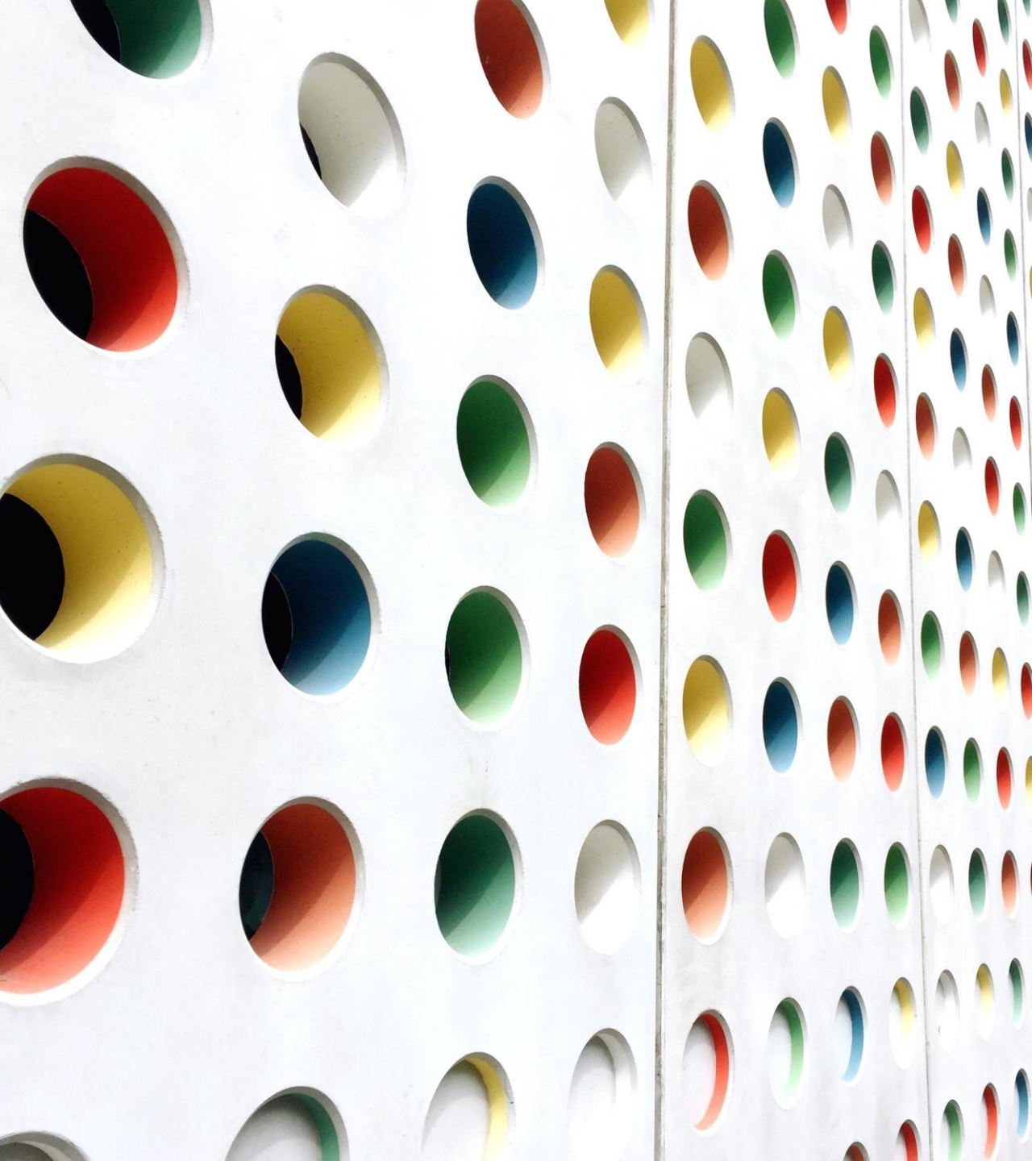


Is Your Charge Card Data More or Less Secure ?

ENTER THE “FLIPPER ZERO”

? FRIEND OR FOE ?

Charge Card Reader Evolution

SECURE – TO VALIDATE REQUIRED A SIGNATURE

HACK – STEAL THE CARBON PAPER

SECURE – TO VALIDATE REQUIRED A PIN OR ZIP CODE

HACK – PIN WAS ON THE CARD REAR
HACK - CARD SKIMMER USED
HACK - ONLINE ENTRY INTERCEPTED

SECURE – TAP TO PAY (CONTACTLESS) MAYBE REQUIRES PIN OR ZIPCODE
SECURE – APP ON SMARTPHONE (APPLE PAY / GOOGLE WALLET)

HACK - READ THE COMMUNICATION TAKING PLACE

Enter The “Flipper Zero”

Product details

Flipper Zero is a tiny piece of hardware with a curious personality of a cyber-dolphin. It can interact with digital systems in real life and grow while you use it. Explore any kind of access control system, RFID, radio protocols, and debug hardware using GPIO pins. The idea of Flipper Zero is to combine all the hardware tools you'd need for exploration and development on the go. Flipper was inspired by pwnagotchi project, but unlike other DIY boards, Flipper is designed with the convenience of everyday usage in mind — it has a robust case, handy buttons, and shape, so there are no dirty PCBs or scratchy pins. Flipper turns your projects into a game, reminding you that development should always be fun.

