

Security and Privacy

Modern Mobile Systems

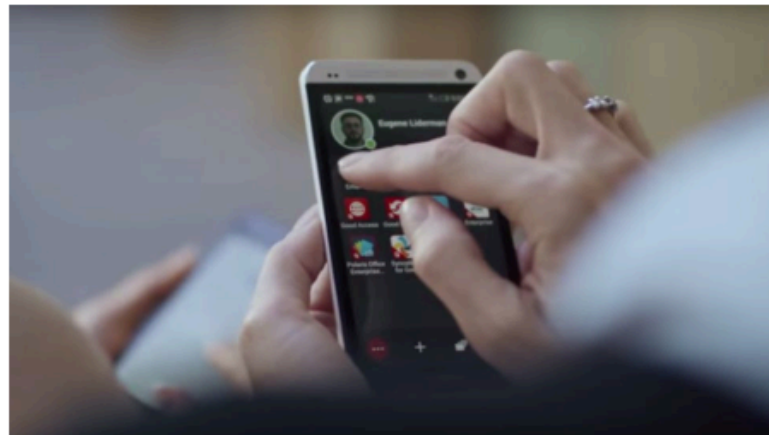
Sensors: Accelerometer

- Accelerometer used to detect password

Scientists find a way to crack your phone's password using just the accelerometer

By Duncan Geere April 11, 2017 World of tech

With 70 percent accuracy on the first guess



Perhaps you like the iOS-style string of numbers for logging into your smartphone. Perhaps you're more of a creative type, and like Android's artistic scribble system. Either way, your phone's internal sensors could be giving away all your secrets.

Sensors: Gyroscope

- Recognizing speech from gyroscope signals

<https://www.usenix.org/conference/usenixsecurity14/technical-sessions/presentation/michalevsky>

Eavesdrop on communications

Does not require user permission to access gyroscope

Electromagnetic Signals

- Televisions video privacy and powerline electromagnetic inference
- <https://homes.cs.washington.edu/~yoshi/papers/ccs2011-emi.pdf>

Wireless Signals

Pace Maker attack

The Switch

Yes, terrorists could have hacked Dick Cheney's heart

By Andrea Peterson
October 21, 2013





Dick Cheney currently has a pulse – which was not always the case. (AP Photo/Olivia Harris, Pool, File)

On "60 Minutes" this Sunday, former Vice President Dick Cheney [revealed](#) that his doctor ordered the wireless functionality of his heart implant disabled due to fears it might be hacked in an assassination attempt. And despite literally being a [scenario from Homeland](#), that's a pretty valid fear.

"It seemed to me to be a bad idea for the vice president to have a device that maybe somebody on a rope line or in the next hotel room or downstairs might be able to get into-- hack into," explained Dr. Jonathan Reiner. Cheney concurred, saying he found the threat "credible."



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Acoustic sensors - Samsung TV attack

If you have a smart TV, take a closer look at your privacy settings

Nicole Nguyen

Published 3:21 PM ET Thu, 9 March 2017 | Updated 7:08 PM ET Thu, 9 March 2017

BuzzFeedNEWS



Over 40 million US households own smart TVs, a category that made up more than half of TVs shipped globally in the first quarter of 2016. These high-tech internet-connected displays offer viewers the ease of access to services like Netflix, games, and social media without a Roku, Chromecast, or other media streamer — but they also may be tracking your viewing habits and listening to your conversations.

Acoustic sensors – Alexa attack

Alexa and Siri Can
Hear This Hidden
Command. You Can't.

Researchers can now send secret audio instructions undetectable to the human ear to Apple's Siri, Amazon's Alexa and Google's Assistant.

Acoustic sensors – Covertband

- Embed custom signals in regular music

<http://musicattacks.cs.washington.edu/>

BCI – EEG Signals

- EEG signals used to obtain private information like Bank pin, Bank Name, month of birth, geographic location
- <https://www.usenix.org/system/files/conference/useenixsecurity12/sec12-final56.pdf>