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# Facing Concern

Is FaceID safe and reliable?



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Facial recognition has been around a lot longer than many people might think. Often thought of as a sci-fi element back in the 60s and 70s, facial recognition is now quite commonplace in today's society. However, face ID technology is actually more than 50 years old with experiments first starting in 1964. The experiments were done to see if programming computers could recognize human faces. A rudimentary scanner was used in order to map a person's hairline, eyes, and nose. The task of the computer was to find matches. The early experiments ultimately failed and little work on the experiments was ultimately published as the funding for the project was from an unnamed intelligence agency.

First released with the iPhone X in 2017, The Face ID feature allowed users to open their phone, make payments and unlock passwords with just a glance. This was intended to make using the iPhone even easier and more efficient for users.

Apple's Face ID uses something known as the TrueDepth camera system. A product made by Apple, the True depth camera system has the ability to capture accurate face data to create a depth map and infrared image of the user's face. The camera system is made up of several components. These work together to map out a precise reading of your face allowing you and only you to use it.

There are 3 main components used for Face ID. The first is a dot projector that projects the infrared dots onto the user's face, a flood illuminator that shines infrared light at the face, and an infrared camera that takes an infrared picture of the user. The combination of these components will result in a pattern which generates a 3D map. The map is then compared with the registered face using a secure subsystem which, when matched, will unlock your phone.

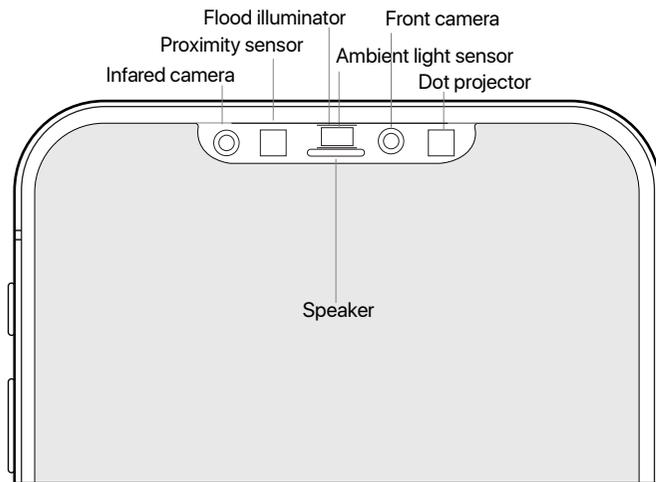
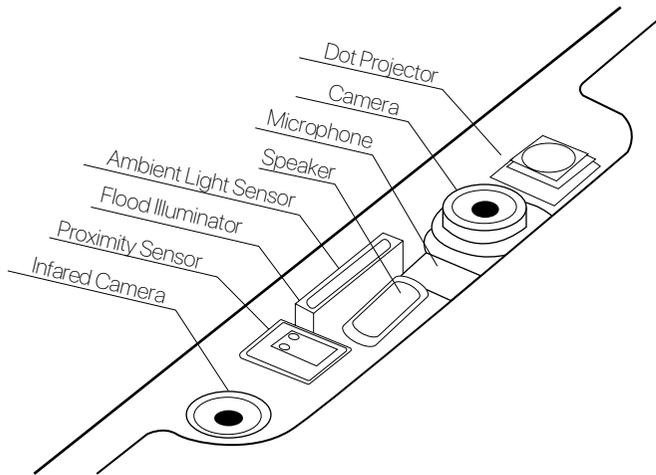
There have been numerous experimented ways to hack Face ID. Wired attempted to spoof Face ID by spending thousands of dollars, hiring a biometric hacker and



