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# COMPUTER COMMUNICATIONS

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# SYNOPSIS

## COMPUTER COMMUNICATIONS

The objective of the project is to develop the hardware and software for communication between two microprocessors. There are two ways of communication; serial and parallel transfer of data. By using an ACIA Chip, the serial transfer of data can be attained.

For long distance communication it is more economical to use existing communication facilities. Telephone lines can be used but it is mainly designed for voice communication. The bandwidth requirement for digital communication is much higher than for voice communication. Hence for communication between microprocessors using telephone lines, the digital signals have to be suitably converted to analog signals which meets the bandwith constraints of the lines. The system proposed here uses frequency shift keying (FSK), and it is realized by using a MODEM chip.

Software and hardware configuration for the modem chip have been developed and the design is capable of full duplex operation. To highlight a possible application in telemetry, we have connected an A/D (8 channel) chip to a microprocessor. It is possible to send a command from a microprocessor to read a data from a channel and to receive the data by the sender through the telephone lines.

# INTRODUCTION

With regard to Computer Communications, one important question comes to mind. Why should one computer communicate with another? The answer is for the same reason that people co-operate with each other, that is for efficiency. Since by sharing skills and resources a group of people can achieve more what one person alone can achieve. Also faster data processing can be attained and transmission of data messages over long distance is made possible.

It is very expensive to lay down physical connections between computers so the existing public switch telephone network is often used to link them. However, it is not without its problem and furthermore it is not an ideal solution. The reason is because the telephone network was never designed to handle high speed digital data. Thus, there is the need for modulation and demodulation and a carrier used to carry the information.

Figure 1-1 shows the general block diagram the block diagram consists of a motorola MC 6800 microprocessor, ACIA, MODEM and an A/D converter.