The Ultimate Flipper Zero Course

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Introduction about NFC and RFID

NFC (Near Field Communication) and **RFID** (Radio-Frequency Identification) are both wireless communication technologies but they serve different purposes and have some key differences:

Range:

NFC: NFC operates over very short distances, typically up to 4 centimeters (about 1.5 inches). It is designed for close-range communication.

RFID: RFID can operate over a wider range, depending on the specific frequency and technology used. RFID systems can range from a few centimeters to several meters or even longer.

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Communication Type:

NFC: NFC is a subset of RFID and is a two-way communication technology. Devices can both send and receive data, making it suitable for applications like mobile payments, peer-to-peer data transfer, and more.

RFID: RFID typically operates in a one-way communication mode. RFID tags (transponders) store data that can be read by RFID readers, but the tags themselves don't actively initiate communication.

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Purpose and Use Cases:

NFC: NFC is commonly used for contactless payment systems (e.g., mobile wallets like Apple Pay), access control systems, keycard readers, and data exchange between smartphones and other devices.

RFID: RFID is used for a wide range of applications, such as tracking and identifying objects, inventory management, supply chain tracking, and access control (e.g., employee keycards or vehicle identification).

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Frequency:

NFC: NFC operates at 13.56 MHz frequency and is standardized by the NFC Forum.

RFID: RFID systems can operate at various frequencies, including low-frequency (LF), high-frequency (HF), and ultra-high frequency (UHF), depending on the application and required range.

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Security:

NFC: NFC incorporates security features designed for secure communication, making it suitable for applications like mobile payments.

RFID: Security features in RFID systems can vary widely, with some basic RFID technologies having less robust security compared to NFC.

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In summary, while **NFC** is a specific subset of **RFID**, it is optimized for close-range, two-way communication and is commonly used for applications like mobile payments and device pairing. RFID, on the other hand, encompasses a broader range of technologies that are used for tracking and identification purposes over a wider range of distances.

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