



The Day After Passwords Die – How Biometrics Will Usher in a New Age of Technocreepiness

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Presented at New York State Cyber Security Conference
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Why Biometrics Will Rule The World

- Passwords are severely broken
- Convenience is king
- Biometrics technology is getting better
- Less invasive than people think: e.g. digital points and hashes are collected, not full fingerprints
- Legal forces are pushing for non-repudiation ID
 - Oct 1, 2015: USA Fraud liability shifts to non-chip merchants
 - Already in Canada: shifted to consumer if PIN entered



Why Biometrics Will Creep People Out

- It's so “you” – you can't change your fingerprint or retinal scan
- Snowden revelations about government tracking
- Revelations, e.g. in my book, *Technocreep*, about business use of tracking technologies
 - “Target Knows Teen is pregnant” is a great yarn but there are more realistic predictive analytic business cases (divorce prediction; likelihood you'll switch insurers; creditworthiness via your friends)
 - Shopping Mall tracking experiments
 - FBX and the like: I'm being pursued by a wall oven and a rental car



I'm being pursued by a wall oven, a rental car and my own book!

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UNIVERSITY OF CALGARY

“Smart shelves” track shoppers

Mondelēz Pursuing Point of Purchase Interactivity



Pilot of smart shelf checkout counter display units. Sensor technology, analytics and video will combine to deliver demographically appropriate ads and promotions



People

Machine

People



Consumer stands in front of display at checkout counter



Camera sensor analyzes facial structure and other characteristics to determine age and gender. Weight sensors know when and what product has been picked off shelf



Sensors alert display to feature video or promotion relevant for this consumer segment



Predictive Analytics – Where and How You Leave Digital Tracks

- Purchases: “People Who Bought This...”
- Surveys
- Website registration
- Meal choices on flights
- Real world activities (cellphone pings; cameras)
- Where You Used Wi-Fi
- News reports (Zoominfo: “Stephen Harper, Odious Leader of the Conservative Party of Canada”)
- And, of course, Social Media



You see a lot just by looking

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WHAT THE...

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How Target Figured Out A Teen Girl Was Pregnant Before Her Father Did



332 comments, 172 called-out

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Every time you go shopping, you share intimate details about your consumption patterns with retailers. And many of those retailers are studying those details to figure out what you like, what you need, and which coupons are most likely to make you happy. [Target](#), for example, has figured out how to data-mine its way into your womb, to figure out whether you have a baby on the way long before you need to start buying diapers.

Charles Duhigg outlines in the [New York Times](#) how Target tries to hook parents-to-be at that crucial moment before they turn into rampant — and loyal — buyers of all things pastel, plastic, and miniature. He talked to Target statistician Andrew Pole — before Target freaked out and cut off all communications — about the clues to a customer's impending bundle of joy. Target assigns every customer a Guest ID number, tied to their credit card, name, or email address that becomes a bucket that stores a history of everything they've bought and any demographic information Target has collected from them or bought from other sources. Using that, Pole looked at historical buying data for all the ladies who had signed up for Target baby registries in the past. From the [NYT](#):



Target has got you in its aim

“ [Pole] ran test after test, analyzing the data, and before long some useful patterns emerged. Lotions, for example.

