ACKNOWLEDGEMENT

By the grace of Almighty Allah I have been able to complete this thesis to the satisfaction and according to the requirements of the Sudan University of Science and Technology.

I would like to extend my sincerest thanks to Dr. Osman Mohmed Daffa Allah for his support, supervision and constructive criticism through out this work.

I am deeply grateful to Ustaz Abdallah Salih for all the help and guidance, without which this work would not be a reality.

My mentor Ustaz Amir Dawood, deserves all the praise for motivating me to complete this project. I thank him from the core of my heart for his kind advice through out our association.

I am grateful to my friends and family for their understanding and patience during my research and study.

ABSTRACT

Road traffic is a global problem causing losses in terms of human life, time and money. Although the effect is more pronounced in developed countries, developing countries are by no means immune to this. Particularly in countries with huge untapped natural resources, the inflow of foreign investment has caused a rapid increase in the standard of living. This in turn means establishment of business centers with the same traffic congestion. Developed countries started the research to tackle this problem as far back as the sixties, in this ever widening arena. A brief introduction of this development work has been given in Chapter 1.

The proposed communication system represents a very low cost system for the developing countries. The system assumes point transmitters covering the urban areas. The distance between the transmitters is not more than 1.5 Km. this enables the effective transmission of message to the vehicles indicating the current performance of the road in a specific area. The message duration is of a specified time ranging from 10 to 20 seconds.

The proposed system is an independent sideband (ISB) receiver, using the phasing method to generate the upper and lower sidebands. Each sideband is to carry message for one motorway block or the other depending on the direction. Tones are used to automatically switch on the ISB receiver to either Upper Side-Band (USB) position or Lower Side-Band position. At the same time these tones are used to switch the in-vehicle receiver from the OFF position to ON to interrupt the normal AM radio to receive only road traffic information. The proposed system theory is described in chapter 2.

The complete system circuit is designed and described in chapter 3. Chapter 4 illustrates a flow chart to simulate the proposed communication system operation the conclusion and comments is made in chapter 5.

CONTENTS

List of tables

List of Figures