Halifax testing ECG wearable for identity authentication

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We have to think a lot about creating, losing, restoring, renaming and managing our passwords. Users and vendors are interested in finding better ways to deliver protection that will not be difficult to use. Technologists have been proposing fingerprint and iris recognition capabilities as next steps in the digital age but there is something else in the mix. The heart. What if you could seamlessly unlock devices using electrical signals emitted by the heart? The Nymi wristband was engineered to do just that.

This is a device for identity authentication via the wearer's unique electric cardiac signature. The Nymi Band is described as a wearable biometric identity device that lets you use your heart's unique signature (Electrocardiogram or ECG) to authenticate and confirm your identity. In 2015, we are still snarled in letter-number strings and PINS but the Nymi Band offers an attractive pathway, allowing you to prove that you are you to the world around you. The Nymi authenticates you by looking at the shape of your ECG wave. You can enhance your ECG profile a few times to capture regular daily variations in your heartbeat through a companion app.

Nymi's biometric authentication technology is called HeartID. The core of the band has an encrypted hardware element to keep communications safe, and an accelerometer and gyroscope for gesture recognition and haptic feedback motor. The band uses LED patterns to communicate its current state, battery life and other messages. The Nymi Band takes two hours for a full charge and battery life in a fully-charged band can lasts up to five days. When you clasp the Nymi Band on and all five LED lights pulse twice, then you know the band is fully charged. If you feel a slight vibration while wearing the band and only one light shows up, this means the battery is low and your band needs to be recharged.

A portion of the band has a circuit that disables the band if it is cut or removed. For all-day comfort, the team used hypo-allergenic (ISO 10993 compliant) materials. The band is water-resistant but it is not waterproof, meaning it should not be worn while swimming or in the shower. The band does not house any personal information or passwords on it.

How it works: You put the band on and you touch it with your other hand creating a circuit between finger and wrist. That way, you prove to the band just once that you are you. Now the band does its verification work—and that could also mean when getting into your car or into your

residence. Can you imagine using the band for bank transactions? Would the wristband make banking any safer? The Halifax is trying out the new technology. According to the press release, "Halifax has undertaken a 'proof of concept' on how the Nymi Band could be used to reduce the need for customers to remember multiple passwords on a daily basis whilst ensuring it addresses the security issues of today."

In a story headlined "Halifax uses heartbeat sensor to secure online banking," James Temperton in *WIRED.co.uk* reported on what the bank had in mind, in testing out the band. ECG signals could replace online banking passwords, he said, in a "proof of concept experiment used an ECG band to record a person's cardiac rhythm, which could then be used to login to an online banking service." He said the technology uses Bluetooth to pair with a companion app for Windows, Mac, iOS and Android. "In order to work it first has to record a person's ECG to the band and link itself to the app. ECG data is captured when the customer wears the band on one wrist and touches a sensor on the top of the band with their opposite finger."

The bank's Director of Innovation and Digital Development, Marc Lien, said that "We are in the very early stages of exploring potential uses for the Nymi Band and wearable technology more widely which will help us further understand how we can serve our customers in the way that best appeals to their needs."

Unlike fingerprints or iris scans, said the release, "ECG is a biometric that is a vital signal of the body, and as such, naturally provides strong protection against intrusions and falsification." Lien was quoted in *WIRED.co.uk*: "The closed security loop at the heart of this technology prevents fraudsters from being able to steal the pattern and use it to access services."

Founded in 2011, Toronto-based Nymi is a spinoff from the University

of Toronto. Karl Martin is founder and CEO.

More information: www.nymi.com/the-nymi-band/