

AHP-TOPSIS based handover algorithm with distance prediction for 5G networks

ABSTRACT

5G is growing globally, and the handover performance is needed to be updated and improved to adapt to new changes in telecommunication. 5G are considered small cell networks that are anticipated to have a short dwell time for users that move at high speed, like a vehicle traversing the 5G cell at a rate of 40km/h and above. It induces unnecessary handover that causes poor user experience and waste of network resources. This research tackles the problem by proposing a new handover algorithm that integrates a travel distance prediction method with AHP-TOPSIS (Analytic Hierarchy Process - Techniques for Order Preference by Similarity for an Ideal Solution) decision making. The proposed algorithm has successfully reduced the unnecessary handover in 5G networks up to 89.75% compared to the conventional TOPSIS method.