

Transmission of ASCII Code Messages Using a High Power (50mW) Underwater Laser Communication Prototype in Two Controlled Scenarios

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Abstract : In this article, a prototype of underwater communication using a long-range laser (50mW) has been carried out in two aquatic scenarios (fish tank and swimming pool) with the aim of recreating Aqua-Fi technology (the future of underwater communications) using a Bluetooth connection to the transmitter to send data in ASCII code by means of light. Initially, the transmitter and receiver circuits were programmed in Arduino so that the data would travel by light pulses in the aforementioned code. To obtain the results of the underwater communication, two scenarios were chosen (fish tank and swimming pool), where the power value of the received signal was calculated from its peak-to-peak voltage using the Oscilloscope equipment (ESPOCH). Finally, it was concluded that the maximum communication range of this prototype is 12m underwater, and it was observed that the power decreases as the distance increases. However, this prototype still needs to improve communication so that the information is not distorted or lost when there is movement and dispersion of the water. It is hoped that it will form the basis for future research.

Keywords : prototype, underwater, communication, power, voltage, distance

Conference Title : ICTSP 2023 : International Conference on Telecommunications and Signal Processing

Conference Location : Paris, France

Conference Dates : August 24-25, 2023