

DETERMINING THE GEOGRAPHICAL POSITION OF A CALLER IN GSM SYSTEM

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ABSTRACT

The Mobile Station Location (MSL) technology is about determining the geographical position (latitude, longitude) of any wireless digital communications device, or Mobile Station (MS). Basically, the project focuses on the development of MSL system which can locate a mobile station in GSM system by using a Triangulation Solution method. The Mobile Radio Analyzer (MA10) is used to see and measure the activities involved between a mobile station and a serving Base Transceiver Station (BTS). Visual Basic (VB) program has been used in simulation of data obtained from MA10. The accuracy of geographical positioning of MS depends largely on the number of BTS in a given area. Ms in an urban area can be more accurately located compared with rural area.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

During the past 50 years, applications that determine the location of wireless transmitters primarily have been for military, public safety and marine science research. Within the last few years, there has been a massive surge of interest in wireless positioning methods and applications. One reason for the surge is legislation in the United States requiring cellular phone operators to provide location information to 911 call centers. Other than that, The Federal Communications Commission (FCC) mandate requires mobile network operators to provide positional information to emergency services. The regulatory requirement provided a stimulus for commercial development of wireless positioning technologies and applications.

Between a mobile station and a base transceiver station, there are a lot of activities involved. From these activities, this project presents and approaches on locating the MS. Mobile Station Location system is a process of locating a position of mobile station using the data measured from serving base transceiver station. In implementing the MSL, the system reads the data from MA10 and then simulates them to get the approximate position of the mobile station.

Locating a mobile station is very important to us such as for emergency call, providing position information and other applications. The main parameters involve are timing advance, signal strength, power transmitted and latitude and longitude of all the BTSs.