ID Tech Is Already Getting ~~Under~~ On, Our Skin

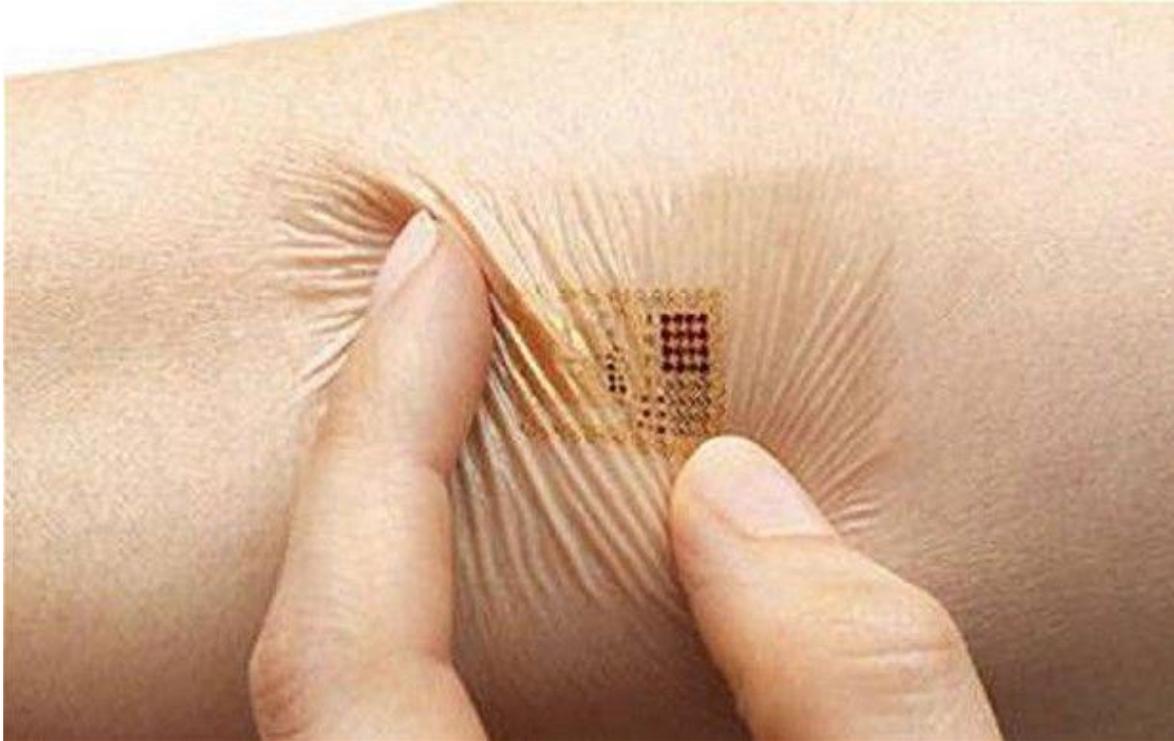


Source: vivalnk.com

BUY NOW \$9.99



They're even claiming a "cool factor"



That's a microphone!



Source: IC10, via telegraph.co.uk



And, it's patented technology

US PATENT & TRADEMARK OFFICE PATENT APPLICATION FULL TEXT AND IMAGE DATABASE



(6 of 9)

United States Patent Application

20130297301

Kind Code

A1

Alberth, JR.; William P.

November 7, 2013

COUPLING AN ELECTRONIC SKIN TATTOO TO A MOBILE COMMUNICATION DEVICE

Abstract

A system and method provides auxiliary voice input to a mobile communication device (MCD). The system comprises an electronic skin tattoo capable of being applied to a throat region of a body. The electronic skin tattoo can include an embedded microphone; a transceiver for enabling wireless communication with the MCD; and a power supply configured to receive energizing signals from a personal area network associated with the MCD. A controller is communicatively coupled to the power supply. The controller can be configured to receive a signal from the MCD to initiate reception of an audio stream picked up from the throat region of the body for subsequent audio detection by the MCD under an improved signal-to-noise ratio than without the employment of the electronic skin tattoo.

Inventors: Alberth, JR.; William P.; (*Prairie Grove, IL*)
Applicant: Name City State Country Type
Alberth, JR.; William P. Prairie Grove IL US
Assignee: MOTOROLA MOBILITY, INC.
Libertyville
IL
Family ID: 48468791
Appl. No.: 13/462881



