

UNIVERSITI TEKNOLOGI MARA

**RESEARCH STUDY ON COMMUNICATION OVERHEAD
BETWEEN MOBILE PHONE AND SERVER IN THE NETWORK
WITH SECURITY AND WITHOUT SECURITY**

HAZIE AMIRA BINTI MOHD GHAZALI

Thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science

Faculty of Electrical Engineering

January 2016

ACKNOWLEDGEMENT

" In The Name of Allah, The Most Beneficent, The Most Merciful"

I am grateful to The Almighty God for establishing me to complete this thesis. I wish to express my sincere thanks to my supervisor project, Dr Yusnani Mohd Yussoff for all her valuable guidance and constant encouragement through my journey to finish this project.

Thank you to my one and only mother, Raziah Binti Mohamed Yusof for the never ending support and your precious du'a. Mom, without you I am nothing. I love you.

I place on record, my sense of gratitude to one and all who, directly or indirectly, have lent their helping hand throughout this journey. To all my classmate and friends of EE700 named Fadilla, Azrin, Fatma, Riana, A'tiqah, Aniza, Aminah, Najmi, and Akmal.

Thank you,

Hazie Amira Binti Mohd Ghazali

ABSTRACT

Nowadays, overhead in communication basically will affect the performance and the quality of service (QoS) in the network. In this generation, wireless devices such as mobile phones, tablet PC's and so on are widely used in daily basis as the most common devices for communication. The most critical part when using this type of communication devices are in terms of the security aspect as network overhead will give effect on certain of the performance. This thing happened when the communication devices that usually been used for making calls or sending text messages sometimes include sensitive and private information between the exchange party. This paper discussed whether network with security or without security is essential when using certain types of application as the overhead percentage will be the parameter to be discussed in this research. There have been extensive researches on the communication between server and server and how it affects the encryption and decryption process, but there hasn't been any research that carried on in terms of security and without security between mobile phone and server. Usually overhead in communication of the system will give significant effect to the system in terms of the quality of service. But still, security is one of the parts that play major role in this research to differentiate the percentage. Research project in this field is being carried on to determine the difference of communication overhead between mobile phone and server with security and without security and which one should be chosen by the user for their own needs and importance.

Based on this research study, more people should use secure network rather than network with no security as the communication overhead between mobile phone and server is not that much with the invented advance wireless protocol Wireless Protocol Advance (WPA2) and SSL handshake caching within the https protocol.

Keywords— communication overhead, security, mobile phone, server, http, https.

TABLE OF CONTENTS

	Page
SUPERVISOR'S DECLARATION	ii
AUTHOR'S DECLARATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vii
LIST OF FIGURES	ix
LIST OF TABLE	xi
LIST OF SYMBOLS	xii
LIST OF ABBREVIATION / NOMENCLATURE	xiii
CHAPTER ONE: INTRODUCTION	1
1.1 Background	1
1.2 Problem Statement	3
1.3 Objectives	3
1.4 Scope of The Research	4
1.5 Significance of The Research	4
1.6 Thesis Organization	5
CHAPTER TWO: LITERATURE REVIEW	6
2.1 Introduction	6
2.2 HTTP and HTTPS	6
2.3 WEP and WPA2	10
2.4 Test Case Scenarios	11
2.5 Conclusions	12