

WiFi Approximated Strength Measurement Method with Brute Force Algorithm for a Minimum Number of AP and Maximum WiFi Coverage

Abstract

The implementation of a wireless network in indoor premises has increased due to its easy and flexible access. This however requires a good strategy in placing the access point (AP) in order to cover as much area as possible with a small number of AP as possible. This paper proposed a WiFi approximated signal quality measurement method to be used with a Brute Force algorithm in looking for the best placement of AP in indoor locations. Only one time measurement of WiFi signal quality for each AP was done and our proposed algorithm will predict the strength of this AP as it was installed in a different location. The result shows the approximated signal quality generated by our algorithm almost equals the actual strength measured with an acceptable error. The new placement of AP proposed by our algorithm also manages to ensure a minimum of 84% WiFi strength in each room if all 4 APs were used. Experimental results have also shown a minimum of 2 APs is adequate to ensure at least 72% of WiFi signal quality can be received in each room.

Keywords

AP placement; Brute Force; optimization; WIFI strength