

**MAPPING OF MULTIPLE PARAMETERS
M-HEALTH SCENARIOS TO MOBILE WIMAX QOS
VARIABLES**

This thesis is presented in partial fulfillment for the award of the
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With the name of ALLAH Most Gracious Most Merciful

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ABSTRACT

Abstract—M-health care system is a developing new technology. It can be defined as the delivery of health care and sharing of medical knowledge over a distance using telecommunication means [1]. By using this application, patients do not need to stay in the hospital but they can still perform their daily basis routine by using the health monitoring concept. The patients' data will be transmitted using wireless to doctor's PC. In this proposal, Mobile WiMAX (IEEE 802.16e) will be used to transmit the patients' data and record of health. The performance analysis of Mobile WiMAX for multiple parameter telemedical scenarios will be analyzed. To be specific, the medical QoS and IEEE 802.16e QoS will be mapped to obtain optimum performance analysis of mobile WiMAX over multiple parameters of telemedical applications. The simulation was done by using OPNET 14.5 in order to analyze the multi parameter scenarios of m-health equipments. Results from the simulation show that the delay and throughput were increased when the MS in the health environment is increasing. The simulations indicated successful results because it satisfies the m-QoS bounds. Applications that were deployed with UGS QoS are treated with higher priority than rtPS and nrtPS, which were more suitable for lower priority services.

Keywords—mobile WiMAX, m-Health, health applications, QoS.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

With the global implementation of mobile and wireless networks, the wireless system can support rising technology of health applications. m-Health is a concept that provides mobility and high data rate for health care functionality. The evolution of mobility concept depends on the bandwidth allocation and pertinent medical quality of services (m-QoS).

The evolution of mobile WiMAX (Worldwide Interoperability for Microwave Access) based multimedia network systems is in high demands. It will contribute to future mobile healthcare (m-health) applications that require high bandwidth and high speed data connections. In recent years, there is an extensive volume of research work and developments in a work dedicated to mobile WiMAX based on m-health systems. Most of the study is done by creating the WiMAX network by developing and improving the QoS configurations to improve the performance of health applications.

It is widely known that the IEEE 802.16e (mobile WiMAX) standard aims to provide broadband connectivity to mobile users in wireless metropolitan area network environments [2]. Mobile WiMAX is a wireless digital communications system, also known as IEEE 802.16e that is intended for wireless metropolitan area networks.