Source: uspto.gov

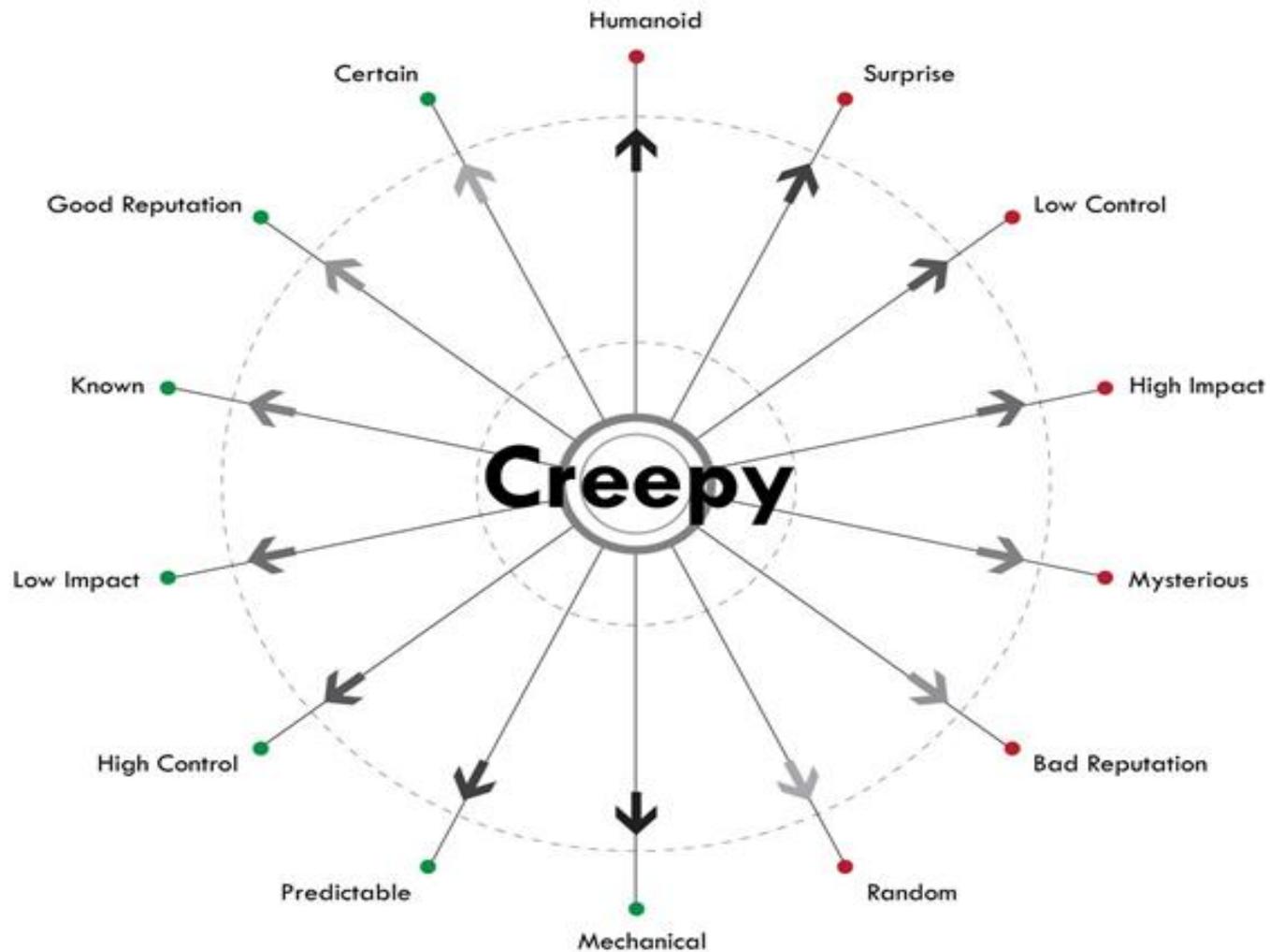


Motorola/Google's "Password Pill"