## References:

Apple. (2021). About Face ID advanced technology. Apple. <https://support.apple.com/en-au/HT208108>  
Cipriani, J. (2020). iPhone Face ID is pretty cool. Here's how it works and how to use it. <https://www.cnet.com/tech/services-and-software/the-iphone-and-ipads-face-id-tech-is-pretty-darn-cool-heres-how-it-works-and-how-to-use-it/>  
Face ID. (n.d.). Wikipedia. [https://en.wikipedia.org/wiki/Face\\_ID](https://en.wikipedia.org/wiki/Face_ID)  
MacDailyNews. (2020). Survey: 8 in 10 iPhone users want Touch ID to make a comeback (due to face

masks). MacDailyNews. <https://macdailynews.com/2020/12/08/survey-8-in-10-iphone-users-want-touch-id-to-make-a-comeback-due-to-face-masks/>  
Murnane, K. (2018). What Could Possibly Go Wrong? The iPhone X's Face ID. <https://www.forbes.com/sites/kevinmurnane/2017/12/03/what-could-possibly-go-wrong-the-iphone-xs-face-id/?sh=3096f8b64ccb>  
Thales. (n.d.) Facial Recognition History. Thalesgroup. <https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/inspired/history-of-facial-recognition>



a Hollywood face-caster and makeup artist only to unsuccessfully fool the facial recognition technology. A Vietnamese cybersecurity company released a proof-of-concept showing them unlocking a Face ID locked iPhone X with a mask that cost \$150.

Addressing the concerns of the safety of the technology Apple (2021) states "The probability that a random person in the population could look at your iPhone or iPad Pro and unlock it using Face ID is approximately 1 in 1,000,000 with a single enrolled appearance."

Another problem that has arisen with Face ID lately has been with the issue of face masks. Since the COVID-19 pandemic, most people around the world have had to wear face masks. This becomes quite an annoying problem for Apple users as with a facemask on you cannot use Face ID. Unfortunately there is no current alternative other than waiting for FaceID to calculate there isn't a match and bring up the password interface.

A survey conducted by Macdailynews of over 2000 people in the US with the iPhone X or newer models found that during the COVID-19 pandemic, which made face masks mandatory and integral in everyday life, a staggering 79% of people would like to see the return of Touch ID in the upcoming phones.

To conclude, face ID is a revolutionary technology that will pioneer the start of advanced phone security with countless possibilities in the future. However there has been major backlash on the technology due to the apparent security and privacy concerns as well as the disappearance of one of the most favoured security features, Touch ID. Although Apple has addressed many of these issues, they have yet to make significant changes to make Face ID more safe and reliable for its consumers.

