

UNIVERSITY OF SOUTH FLORIDA

Major Research Area Paper Presentation

The Security of Wi-Fi Positioning System Via Geolocation API

by

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For the Ph.D. degree in Computer Science and Engineering

Location spoofing attack deceiving a Wi-Fi positioning system has been studied for over a decade. However, it has been challenging to construct a practical spoofing attack in urban areas with dense coverage of legitimate Wi-Fi APs. This paper identifies the vulnerability of the Google Geolocation API, which returns the location of a mobile device based on the information of the Wi-Fi access points that the device can detect. We show that this vulnerability can be exploited by the attacker to reveal the black-box localization algorithms adopted by the Google Wi-Fi positioning system and easily launch the location spoofing attack in dense urban areas with a high success rate. Furthermore, we find that this vulnerability can also lead to severe consequences that hurt user privacy, including the leakage of sensitive information like precise locations, daily activities, and demographics. Ultimately, we discuss the potential countermeasures that may be used to mitigate this vulnerability and location spoofing attack.

Friday October 28th, 2022

9:30 AM

Online (Microsoft Teams)

THE PUBLIC IS INVITED

Examining Committee

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