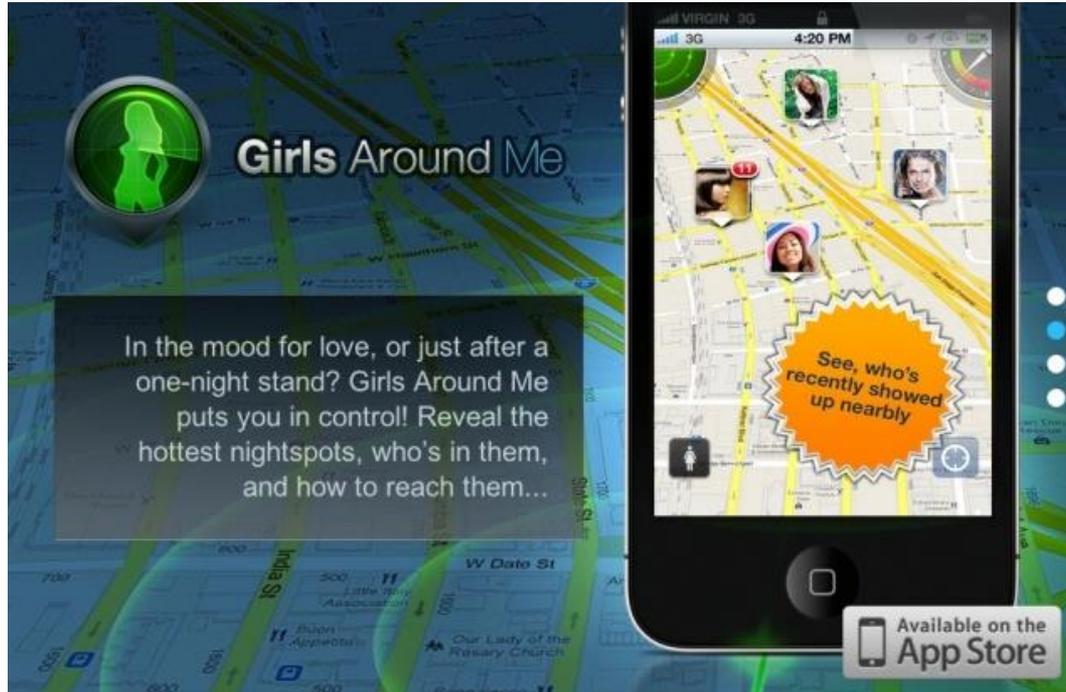


Source: slate.com





“This app takes creepy to new level” – NY Times



Source: Girls Around Me



Girls Around Me

Creepy

- Name: “Girls Around Me”
- Reputation: Bad once NYT got it
- Surprise: Definitely for the girl
- Control: Low for the Girl
- Mysterious: Came Out of the Blue

Less Creepy

- Name: “New Friend Finder”
- Reputation: Could Have Managed
- Surprise: Maybe a Handshake
- Control: Shared consent
- Warnings on Facebook, Foursquare (unlikely!)

Samsung's Smart TV Watches You



The image shows a YouTube video player with a presentation slide overlaid. The slide is titled "Enable UART" and contains the following text:

Enable UART

- Our TV UART is disabled by default
 - You should get into 'Service Mode' to make UART enabled
- How to get into 'Service Mode'
 - TV has 2 Service Modes
 - 1: Power off + Mute + 1 + 8 + 2 + Power On
 - This is not for us as it doesn't have "Advanced Mode"
 - 2: Info + Factory key combination
 - Our remote controller doesn't have "Factory key", so, we should do radio frequency stuff

The video player interface includes the YouTube logo, a search bar, a video player with a play button and progress bar (10:54 / 52:35), and a video title: "Hacking, Surveilling, and Deceiving Victims on Smart TV by SeungJin 'Beist' Lee". Below the title is a channel name "ルーバーヘイズ" and a "Subscribe" button with a count of 5. The video has 1,660 views.



Let's all bug ourselves!

Amazon Echo is another step toward commoditizing your personal life

1.6k
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[Accounting Training - AB](#) - Accounting & Payroll Administration Program in Alberta. More Info:

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[Top 10 Blog Hosts \(2014\)](#) - Web Hosting Ranks, Rates & Reviews. Compare Best Hosts Before You Buy!

