

A weighted-range classification model for localizing cell using crowdsourcing data

ABSTRACT

The vast amount of mobile smartphone users provides an infinite source of data for crowdsourcing. Crowdsourcing provides an economical method of gathering data to cover a large geographical area compared to traditional methods. However, the inaccurate predictions for base station localization derived from mobile crowdsourcing impacts its effectiveness for use in radio planning. Therefore, the purpose of this study is to design a model that can yield a more accurate localization through the introduction of a rule-based weighted classification. The methodology deployed is a permutation series based on fingerprint of the cell site with weightage derived from rule-based classification. DeLaunay triangulation and Voronoi diagrams are used to determine the positions of the existing base stations and the prediction of new site location respectively. The expected results are better accuracy of the classification model in the localization prediction of the base station leading to a more accurate prediction of new site location.

Keyword: Crowdsourcing; Triangulation; Fingerprint; Weighted range