Homework 1: CS425

Finding the Path Loss Exponent and Range Estimation

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1 Finding the Path Loss Exponent

Below is the plot of the RSSI value in dB versus the distance in m from the Access Point. I used two mobile phones for this experiment, one as a hotspot and the other one to analyze the strength of the signal produced by the phone with the hotspot turned on. There are 4 samples of RSSI value at 8 distinct positions of the receiver.
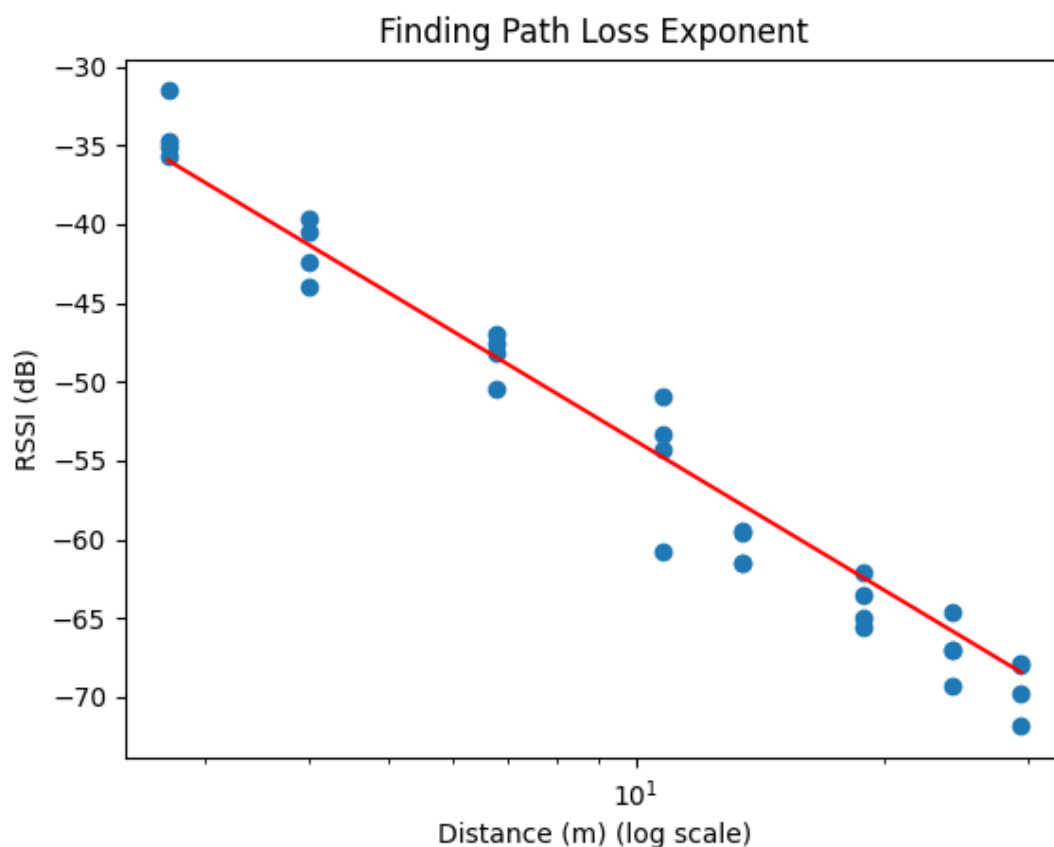
Slope of the plot $= -31.33$, Path loss exponent $=$ $\boxed{3.13}$ and Variance $=$ $\boxed{5.03}$

2 Range Estimation

Below is the data comprising of the actual estimated transmitter-receiver distance in m.

Actual Distance	Calculated Distance	Error
2.7	1.80	0.89
4	2.60	1.39
6.75	5.04	1.70
10.8	9.08	1.71
13.5	11.33	2.16

Average error in estimated distance $=$ $\boxed{1.57}$