[www.consumer-rankings.com/Hosting](#)

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[repositioningcruise.com](#)



<http://mashable.com/2014/11/06/amazon-echo-commoditizing/>



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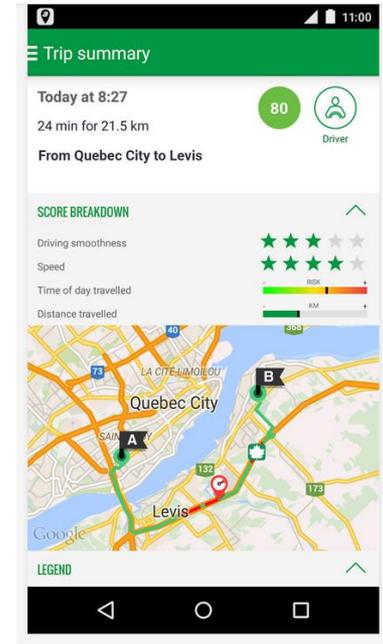
What About Flo?

- Progressive Snapshot®
- “You might save \$”
- Really usage based insurance
- Free trial
- “No downside”
- Doesn’t track *where* you drive, just when, how much, how hard



It quickly became creepier

- Allstate Insurance Drivewise® in U.S.
- Desjardins Insurance Ajusto in Canada
 - Where you drive; distance; braking acceleration, time of day speed versus posted speed limit“
 - Won’t sell info”; however subject to subpoena
 - Gameified: “challenge your friends” with “free app”



with
Desjardins
Insurance



John Hancock wants to put the dongle on you



Would you wear a tracker to get an insurance discount?



By Jose Pagliery @Jose_Pagliery



John Hancock will let you wear a Fitbit -- and share all its data -- for cheaper life insurance.

Most Popular



California: The nation's most unequal state



2 ways to get guaranteed retirement income



Premarkets: 4 things to know before the open

For the first time ever in the United States, a life insurance company is offering a discount -- if you're willing to let it track your health, location and body.



Who's Getting all this Bio-Information?

GIZMODO

+ FOLLOW

Your Fuelband Knows When You're Having Sex



Adam Clark Estes

Filed to: SEX 7/12/13 12:42pm

109,236 🔥 4 ★

Recommend



Source: Gizmodo.com, ©2013

Everybody loves these Fuelbands and other activity trackers because they supply you with troves of data about your everyday life. Sometimes, however, it's a little bit too much information.



Workplace issues

- Companies are giving fitness monitors and other wearable to employees as part of fitness programs
- “Four out of five employees would use company-provided wearable that tracks health and wellness and provide that data to their employer.”
(<http://www.cornerstoneondemand.com/SOWP14>)
- Perks might include discounts on fitness programs, extra vacations days, a bonus
- BUT...





Source: Licensed from Colourbox



Others concerns re “my biometrics”

- Could be used to see if employee got a good night’s sleep
- If Google can make smart contact lenses for diabetics, are continuous drug tests far away?
- Genetic information, if shared, can reveal many hidden facts, health risks, even things about relatives
- Providing biometrics could become “*de facto* mandatory”
 - Lenddo sets interest rate based on your Facebook friends
 - Progressive Insurance provides discounts if you use Snapshot®
 - And, my favorite...



“The Creepiest Place in America”

MyMagic+ RFID (tracking) wristband



Not only are you tracked in the park, you are lead around by the nose!

The Smellitzer®



Source: findingmickey.com



Hey, that smells like Frank – body odor ID is on its way

By [Ben Coxworth](#)
February 4, 2014

4 Comments 



Scientists are investigating BO as an additional form of biometric identification (Photo: [Shutterstock](#))

Move over, fingerprints, iris scans and facial recognition, because a new form of biometric identification may soon be joining you – body odor. According to scientists at Spain's Universidad Politécnica de Madrid, peoples' unique scent signatures remain steady enough over time to allow for an ID accuracy rate of approximately 85 percent.

