

**HANDOVER INITIATION ALGORITHM IN HIERARCHICAL
MACROCELL/FEMTOCELL IN LTE NETWORK**

**Thesis is presented in partial fulfillment for the award of the
Bachelor of Engineering (Hons.) Electronics (Communication)
UNIVERSITI TEKNOLOGI MARA (UiTM)**



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JULY 2013

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful All praises and glory is to Allah (SWT) for blessing me with opportunities abound and showering upon me his mercy and guidance all through the life. I pray that He continues the same the rest of my life. And may peace and blessings of Allah be upon Prophet Muhammad, a guidance and inspiration to our lives.

I would like to express my deepest gratitude to my supervisor, Dr Azita Laily Binti Yusof for all his valuable guidance, advices and support throughout this project.

My deepest thanks to my beloved parents and also to my families for their love, prayers and endless support.

Finally, I would like to express my appreciation to all lecturers, UiTM staffs and my friends for their kindness in contributing their knowledge, time and effort directly or indirectly in helping me to complete this final year project.

ABSTRACT

The fourth generation (4G) wireless technology known as Long Term Evolution (LTE) allows cellular operators to use new and wider spectrum and complements third generation (3G) networks with higher user data rates, lower latency and flat Internet Protocol (IP)-based network architecture. In LTE networks, the deployment of hierarchical macro/femto-cell networks is a great approach in improving the handoff procedures for a mobile station moving from a macrocell to a femtocell. Therefore, in this paper the initiation algorithm are proposed when a user enters the coverage area of the femtocell or macrocell. This handover initiation algorithm are based on the values of distance, speed and time when a MS moves from a serving Base Station (BS) to the target BS. The results shows that the proposed scheme using the proposed algorithm is effective in handover management towards minimizing the handover failures and unnecessary handovers.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	TITLE	
	APPROVAL	iii
	DECLARATION	iv
	ACKNOWLEDGEMENT	v
	ABSTRACT	vi
	TABLE OF CONTENTS	vii
	LIST OF FIGURES	x
	LIST OF TABLES	xii
	LIST OF ABBREVIATIONS	xiii
1	INTRODUCTION	1
	1.1 Introduction	1
	1.2 Problem statement	3
	1.3 Research Objectives and Scope Limitation	4
	1.4 Scope of The Project	4
	1.5 Thesis Contribution	5
	1.6 Thesis Outline	5
2	LITERATURE REVIEW	7
	2.1 Introduction	7
	2.2 LTE System Requirements	11

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The Long Term Evolution (LTE) is a new generation of mobile wireless broadband technology with a high throughput and low latency. The LTE network has a good compatibility to connect with existing cellular technologies such as Global System for Mobile communications (GSM) and Universal Mobile Telecommunication System (UMTS). The LTE network allows service providers through a more economical way to provide wireless broadband services. The LTE technology is beyond the current 3G wireless network performance, and brings a superior performance. The LTE has been the third generation mobile communications organizations, which is the project of the 3rd Generation Partnership Project (3GPP), as a new next-generation wireless technology. The LTE is a step toward the 4th generation (4G) of radio technologies designed to increase the capacity and speed of mobile telephone networks. LTE is the trademarked project name of a high performance air interface for cellular mobile telephony. It is a project operating under a named trademarked by one of the associations within the partnership, the European Telecommunications Standards Institute. The recent increase of mobile data usage and emergence of new applications such as mobile TV, MMOG (Multimedia Online Gaming) and streaming contents have motivated the use of LTE standards. LTE is the latest in the mobile network technology that ensures competitive edge over its existing standards: GSM/EDGE and UMTS/HSxPA [1], where High Speed Packet Access (HSPA) is a collection of two mobile telephony protocols, High Speed Downlink Packet Access (HSDPA) and High Speed Uplink Packet Access (HSUPA) that extends and improves the performance of existing WCDMA protocols.