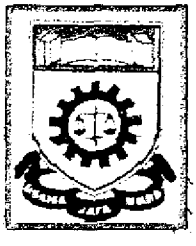
DATA COMMUNICATION USING PORTABLE DATA TERMINALS

This thesis is presented in partial fulfilment for the award of the Bachelor of Electrical Engineering (Honours) INSTITUT TEKNOLOGI MARA



OLIVIA RAJATIN GILBERT
Faculty of Electrical Engineering
INSTITUT TEKNOLOGI MARA
40450 Shah Alam
Selangor Darul Ehsan
APRIL 1999

ABSTRACT

The project presents the use of radio frequency portable two-way radio (GP300) as a medium for a low speed wireless data communications. The objective of this project is to study the performance in terms of Bit Error Rate (BER), modulation types and signal speed using portable two-way radio, voice band modem and personal computers. The advantages of using this system will be a low speed synchronous mode transmission with a range of few meters to hundred meters or in the building environment.

Flexibility and mobility make wireless systems both effective extensions and attractive networks but the initial investment required for wireless hardware can be expensive than the cost of wired hardware. Therefore, in this project, portable two-way radio is used as an alternative way to transmit data in wireless data communication for cost-effective solution to the networking

ACKNOWLEDGEMENT

I would like to express sincere thanks especially to my project advisor, Associate Professor Dr. Deepak. Kumar Ghodgaonkar for his generous contribution and support in completing this project.

A special thanks also goes to the Communication Laboratory Assistant such as Mr. Khalim, Mr. Kamarulzaman and Mr. Azman for their cooperation.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 History of Wireless Data Communication [5]

The history of wireless data communication evolved when Guglielmo Marconi presented a new method to transmit data without using wired lines by using radio to provide continuous contact with ships sailing the English channel. That was in 1897 and since then new wireless communication methods and services have been enthusiastically adopted by people throughout the world.

During the past decade, wireless communication industry has grown gradually, fueled by the rapid development of solid state technology, new large-scale circuit integration and other miniaturization technologies, which make portable radio equipment smaller, cheaper and more reliable.

Since the wireless communication industry became mainstream, the design of the mobile equipment had changed to accommodate market demand, which varies depending on the customer needs. Mobile equipment is more robust and compact where mobile equipment must be designated to withstand larger changes in temperature and humidity and severe mechanical vibration.

Most wireless communication system installations consist of vertically polarized omni-directional antenna and a transceiver. The transceiver is a transmitter-receiver combination placed in a single cabinet, an arrangement that saves significant space and expenses.