

HANDOVER ALGORITHM BETWEEN MACROCELL AND
FEMTOCELL IN LTE NETWORK

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All praises to Allah, we praise Him, asking the help and forgiveness from Him, we cover ourselves from our badness and also the disgusting of our actions. If anybody who given guidance from Allah, nobody can be losing him/her. If anybody who get lost from Allah, nobody can show him/her. I admitted that nothing can be pray with the right unless Allah, I also admitted that Muhammad saw is a slave and a messenger of Allah.

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ABSTRACT

Wireless systems have the capability to address broad geographic area without the costly infrastructure deployment. However, the main drawback resides in the bandwidth limitation and the coverage for single access point. The deployment of Femtocell as the promising wireless access technology becomes one of the possible solution. Femtocell is a popular method to extend mobile network coverage and enhance the system capacity. Femtocell also can be called home based stations, a small communication range, low power, low cost and other characteristics. In this project the handover procedure between macrocell and femtocell network is studied. We are proposing a new handover strategy between femtocell and macrocell for LTE-based network. This handover strategy will considers on received signal strength (RSS) and velocity (V). This strategy can avoid unnecessary handover and reduce handover failure.

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CHAPTER 1

INTRODUCTION

This chapter consists of a brief introduction about the background of the overall project including background of problem statement, objectives, scope of works and outline of this thesis.

1.1 BACKGROUND

Nowadays, handover has turned out to be a compulsory functionality on all mobile wireless systems. Continuous connection during user mobility among cells is allowed due to handover procedure, but on the other hand, the handover also increases the delay of packet delivery to the destination user. Although wireless mobile networks such as the Third Generation (3G) network and the LTE network have been in use for many years, mobile users now still frequently experience poor indoor communication quality [1]. In addition, the available bandwidth on eNBs is now insufficient because more and more users surf the Internet with their unlimited data plans. A Femtocell Access Point or Home enhance NodeB (HeNB) is a small scale and low power base station (eNB) designed for indoor environments and it operates at frequency range of the LTE network [2].

Through broadband fixed network for example, Digital Subscriber Lines (DSL) deploy in the houses, the HeNB can connect user equipment in a cellular network to HeNB's core network via a third party Internet Service Provider (ISP) network [3]. By using HeNB or called femtocell technology there will be both good for the operators and users. Deploy HeNB has two advantages which is it is a simple structure, low price and low power so it suitable for operators to use HeNBs to enhance the indoor wireless