Abstract

WiFi networks have enjoyed an amazing penetration rate in recent years. However, due to the limited coverage, existing WiFi infrastructure only provides interrupted connectivity for mobile users. Once leaving the current network coverage, WiFi clients must actively discover new WiFi access points (APs), which wastes the precious energy of mobile devices. Although several solutions have been proposed to address this issue, they either require significant modifications
to existing network infrastructures or rely on context information that is not available in unknown environments. In this review paper, a system called ZiFi is studied that utilizes ZigBee radios to identify the existence of WiFi networks through unique interference signatures generated by WiFi beacons. A new digital signal processing algorithm called Common Multiple Folding (CMF) is used that accurately amplifies periodic beacons in WiFi interference signals. ZiFi also adopts a constant false alarm rate (CFAR) detector that can minimize the false negative (FN) rate of WiFi beacon detection while satisfying the user-specified upper bound on false positive (FP) rate.

References

- Feng Xia, Wei Zhang; Fangwei Ding, Ruonan Hao. A-GPS assisted Wi-Fi access point discovery on mobile devices for energy saving. Global Information Infrastructure Symposium (GIIS), 2011, pp: 1 – 6.

**Index Terms**

Computer Science
Wireless

**Keywords**
Zigbee  Zi-fi (zigbee-fidelity)  Wi-fi (wireless Fidelity)  Digital Signal Processing  Rss (received Signal Strength)