**References:**

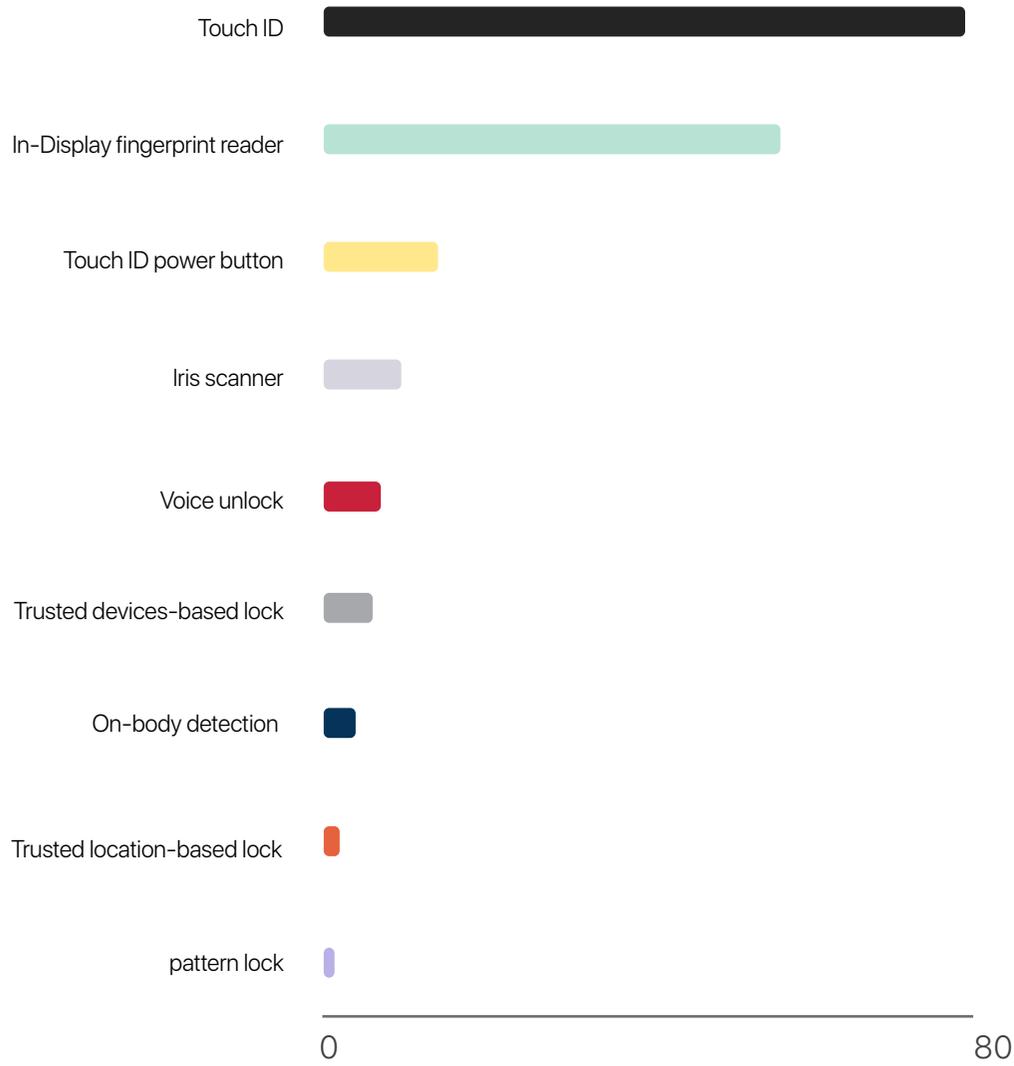
Norman, J. (n.d.). Woodrow Bledsoe Originates of Automated Facial Recognition. <https://www.historyofinformation.com/detail.php?entryid=2495>

Phryne, Shi, A. (2019). Why Face ID Not Working After Repair. <https://www.ifixit.com/Guide/Why+Face+ID+Not+Working+After+Repair/128388>

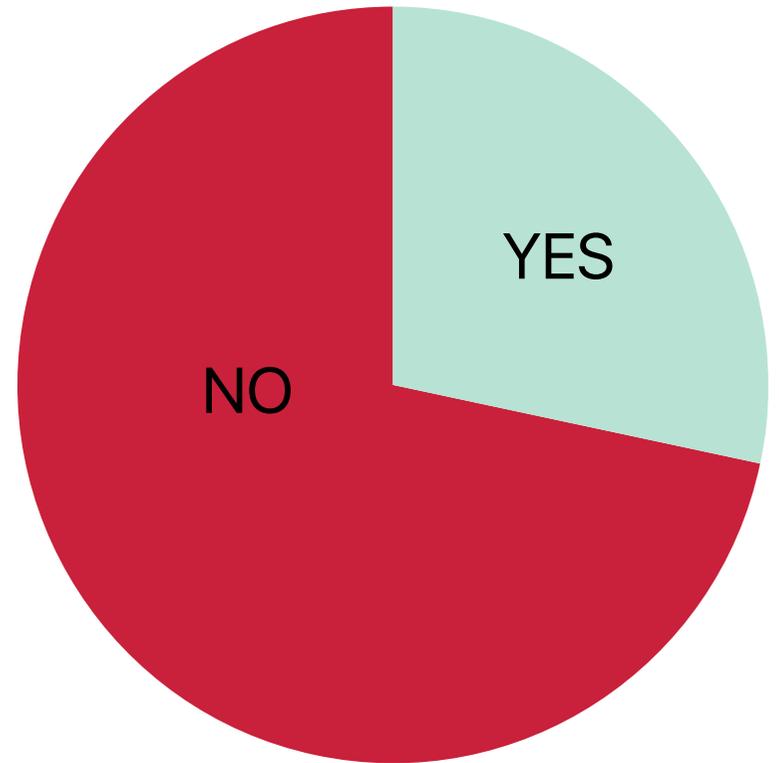
Readdle. (n.d.). How to Set Up and Use Touch ID or Face ID on iPhone or iPad. Readdle. <https://readdle.com/set-up-and-use-touch-face-id-tutorial>

