

# Underwater Communication using Wireless Sensor Networks

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**Abstract:** *Underwater data communication using water as a medium shows potential as a technology, but laboratory experiments have limitations due to physical scale and the difficulty in replicating natural water conditions. Although artificial scattering agents are used to simulate water conditions, the similarity between experimental and natural water can be unreliable, especially in frequency domain characteristics. Therefore, it is essential to consider the limitations of laboratory experiments and validate the results in real-world scenarios. While laboratory experiments can provide insights, they cannot replace real-world testing to evaluate the performance of underwater data communication technologies.*

**Keywords:** Microcontroller, Water communication module, Temperature, Heartbeat, Underwater Communication

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