Public Wi-Fi Security Threat Evil Twin Attack Detection Based on Signal Variant and Hop Count

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Abstract : Wi-Fi is a widely used internet source that is used to provide internet access in many areas such as Stores, Cafes, University campuses, Restaurants and so on. This technology brought more facilities in communication and networking. On the other hand, due to the transmission of data over the air, which makes the network vulnerable, so it becomes prone to various threats such as Evil Twin and etc. The Evil Twin is a kind of adversary which impersonates a legitimate access point (LAP) as it can happen by spoofing the name (SSID) and MAC address (BSSID) of a legitimate access point (LAP). And this attack can cause many threats such as MITM, Service Interruption, Access point service blocking. Various Evil Twin Attack Detection Techniques are proposed, but they require additional hardware, or they require protocol modification. In this paper, we proposed a new technique based on Access Point's two fingerprints, Received Signal Strength Indicator (RSSI) and Hop Count, that is hard to copy by an adversary. And we implemented the technique in a system called "ETDetector," which can detect and prevent the attack.