What Does That Really Mean?

What can you do with a Flipper Zero?

Flipper Zero is a portable Tamagotchi-like multi-functional device developed for interaction with access control systems. The device is able to **read, copy, and emulate radio-frequency (RFID) tags, radio remotes, and digital access keys**.

What Can a Flipper Zero Really Do ?

David Bombal (13:04 / 16:24)

https://www.youtube.com/watch?v=VF3xlAm_tdo

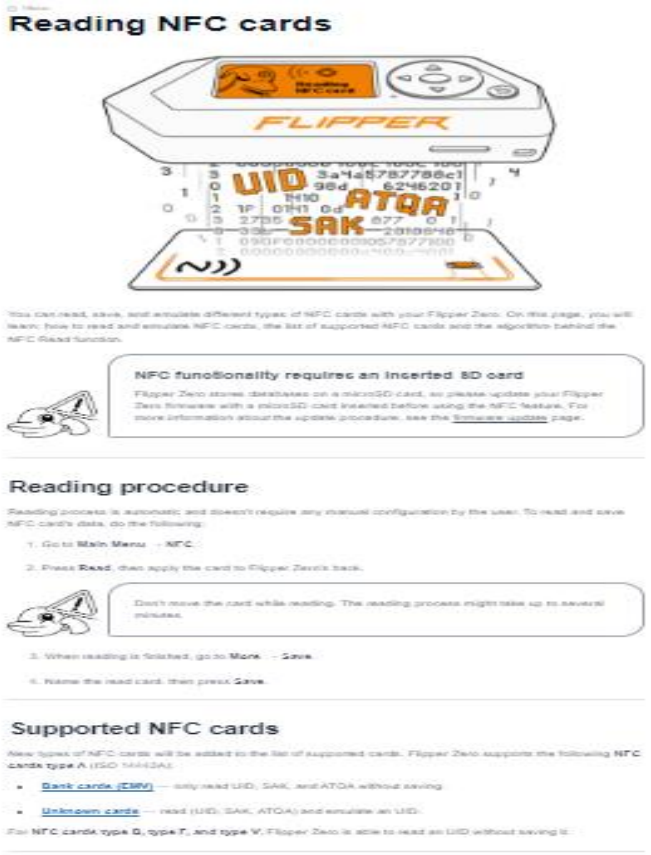
https://www.youtube.com/watch?v=yKTzek8EZ4E

What Are The Implications of This Device ?

- Charge Cards (can read and emulate)
- Hotel Room Door (can read and emulate)
- Employee Card (can read and emulate)
- Hotel Room Door > Hotel Safe (can enter the room & unlock safe if room card read)
- IFR (infra-read) Remote Control Devices
- Vehicle Access (Car Fobs)
- Electric Vehicle Charge Cards (charging stations)- can read and emulate
- Many Other Things (Bluetooth, USB)

Instructions On How To Read Cards

https://docs.flipperzero.one/nfc/read



Reading NFC cards

FLIPPER

UID

ATQA

SAK

NFC functionality requires an inserted SD card

Reading procedure

Supported NFC cards

What Are People Saying About Flipper 0 ?

** The Flipper Zero - can talk to sub-1GHz devices like old garage doors, both Low- and High-Frequency RFID, NFC cards (near field communications), Infrared devices (remotes), and even Bluetooth.

** For instance, not only was I able to clone a building-entry card with Flipper Zero, I was able to record the signal that my neighbor's garage door opener makes when he pulls into his driveway.

** Hi, Just got my flipper and ran into an issue with one particular remote that seems to use a rolling code I believe.

** Awesome, now anyone can scam and rip off unsuspecting innocent people at the touch of a button! Who needs a card skimmer, when you can buy a Flipper Zero on Amazon. Hopefully people will learn to protect themselves and credit cards, cars, wifi, and all the other great things this hacking tool does.

How To Protect Yourself

- Charge Cards:
  - Use RFID Protector Sleeves
  - Purchase an RFID insulated purse or wallet
  - Don't give up your charge card (pay at exit time, walk to the cashier and pay, walk with the server)
  - Be aware of those around you / your surroundings (personal space)
- Hotel Room Keys
  - Use the same protection as charge cards
  - Use a "hard" combination to lock your safe. (Remember - There's always a master code).
- Garage Door Openers / Remotes
  - Be aware of people on the street (the remote transmits – how far away from your home does your door open)?
  - Rolling Codes or Encrypted Codes

How To Protect Yourself

- Car Fobs:
  - Always listen to ensure your car doors lock (beep-beep) when you park somewhere.
  - Lock your car doors using the internal rocker button (last person out).

MORE QUESTIONS AND DISCUSSION …… CONCERNS ??