

A Comparison of Touch-based and Touchless (ONYX) Fingerprint Collection for Deceased Individuals

TOUCH-BASED SENSORS

The cylinder-shaped finger is pressed against the flat sensor. Like pressing a balloon against a hard surface, the finger flattens out and distorts the image.

Due to rigor mortis, the deceased's finger will not flatten out well, and the sensor will only collect a small part of the finger image.

Since there is contact, the sensor experience wear and tear, and over time, the images become less clear. Dirt, dust, and sweat also accumulate on the sensor.

Touch sensors essentially sense the finger based on the conductivity of the skin, and are designed to be used with living humans. A live human's resistance to current is in the range of 300 Ω , while a the skin of the deceased is often 100,000 Ω +.*

Contact sensors are prone to hygienic problems, because bacteria and other disease-causing organisms are left behind on the sensor.

Touch sensors capture a smaller area of the finger. Although iFMD can capture an image at 508 dpi, the image they capture is 256x360. Math shows this area to be .5x.7."

Hardware sensors use infrared or radio waves to produce their finger image. These wavelengths are very long compared to the wavelength of visible light.

The iFMD sensor is not powered by the phone. It runs on its own battery, which must be charged in addition to the phone battery.

Prints left behind on the sensor can be collected. This could lead to fraud or identity theft, which happens not only with live people, but with the deceased as well.

Touch sensors are an extra device. The S.I.C. iFMD devices are often removed from the phone because they make the device very bulky and heavy. This can lead to loss of the device.

**This is an oversimplification of how touch sensors work, but the results are the same.*



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TOUCHLESS SOLUTION

There is no contact between the finger and any other surface, so the captured image isn't flattened.

Touchless images of a finger aren't affected by rigor mortis, lividity, or other post-mortem biological processes.

As nothing touches the sensor (the camera), no oils dust or make-up residue is left behind.

ONYX™ does not measure the conductivity of the skin to generate an image.

Again, because the finger never contacts the device, the chance of contamination is greatly reduced.

Because a mobile phone camera can capture much more information faster than a small-area touch sensor. ONYX can capture the entire finger image. We are able to provide you with a image that is 1600x1000.

Our image quality is higher because we use visible light, which has a smaller wavelength than infrared or radio waves used in some hardware sensors.

The camera is powered by the phone, so only one battery needs to be kept charged.

No prints are left behind.

The camera is integrated into the phone and cannot be removed.

ABOUT ERROR RATES:

Matching rates (FRR, FAR, ERR) indicate the quality of the matcher - not the quality of the fingerprint. Of these matching rates, the ERR (equal error rate) is the best indicator of the three. As SIC doesn't seem to publish their ERR (I could not find it anywhere), please ask them to provide that figure. ONYX has an ERR of .6.