First of all, why is another form of biometric ID even needed? Well, as the

Source: Gizmag

Does logging on make your heart skip a beat?

Source: nymi.com

YOUR EVERYDAY SIMPLIFIED

Seamlessly unlock devices, remember passwords and more, using your heart's unique signature.

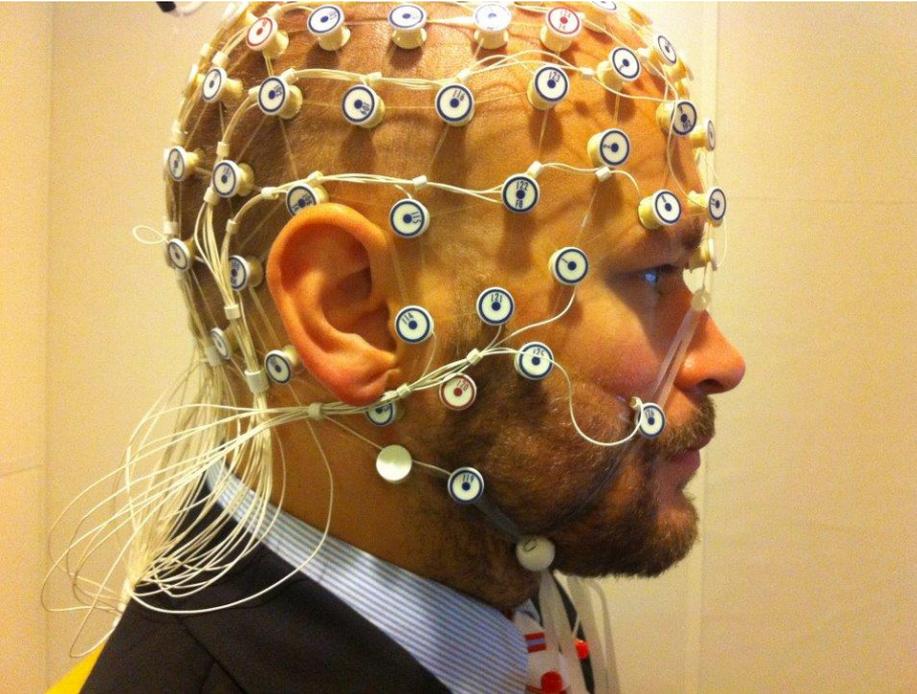
RESERVE NOW

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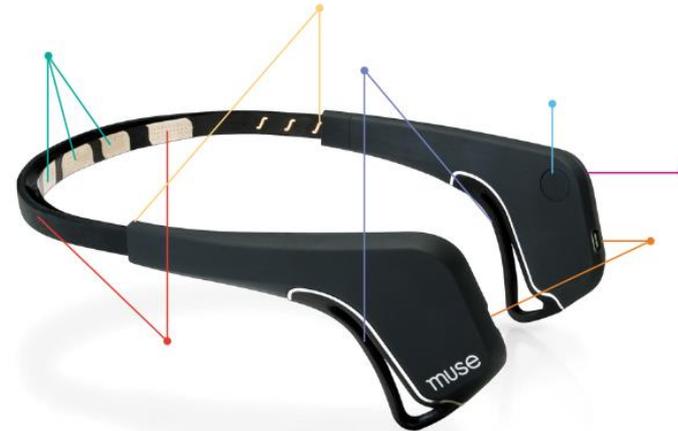
 nymi band



