

## Underwater Communication System Using Electronic Acoustics

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### Abstract

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### Abstract:

The various applications in need of underwater communication demand the concrete communication system that can cater to all the communication possibilities. The ideal communication is required for the marine field to improve their scope further. However, the limited bandwidth problem and error bit rate create difficulties in achieving the widely commercial target. The inconsistencies of data rate between the different underwater acoustic system make it difficult to achieve the ideal communication system. The good bandwidth efficiency and data transmission rate can be developed using the Orthogonal Frequency Division Multiplexing (OFDM) technique with Multiple Input Multiple Output (MIMO) system. The propose solution applied the Space-Time Based Coded (STBC) signal encoding with the Generalized Minimum Mean Square Error (GMMSE)-based signal detection. The expected result shows that the increasing number of user or transmitter will reduce the bit error rate (BER) value. The proposed method's objectives are achieved by the enhancement of data rate transmission.

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### I. Introduction

Underwater communication is one of the active study areas that provided broad information on underwater signal communication. The numerous application that utilizing underwater communication triggered the system's development [1], [2]. There is some application like the transmission of data, research, wildlife monitoring and security and defense. The need for the wireless underwater communication [3]. Fig. 1 shows an example of how the underwater communication network application is being used. It illustrates the communication among

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