

**DESIGN AND CONSTRUCTION OF A WIRELESS
UNDERWATER SURVEILLANCE ROBOT**

Undergraduate Design Project
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LEODYSON S. CREUS
JOUSHUA Z. JIMENEZ
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ABSTRACT

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The general objective of this study was to design and construct an underwater surveillance robot. Specifically, it aimed design and construct the wireless underwater surveillance robot. It also aimed to design and construct a transmitter and receiver units of the robot together with the control circuit and relay circuit. Moreover, it aimed to develop the software program needed for the microcontroller, test, and evaluate the design project.

The design project was composed of Gizduino Version 5 (ATmega328P) and Arduino Pro Mini, which serves as the microcontroller units for the main robot and controller, and two (2) SV610 RF Module that serves as transceivers for both of the robot and its remote control unit. Moreover, one (1) FPV camera with a waterproof casing for the transmission of the video feed and two (2) Sodial (R) RS380 DC 1.5-18V 30000RPM Micro Motor 38x28mm for RC Model Toys DIY. The microcontroller in the remote control executes the commands and connected to a transceiver module to transmit the data to the robot using a frequency of 430MHz. Another RF transceiver module was used in the underwater surveillance robot to receive the commands from the remote controller connected to a microcontroller to activate the motors of the robot. If the given command is forward, both motors will drive forward. If the given command is backward, both motors will drive in reverse. If the given command is left, the right motor will drive

forward and the left motor will drive in reverse, while if the given command is right, left motor will drive forward and the right motor will drive in reverse.

The researchers and the members of advisory committee tested the unit. The project testing was done on Baño de Señora Resort, Cavite State University (CvSU), Indang, Cavite. The underwater surveillance robot was placed and tested on a pool with stable water. The researchers were able to identify the responsiveness, operating time, and the video quality. The robot was evaluated by the panels using certain parameters.

Based on the results of the evaluation, the project met the objectives. The system was able to move in accordance to the command given by the user. The device was also able to prove its functionality, responsiveness, usability, correctness, control, and reliability.

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