset, to handling a call, to playing games.

Some gestures could be "orientation free," meaning that the same gesture will do the same thing no matter how you're holding the phone (portrait, landscape, etc.). Others will be "orientation dependent," where how you're holding the phone will make a difference. For example, Hillcrest's gesture recognition engine can measure the degree that a user is rotating a device and differentiate between distinct angles. A 90-degree rotation could answer a call on speakerphone, while a 180-degree rotation could send a call directly to voice mail. Alternatively, Hillcrest could enable a user to flip through his or phone's photo gallery by tipping the phone to the side. As the angle increases, the photos would fly by faster.

Lucien also says that character recognition is possible. That could let you unlock your phone by drawing a particular letter in the air. Sure, you may look silly doing it and it wouldn't be completely secure, but it would be another solution besides a numerical code.

With Hillcrest's technology, your phone will recognize when it's on a stand.

Location and stability Hillcrest's technology also can be applied to the compass to make it more precise by removing external magnetic influences during calibration. In turn, a more stable compass can improve augmented reality and geolocation apps.

One of the technology's coolest promises, however, is that it can detect when a phone is resting on a table and when you're holding it by measuring the slight tremors from your hand. So, for instance, if you want to automatically activate the video player by rotating a phone its side, Hillcrest could program it do so only when the handset is placed on a stand.

"It's a faster reading of orientation," Lucien said. "We're heading to a point where we can distinguish between when a phone is being held by a person, when that person is walking, or when that person is in a moving car [10]."

What's next In the next few months, Lucien says that Hillcrest will release its API so developers can build the technology directly into their apps. As for smartphone operating systems, the company is focusing on Android and Windows 8 for now, though it hopes to expand into iOS and RIM in the future.

So when can you see it in your phone? For now, Lucien would only say that Hillcrest is working with device makers to integrate the gesture-recognition engine into phones for release by the first quarter of next year. That's a long time to wait, but it may be worth it.

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