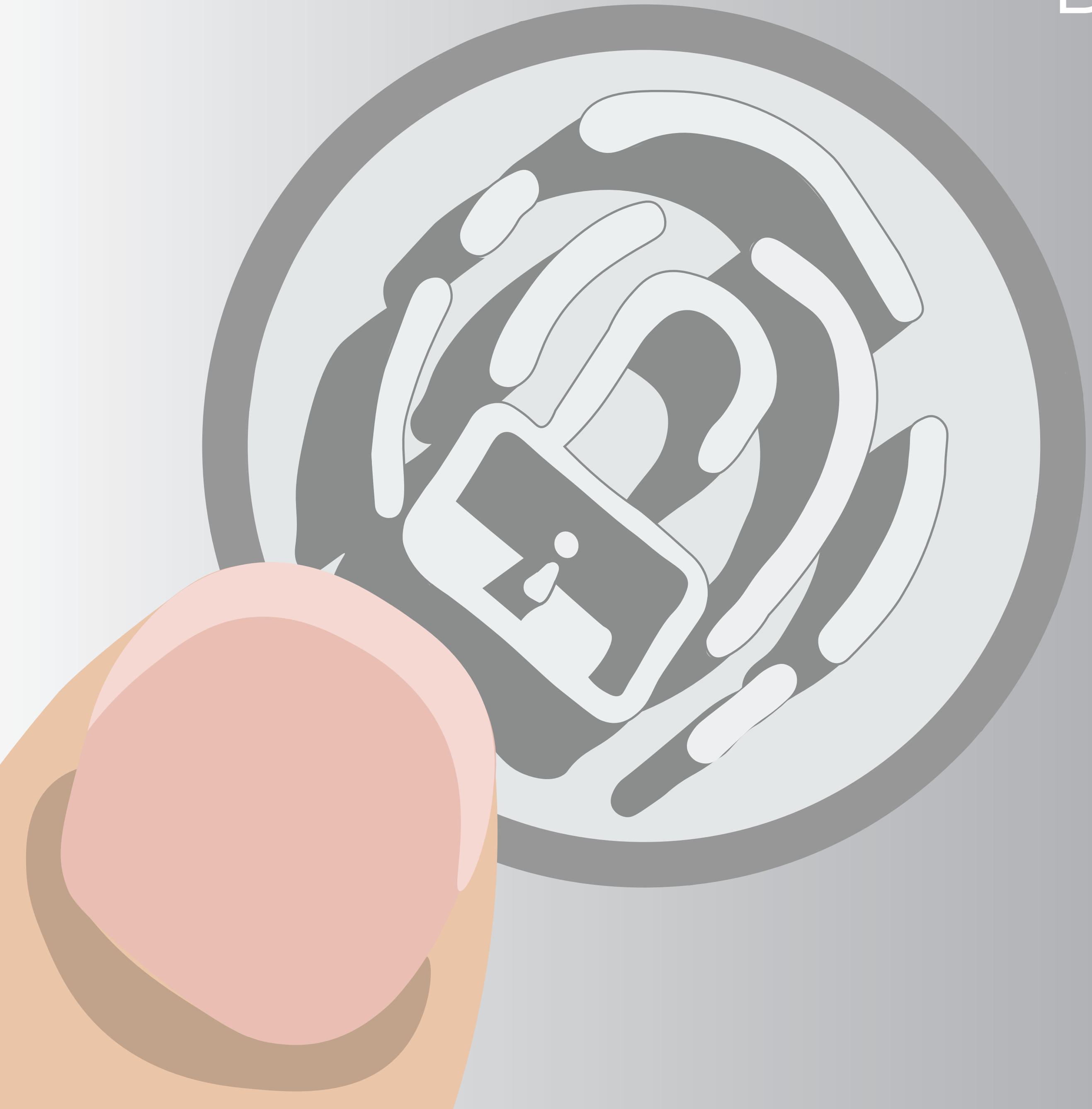
Benji Varu & Marian Aducayen

Biometrically Apple

A glimpse into the Future



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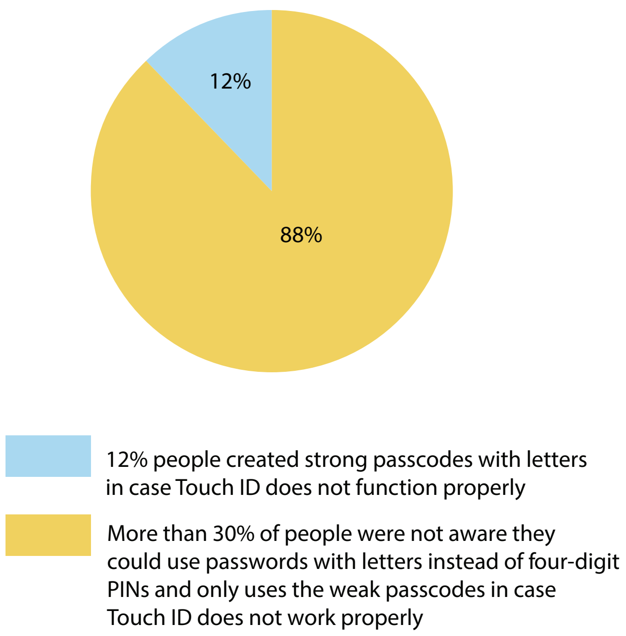
Security is no joke when it comes to Apple, from their resilient security measures to their adaptability to the ever-growing tech industry. "The technology within Touch ID is some of the most advanced hardware and software that we've put into any device." (Ahmad A. Al-Daraiseh, Diana Al Omari, Hadeel Al Hamid, Nada Hamad and Rawan Althemali, 2015). While the concept of touch id dates back to 2013 its current design is an alternative to the more common choice of a 4-6 digit code for a password. Aside from the futuristic feel of just using your own biometrics to access your phone, the user-friendly experience makes for an efficient way of navigating through different passwords, Security, Apple Pay and so much more. The implementation of the sensor which acts as a lens precisely focusing on your finger changed the way Apple's security has been defined.

Percentages of People with Strong and Weak Passcodes



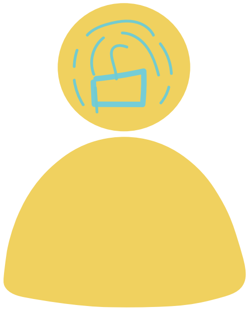
In generic Apple fashion the Touch ID technology created by tech company AuthenTec was bought by Apple in 2012 for $356 million in cash. The technology was then implemented into Apple's iPhone 5s to 8 Plus, 2020 iPhone SE, 2016 MacBook Pro, 2018 MacBook Air, iPad Pro (2nd gen), iPad Air (3rd gen), and later, and iPad mini (5th gen). AuthenTec, a company co-founded by Scott Moody really exemplifies his drive for accessibility, this prevailed through touch ID allowing for easy access to your mobile phone. The biometrics work by creating a mathematical representation of your fingerprint and comparing this to your enrolled fingerprint data to identify a match and unlock your device. It's only this mathematical representation of your fingerprint that is stored—never images of your finger itself. It then categorizes your fingerprint as one of three basic types—arch, loop, or whorl. It also maps out individual details in the ridges that are smaller than the human eye can see (About Touch ID Advanced Security Technology, 2017).

Touch ID can not only be used for unlocking devices, but it can also be used to authorize purchases from the App Store, iTunes Store, and iBookStore, as well as with Apple Pay.

The system was designed so that developers could implement the feature without concern for which biometrics was presented. Apps will ask for an authentication token, and the secure enclave will provide one after successful authentication of a face, fingerprint, or passcode. (Touch ID | iPhone, iPad, Mac, n.d.) With the thought of your own biometrics people can become less attracted to the idea of submitting personal information however Apple states that no images of your finger are being stored.

