

Cyber Secuirty With Biometrics

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RMIT IIT ASSIGNMENT 2
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How does Cyber & Biometric security play a role in our life today?

What is it?

Cyber Security play's massive role within our lives daily, it is a core component of our integrated ICT world that we might not always consider as it largely stays behind the scenes protecting us from the shadows. Cyber security is a catch all name for a series of practices that focus on the protection, defense and security of a country, organization or persons ICT infrastructure and data. *ElranSystem.com, 12 Best Cyber Security Practices, 14/04/2021*

What is the state of the state of this technology?

For this report I'll be focusing on one key aspect of cyber security. Firstly, I'll touch on the introduction and new standards of integrated biometric security within ICT devices, biometric security is a fancy way of talking about using a user's biometrics or body to validate sections of an ICT system, a fantastic example of this system in play on our current lives is the introduction of these biometric checks on smart phones. We started with fingerprints and now have largely moved to face ID and facial scanning.

We can see that within our daily lives now these types of biosecurity measures are currently a standard on all our phones, but that does not mean the technology is finished or complete, we have seen since its introduction a vast increase and expansion of its abilities and use case across industries. Looking back the first smart phone to be outfitted with a fingerprint scanner was the Galaxy S5 Unveiled on 24 February 2014 (*Gottabemobile.com, Samsung Galaxy S5, 14/04/2021*) since then the development and use of biometrics in our every day life has continued to get more and more extensive.

When biometric security was introduced on smart phones, we saw its use case limited to unlocking phones, this was deployed alongside the current pin code system, this change drastically improved phone security, a face id scan can't be brute forced in the same capacity that a pin code or standard password can. Some of the statistics for that Apple has released to support this claim are.

- The Change an alternative fingerprint will unlock your device 1/50,000.
- The Change an alternative face will unblock your device 1/1,000,000.
- The Change a user can guess a 4-digit password 1 / 10,000.

Biometrics Now

From these statistics we can see that using fingerprint security to protect your digital data and phone will give you a 5x deduction in the likelihood of a data breach of your device. Whilst using the face id will reduce your chances of a breach by 100x from 1 / 10,000 chance on a passcode to a 1 / 1,000,000 for face id. *HowToGeek.com, How Secure is Face ID, 14/04/2021*

Biometrics Over the next 3 years

These statistically represent the current standards for Biometric Security to protect our data on our mobile device and show that even today just how much these new additional have improved our security. Over the next few years (3-5) we will see more additional improvements in the area of biometric security with the enhancements of AI and more efficient computer systems we should expect to see the accuracy of facial and fingerprint identification continuing to increase and increase, as this Trent starts to gain momentum, I think it's extremely likely that we will start to see these technologies starting to apply to other devices as well as smart phones, these could include ATM machines with facial scanning, and possibly cars with various facial and finger print checks built into the vehicle powered by AI.

Biometric security has really boosted our Cyber Security and data protection on our devices in the last 10 years and it is an exciting time to be able to see the incredible changes that will be coming down the pipeline over the next decade.



<https://www.express.co.uk/life-style/science-technology/1174593/Apple-iPhone-Face-ID-security>, Accessed 17/14/2021

What is the potential Impact of this development?

Impact of Further Development

To examine the potential impact of these development we will look at a cyber security example that can be prevented with biometric security. Cyber security is constantly defined as the protection of online data and computer systems, this is complimented by biometric security which is the security and identification of users via their biological features. For this example, we will look at how a company like Facebook could benefit from introducing advanced biometric security as a form of 2 factor authentication of accounts. Everyday Facebook and online platforms face thousands of attempts to breach into users accounts and protected information, traditionally these accounts have been protected by email and basic two factor authentication but what if we started integrating apps like Facebook with Apples secure hardware biometric check Face ID, we can use the Face ID to serve as a form of advanced two factor authentication, meaning an attacker attempting a login on a device would be subject to a Face ID check via the smart phones camera after a successful login. Such a system could drastically reduce the amount of data breaches of user's accounts. Whilst that is a hypothetical the underlying technologies could be applied to any number of systems to drastically increase our account security.

One hurdle of a system like this would be the required integration between apples low level systems and Facebook or Any app, this would no doubt have security issues to overcome and require advanced partnerships between the companies but could allow us to use that extremely secure system to support account protection for online and digital data. This was a concept explored by Bhumika R. Shetty, Anita Sinha, Ashwini B. Sonar in a in depth publication in the International Journal of Engineering Research and technology. *Ijert.org, Two Factor Authentication System Based on Face Recognition, 14/04/2021)*

<https://www.ijert.org/two-factor-authentication-system-based-on-face-recognition>

Whilst their article was published in 2013 I believe that increased integration and Biometric security being employed to support and protect cyber security data will be expanding over the next 3 years.

How is this important to us? Will it replace any current jobs?

The creation and implementation of these two technologies will not make any jobs redundant but would in fact support the creation and training of more Cyber Security professional and an increased demand for the development, maintenance and support of these new systems. This would continue to boost the current Cyber Security demand boom that we are experiencing now.

As an end user we would get the fantastic security and peace of mind benefits from these new Biometric systems to protect our cyber data. These new systems are also more seamless than traditional two factor authentication that relies on texting or email secondary codes / passwords to be entered by the users.

How will this affect our daily life?

Developments in Biometric cyber security would have a profound impact on our daily life; however, it is important to remember that this type of a technology is largely behind the scenes and on the back end, we might see facial recognition starting to crop up on more devices and technology but advancements in behind-the-scenes security that focuses on accuracy will be hard if not impossible for us to see as the end user. An example of this could be comparing the technology when it launched on the first iPhone Vs 2021, We can see basically the same feature set and from the end user it does not look or function different but behind the scenes a great deal of importance have been made to the technology.

These new advancements in Biometric ID will have a fantastic improvement on our security in our life, we will be able to feel more confident and safer that our devices are secure. With a lot of Cyber Security products when the product works and does its job the user does not see it in action. Its only when a Cyber Security or Protect feature fails, they see it, this means that for most people when a form of Biometric security protects their account or online service, they will not even know it's done it! Its an exciting time for Cyber & Biometric security and watching how these will interface and integrate with our life and services we use on a day-to-day basis will be an exciting experience for all of us!



<https://www.freep.com/story/money/cars/2018/09/24/key-fobs-cars-fingerprint/1342163002/>, Accessed 17/14/2021

References

ElranSystem.com, 12 Best Cyber Security Practices, Accessed on 14/04/2021,
<https://www.ekransystem.com/en/blog/best-cyber-security-practices>

Gottabemobile.com, Article on the Samsung Galaxy S5, Accessed on 14/04/2021
<https://www.gottabemobile.com/samsung-galaxy-s5/>

HowToGeek.com, Article on how secure face id is, Accessed on 14/04/2021.
<https://www.howtogeek.com/350676/how-secure-are-face-id-and-touch-id/>

ijert.org, International Journal of Engineering research and Technology Two Factor Authentication System Based on Face Recognition, Bhumika R. Shetty, Anita Sinha, Ashwini B. Sonar, Accessed 14/04/2021, <https://www.ijert.org/two-factor-authentication-system-based-on-face-recognition>

www.freep.comImage, Image with Biometric Security on a car & Article, Accessed on 17/04/2021.
<https://www.freep.com/story/money/cars/2018/09/24/key-fobs-cars-fingerprint/1342163002/>

www.express.co.uk, Image and Article on Face ID Security, Accessed on 17/04/2021.
<https://www.express.co.uk/life-style/science-technology/1174593/Apple-iPhone-Face-ID-security>