Richardson, A. (2008) The Founding of Apple Computers, Inc. <https://guides.loc.gov/this-month-in-business-history/april/apple-computers-founded>

### What iPhone users would rather use than face ID



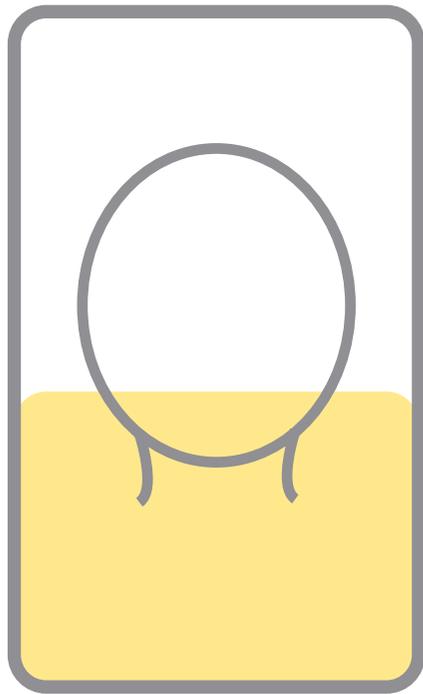
### Has Someone else been able to use face ID on your phone



# Preference for unlocking phone

Local Survey

Face ID

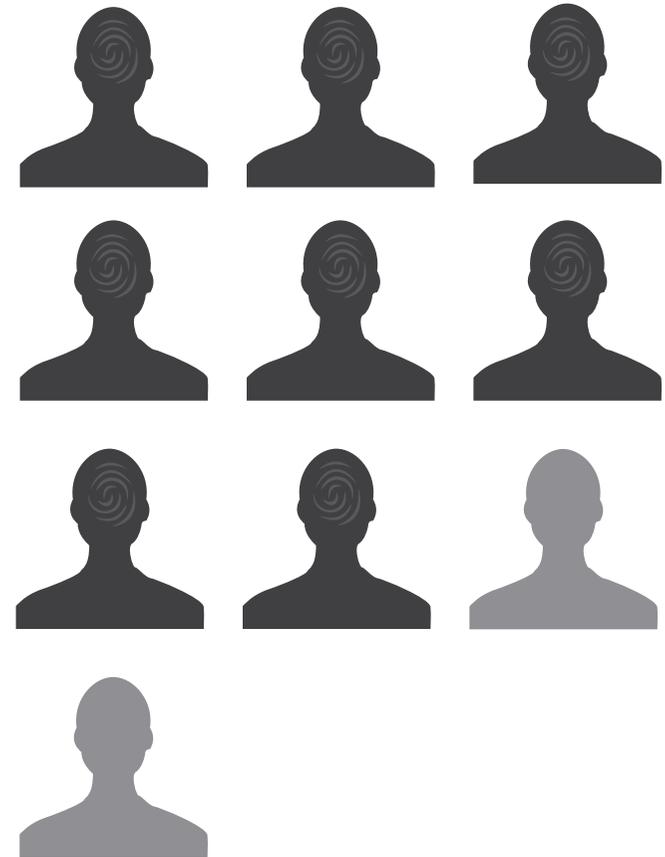


44%

Touch ID



66%



8 out of 10 people want touch ID to make a comeback

US survey

## Apple Revenue Pre and Post Iphone X (2017)

