ABSTRACT

This project is designed to transmit voice underwater. Ultrasonic sound is used as the means of transmission. It functions similar to other communication systems except that the energy is carried by sound waves in the water rather than electromagnetic waves or electrical signals. Ultrasonic ceramic transducer is used to transmit and receive the acoustic signal underwater. The challenge lies in the fact that acoustic signals which propagate through water are distorted by several factors which include path loss, boundary interactions, noise, multipath propagation, Doppler spread, high and variable propagation delay.

Double Sideband Suppressed Carrier - Amplitude Modulation (DSBSC-AM) is used instead of Frequency Modulation (FM) to modulate the signal since it requires less bandwidth.

The design of this project is divided into two parts namely transmitter and receiver. The transmitter consists of several subsystems such as the microphone preamplifier, oscillator, modulator, power amplifier and transducer and the receiver consists of transducer, preamplifier, demodulator, filter and audio amplifier.

At the time of compiling this report, there was a problem in transmitting voice underwater. However there is no problem in transmitting voice in the air within a very short distance of 1- 1.5 m.