



**CSE461: INTRODUCTION TO ROBOTICS**

**Project Name:** AquaBot - Surface Water Traversal Robot for Flood Relief Operations.

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## **Video link to set up the project**

<https://youtu.be/1bn3wplm9fE?si=tfrNHuWI56UYRaNn>

## **Objective:**

The objective of the Aqua bot robot is to perform tasks such as underwater exploration, research, inspection, maintenance, and surveillance in underwater areas where it may be difficult or dangerous for humans to access.

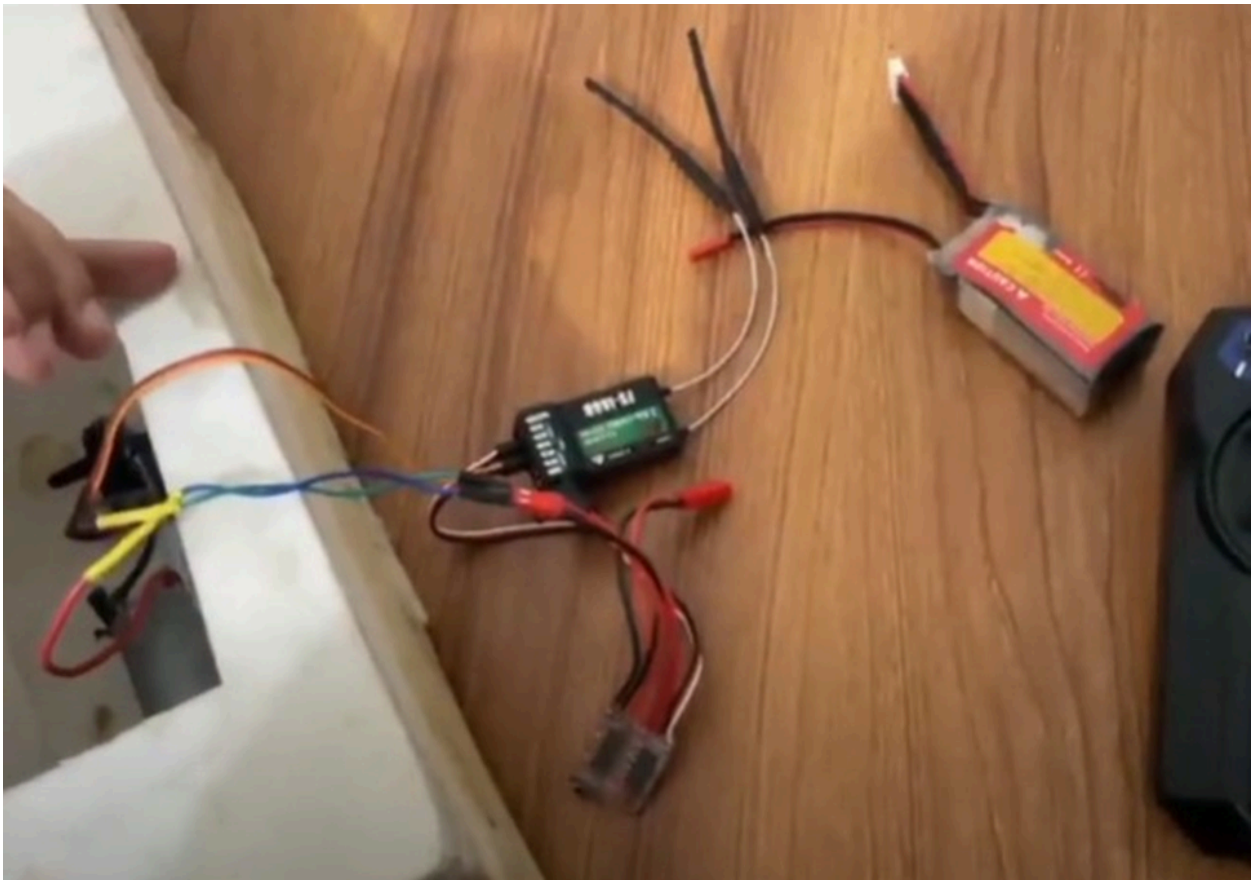
Aqua-bot robots can be used to explore underwater caves, shipwrecks, and other underwater environments to gather data and images that can be used to learn more about the underwater world. Aqua bot robots can be used to inspect underwater infrastructure such as pipelines, cables, and offshore platforms for damage, leaks, or other issues. The bot can be used for underwater maintenance tasks such as cleaning underwater structures, removing debris, or performing repairs in aquatic environments. Aqua bot robots can be used for security and surveillance purposes in underwater areas by monitoring and patrolling sensitive locations, such as ports, harbors, and underwater facilities. Overall, the Aqua bot robot is a versatile tool that can be used for a wide range of tasks in underwater environments to gather data, conduct research, and perform operations that would otherwise be challenging or dangerous for humans to carry out.

## **Potential Components:**

1. Receiver Transmitter
2. 30A Brush ESC
3. 0.9 mA battery
4. Servo moto
5. Metal gear shaft

# Setup:

We create a body structure using cockshut. We drive the robot using 0.9 mA battery. We setup servo motor and Zed engine inside the body of the robot. A receiver which is connected to the Fly Sky is used to control the bot. Additionally, 30A Brush ESC is needed to control the speed. There are 6 channel in receiver transmitter which is 2.4GHz We can control the fly sky using the receiver transmitter. The white, red and black wire of the receiver transmitter generates signal, used as VCC and ground accordingly. We connected the controller ESC with the second channel of the sensor. Then we visualize that we can control the fly sky using second button. We connected the servo motor with the fourth channel of the receiver which is used to control Zed engine. The metal gear shaft is a durable and strong component that transfers motion from the motor to other parts of the Aquabot, such as the propeller or fins. It ensures smooth and efficient movement of the device in the water.





## Documentation:

For the first the Aqua bot robot worked very smoothly. Once we run out the robot the ESC got burnt out and didn't work anymore.



## **Conclusion :**

In conclusion, the development of an autonomous surface water traversal robot like AquaBot holds significant promise for enhancing flood relief operations. By combining robust design, sensor technologies, and autonomous navigation capabilities, AquaBot demonstrates its potential to efficiently navigate floodwaters, collect data, and assist in search and rescue efforts during flood emergencies. Its autonomous operation and versatile functionality make it a valuable asset in flood relief operations. However, challenges such as resource intensity and regulatory considerations need to be addressed to maximize its effectiveness and integration into disaster relief efforts. With proper planning and support, AquaBot has the potential to significantly contribute to flood relief operations and the overall resilience of affected communities.