If not your heart rhythm...your EEG



- Neurosky
- OpenEEG
- Emotiv
- Muse



Source: Wikipedia

Typing Rhythm

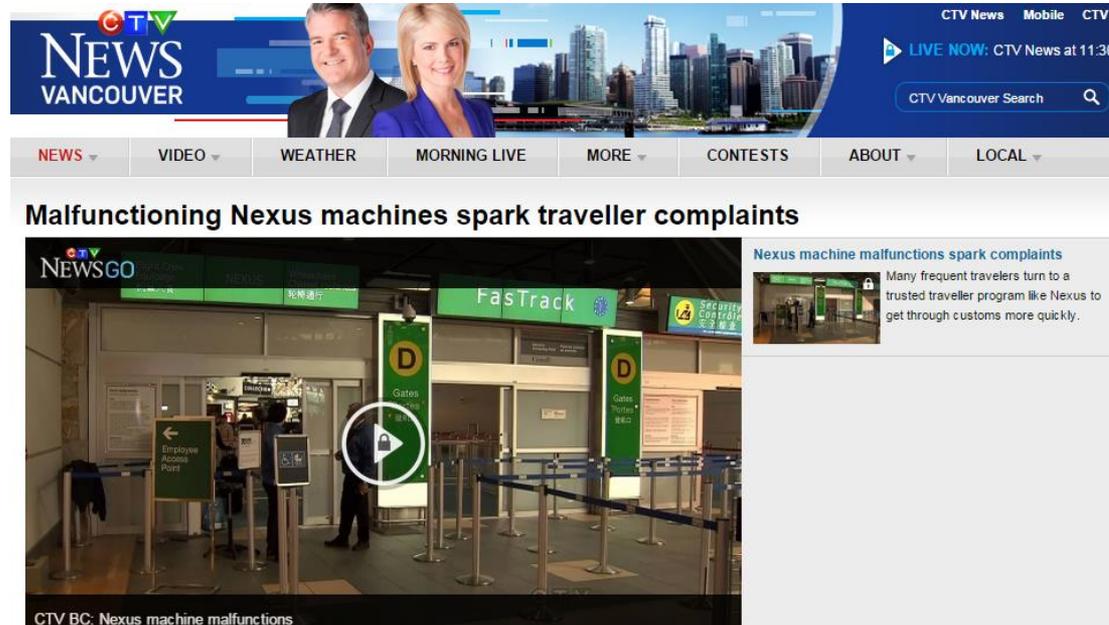


Source: Wikipedia

- I did a “proof of concept”, funded by Canada’s NSERC in 1980s
- Other researchers, such as Wes Masri, Ali El-Hajj and Ravel Jabbour of the American University of Beirut raved about Key Pattern Analysis in 2011 to double-validate passwords
- Seeds of its own demise: The longer (hence likely stronger) the password, the harder it was to type consistently



The Problem of Promising Too Much



Nexus: Iris scan with an issued (but not read) card

That's a hard computer science problem (lookup vs. validation)

They malfunctioned in an "interesting way"

Have been replaced

Source: CTV News



Like any info, bioinfo can be *stolen*

threatpost CATEGORIES FEATURED PODCASTS VIDEOS

03/06/15 9:46 Slight update with comments from Adobe - @Adobe Starts Vulnerability Disclosure Program on HackerOne: <http://t.co/Z2B9Q0as5T>

Welcome > Blog Home > Microsoft > How a \$10 USB Charger Can Record Your Keystrokes Over the Air



HOW A \$10 USB CHARGER CAN RECORD YOUR KEYSTROKES OVER THE AIR

by Dennis Fisher [Follow @dennisf](#) January 13, 2015, 7:03 am



Source: threatpost.com



How to Make This “News You Can Use”

- Even before you get back to the office, list technologies that you use or are considering using that have biometric components
- Apply this “creepy lens” to identify ways in which it might upset people
- Think about alternatives that will produce “pretty good information” A sign-in sheet at the company gym will track attendance, if not effort, as well as a fitness band. What do you really need to collect?



Longer term application of what you have learned today

- Check your data retention policies (example: videotapes should usually be erased after 7 days if not requested)
- Consider whether some data should be de-identified (which can be difficult!) or collected anonymously or not at all
- View every new technology through the “creepy lens” and make sure the benefits outweigh the risks
- Don't Be Creepy!



Thank you!

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