LIFE AND WELL-BEING SCIENCE

Do you really own your phone?

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Imagine browsing through your bank account statement and realising that there is an outgoing transaction which you don't recognise. You call your bank and they tell you that the transaction was carried out from your own device.

Your brain starts racing: "Could it have been someone from my family? But they don't know my passcode and they can't use my fingerprint." The bank operator gives you more information: "This happened a couple of days ago at 2.30am. The destination is a bank account in Nigeria." You think to yourself: "It just doesn't make sense! Did I have some strange sleepwalking episode?"

It turns out that criminals don't need to steal your phone to gain access to it! As weird as that may seem, just as certain apps can perform gestures on the screen on your behalf, for example, when you are giving instructions through speech, a remote attacker can pull off the whole operation from miles away – without ever physically touching your phone. How does this work? Two things need to happen: you install a malicious app and then give it the required permissions.

Of course, the App Store does its best to filter out such malicious apps, but it is not the first time that problematic apps slipped through the cracks. Alternatively, you might have been convinced to download an app which is not hosted on the App Store, raising the risks considerably higher. Once the app is installed, it still needs permissions. Unfortunately, you probably happily pressed
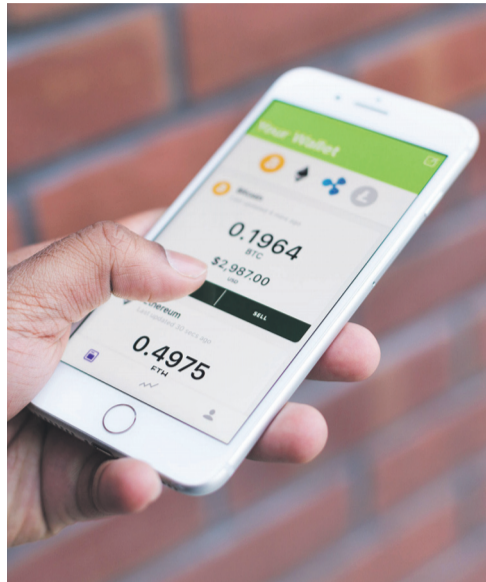
A malicious app can take over your phone and carry out transactions without your knowledge. Research into security mechanisms to prevent such situations is ongoing. PHOTO: BURST/SARAH PFLUG

"accept" and "continue" to quickly get the nicely packaged app promising you free video streaming or the like. It is not so obvious that you may also be permitting the app to rob you. Permissions might include access to the internet, accessibility features, and displaying overlays – nothing that seems out of the ordinary, but in combination, an attacker can wreak havoc on your device.

At this point, the attacker needs to get hold of your passcode. With the above permissions, the app can record your on-screen finger tap locations and ultimately steal your passcode. Essentially, the attacker now has

full control of your phone. In the middle of the night, while your phone is resting on your bedside table, the malicious app can unlock your phone and start performing any operation that the remote attacker wants it to, including bank transactions.

These, and similar types of scams <https://timesofmalta.com/article/scam-reports-double-year-125m-lost-2023.1085488>, are on the rise, highlighting the importance of staying vigilant.

The good news is that at the University of Malta, we are working on smart ways for security measures to distinguish between a phone user who physically has the phone and a user who can only operate the phone remotely. The trick is to use particular phone sensors, such as the gyroscope, and ask the user to perform specific movements to verify that they truly have the phone physically in their possession.

This comes with its own set of challenges: How do we add security measures without impacting convenience and accessibility? How do we distinguish between the user's verification movements and casual phone movements that could be hijacked by the remote attacker?

Despite these difficulties, we are confident that an innovative puzzle-like security mechanism that we are proposing can, in the near future, help safeguard more users from the nightmarish scenario of having their money stolen without anyone realising it.

Christian Colombo, Yonas Leguesse and Mark Vella are computer scientists at the Computer Science Department within the Faculty of ICT, University of Malta. For more information about studying computer science, visit https://www.um.edu.mt/courses/overview/ubschicgcft-2024-5-o/.

Cleaning wounds with alcohol

This myth has probably been spread through movies showing that when a person has an abrasion, they reach out for the vodka to clean the wound. This idea is not quite right, and it is painful and can delay healing due to harm to the tissue.

The best way to clean a minor wound is with cool running water and mild soap, thus removing dirt, debris and bacteria. If the wound is large, deep or the bleeding doesn't stop, you should seek help from a healthcare professional.

Alcohol rubs, such as surgical spirit, should only be used on infected wounds since alcohol damages the cells of the bacteria. However, for it to be effective, it needs to have a much higher alcohol concentration level which is not normally found in drinks aimed for consumption.

And should you keep a wound moist and covered?

Yes to both! Moisture helps wounds heal faster and prevents the bandage from sticking to the wound. A thin layer of antiseptic cream or antibiotic ointment will help prevent infection and keep the wound clean.

Moreover, covering the wound with an adhesive strip or a bandage protects the wound from rubbing against clothing, dirt and bacteria, thus helping the wound to heal faster.

PHOTO OF THE WEEK

The Faculty of ICT held its yearly Expo with a resounding success drawing an impressive and diverse crowd from all age groups. The Expo is an opportunity for students to showcase their work and serves as a platform for engagement with industry and the general public. The faculty held STEM sessions specifically designed for families, providing a fun and educational experience, and aimed to inspire the next generation of innovators. For more details, visit the Faculty of ICT website: www.um.edu.mt/ict/study/.

DID YOU KNOW?

- The first phase of wound healing is the inflammation phase, during which the body produces a natural inflammatory response and forms a clot to stop the bleeding.
- The second phase is the proliferation phase. During this phase, the wound is rebuilt. A new network of blood vessels is built so that the tissue can receive sufficient oxygen and nutrients for healing.
- The final phase is the maturation phase, when the wound fully heals and closes and the scar begins to fade away.

For more trivia see: www.um.edu.mt/think

SOUND BITES

• To build a much-needed spellchecker for Maltese, MSc student Alana Busuttil at the AI Department, University of Malta, built an interface which allows people to listen to an audio file and type out what they hear – with one caveat!

The backspace is blocked so that any mistakes (even unintentional keystroke errors) are recorded. Collecting genuine errors is essential to building an AI system that can map misspelt words to their correct version.

If you would like to participate, visit this website: https://nlpgroup.research.um.edu.mt/simerr/index.html

• A new Bachelor of Science (Hons) in Language Technology and Artificial Intelligence is being offered at the

University of Malta. The course offers a comprehensive pathway to specialise in computational language analysis and the development of intelligent, language-sensitive systems.

Find out more through this link: https://www.um.edu.mt/courses/overview/ubschltaft-2024-5-o/.

For more soundbites, listen to Radio Mocha www.fb.com/RadioMochaMalta/

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