CHAPTER 1
INTRODUCTION

This chapter provides an overview of the Interactive Video Data Service (IVDS) system and describes the thesis objective.

1.1 Interactive Video Data Service System (IVDS) Overview
The IVDS system allows consumers to browse the Internet, request information on products or services, make purchases, indicate preferences, and perform other interactive applications. To provide this service, the IVDS system has three subsystems: Consumer Control (CC), Cell Repeater (CR) and Host subsystem.

Figure 1.1 shows the three subsystems. The CC subsystem provides the interactive link between the consumer and the television set. Using a standard television/VCR/Cable remote control, the consumer sends commands to an IVDS transceiver box that is placed near the television set. Once the consumer sends a command, the transceiver box receives information that is embedded (hidden) in the television audio and then transmits this information to the CR subsystem as a radio frequency (RF) spread spectrum message via a wireless RF communications channel. The CR subsystem forwards the message to the Host subsystem via a standard phone line, a cellular digital packet data (CDPD) modem, an internet connection, or a cable modem. The Host subsystem then processes the message.

Figure 1.1 Interactive Video Data Service System Block Diagram
Since this paper will discuss the hardware and software development of the decoder board, which is in the CR subsystem, its major hardware components are briefly introduced here. The CR subsystem has three major hardware components: the Wireless Measurement Instrument (WMI), the decoder boards, and the radio receivers. The WMI, which contains the main processor, polls the decoder boards for messages and then forwards them to the Host subsystem. The decoder boards receive messages from the radio receivers and then transfers them to the WMI. Lastly, the radio receivers receive messages from the CC subsystem and then transfers them to the decoder boards.

1.2 Thesis Objective
The objective of this thesis is to complete the development of the interface between the CC subsystem and the radio receivers, and the interface between the decoder boards and the WMI. Specifically, the objective involves developing software to initialize the radio receivers to receive RF spread spectrum messages, to initialize the decoder boards to decode the spread spectrum messages, and to packetize them for transfer to the WMI. Also, this objective involves developing hardware modifications to correct decoder board timing problems, and using appropriate tests to verify both the performance of the software and the operation of the hardware components on the decoder board.