In theory, they may think it's easy to use it, however, this isn't the case. Most users were unaware of the initial purpose of Touch ID and do not understand the basis of the technology meaning they "don't use it properly" such as two different people with similar fingerprints for them to register as a match for Touch ID and the probability of this happening is 1 in 50,000 with a single, enrolled finger which is true and many people had this same situation which is why they don't use it properly. The researchers of the University of British Columbia researched and found that the majority of Touch ID users still used four-digit PINs which is weak and those who don't use Touch ID. More than 30% of people were not aware they could use passwords with letters instead of four-digit PINs and only 12% of people correctly estimated their passcode's strength. Hugh, Lorie, Tarika and Bhawna argue that using fingerprints as an authentication reduces the system's security as their reasonings are leaving fingerprints everywhere which leads to easier access for snatchers and less secure passwords with fingerprint option only. (Ahmad A. Al-Daraiseh, Diana Al Omari, Hadeel Al Hamid, Nada Hamad and Rawan Althemali, 2015)

Therefore, there are some mixed opinions on Touch ID. Although this technology can help users protect their details and photos, users should be concerned when creating weak passcodes and leaving fingerprints everywhere, which is making the technology less secure for the future and because of this, Apple stopped implementing this technology from 2020.



1 in 50,000

with a single, enrolled finger

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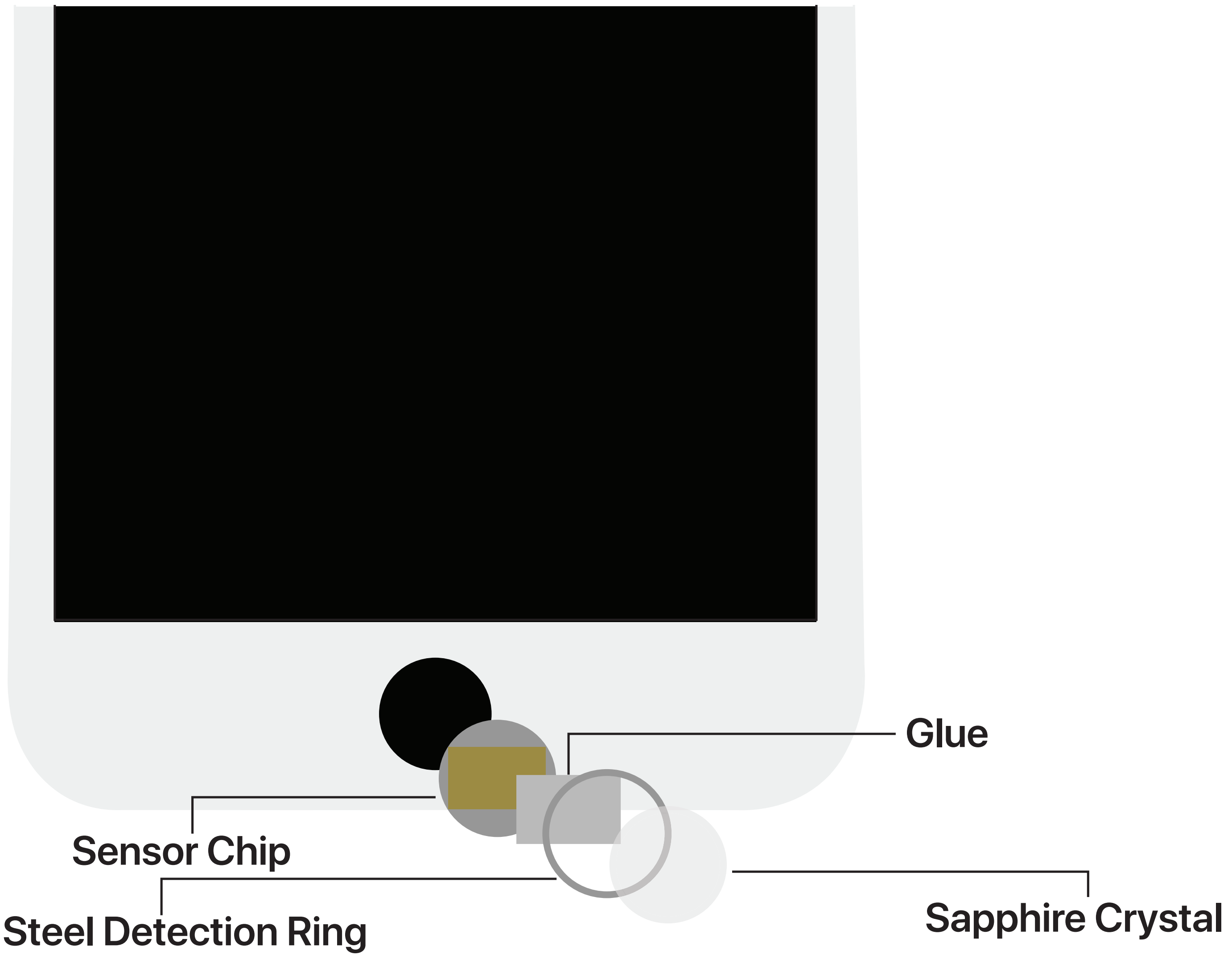
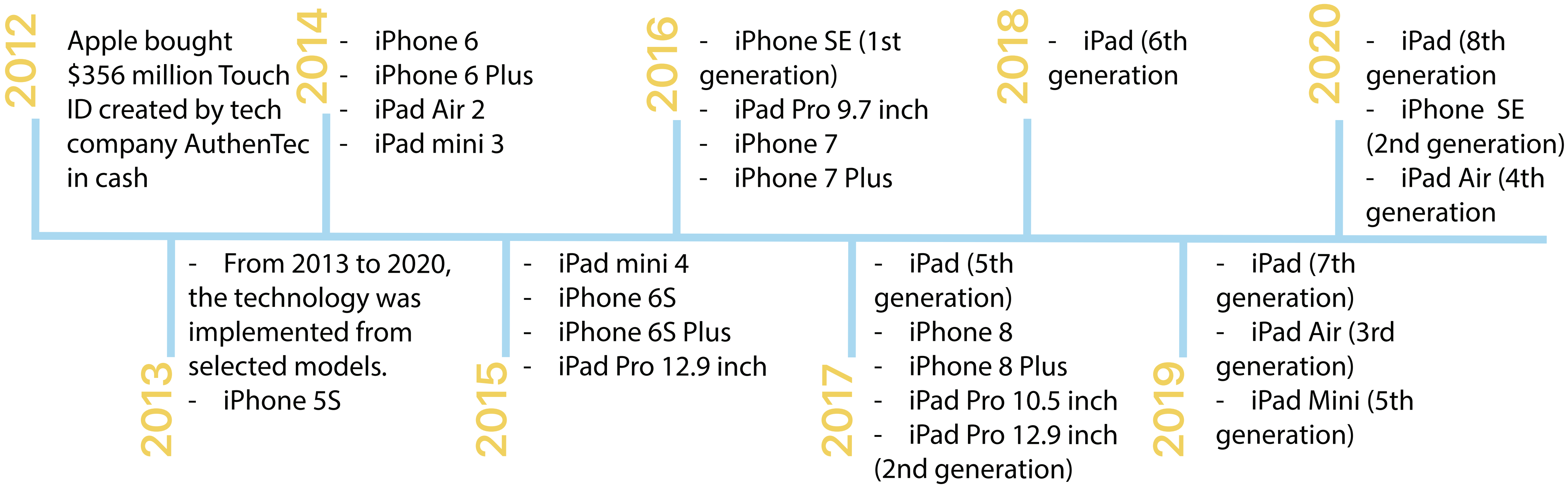
Parts of Apple Touch ID



History of Apple Touch ID and technology implemented from selected iPhone and iPad models



2012

Apple bought $356 million Touch ID created by tech company AuthenTec in cash

2013

- From 2013 to 2020, the technology was implemented from selected models.
- iPhone 5S

2014

- iPhone 6
- iPhone 6 Plus
- iPad Air 2
- iPad mini 3

2015

- iPad mini 4
- iPhone 6S
- iPhone 6S Plus
- iPad Pro 12.9 inch

2016

- iPhone SE (1st generation)
- iPad Pro 9.7 inch
- iPhone 7
- iPhone 7 Plus

2017

- iPad (5th generation)
- iPhone 8
- iPhone 8 Plus
- iPad Pro 10.5 inch
- iPad Pro 12.9 inch (2nd generation)

2018

- iPad (6th generation

2019

- iPad (7th generation)
- iPad Air (3rd generation)
- iPad Mini (5th generation)

2020

- iPad (8th generation
- iPhone SE (2nd generation)
- iPad Air (4th generation