COMP4336/9336 Mobile Data Networking

Lab 8: Gesture detection with WiFi RSS

Objectives

- To observe impa n WiFi RSS patterns

Prerequisites

- Access to two W a laptop and a mobile phone
- Wireshark (and ring software, e.g., Network Monitor for Windows users) installed in one as in the laptop; or using WiFi API
- Familiarity with Wireshark, such as completion of Lab 1, WiFi API

Introduction

Moving hands near a WiFi receiver affects RSS. The RSS patterns thus could be unique for different hand gestures, which could be used to control the device simply by waving to it. The objective of this experiment is to design a couple of hand gestures and show the corresponding RSS patterns. The WIGEST paper, available in Moodle, explains a real implementation of WiFi RSS-based gesture detection, which you may wish to read for more evidences and ideas.

Your Tasks

1. Design two *very different* hand gestures that would likely to make unique impacts on RSS.

2. Transmit a series of packets from a WiFi device, e.g., your laptop, at regular intervals, say at a rate of 50-100 packets per second while performing the specific hand gestures near the WiFi receiver, e.g., your mobile phone. Then capture the RSS time series (in dBm) at the receiver for all these packets.

3. Plot the RSS timeseries graph of the two gestures side by side to visually demonstrate the difference. If they do not look different, go back and redesign your gestures until you get visually different RSS graphs.

Submissions

Submit a PDF report containing the following:

1. Design of the two different hand gestures **[1 mark]**
2. A Wireshark screenshot showing RSS values in regular intervals. **[1 mark]**
3. Plots of RSS time series for two gestures **[2 marks]**

Penalty at the rate of 5% for each day late will be strictly enforced for all lab submissions. All submissions will be subject to strict UNSW plagiarism rules.

End of Lab 8 – Hope you enjoyed this lab.