

Project Presentation

Lab C01 Group 5

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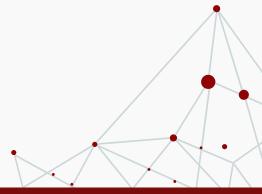


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Design a 3D printed mechanical arm with three degrees of movement that can perform manual tasks to a navy ship's hull, while only being operated by one person.



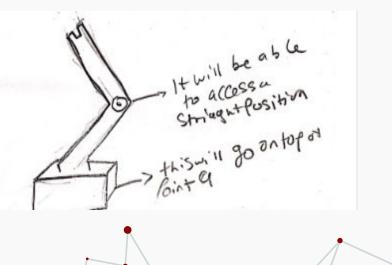
Arm Joints

Based on the EEZYbotARM Mk2 an opensource 3-4 DOF robot arm the first arm segments and second joint is all controlled from the base allowing for stable movement without being top-heavy.



Arm Joint Prototypes



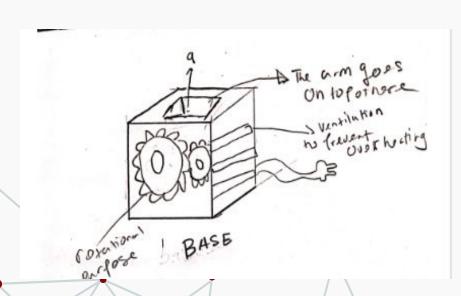


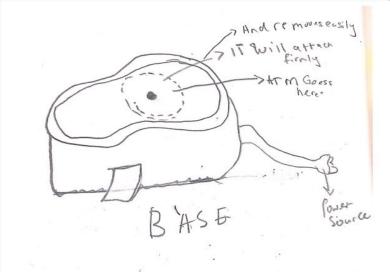
Base

The base will be a modified version of the EEZYbot's base housing all electronics which will be waterproofed house the first degree of movement and a water pump allowing for water blasting and spray painting

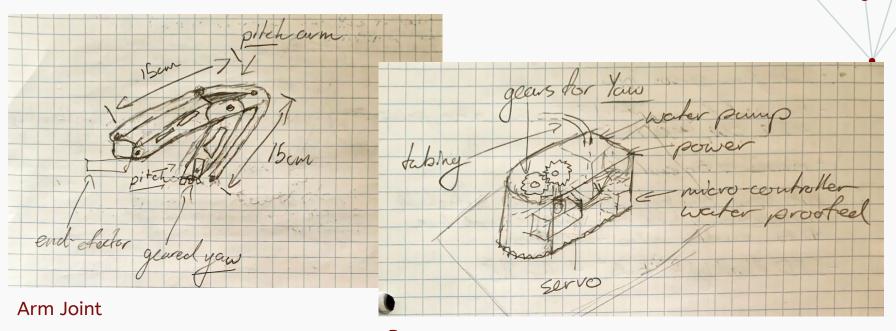


Base Prototype





Sketches



Base

Power Supply

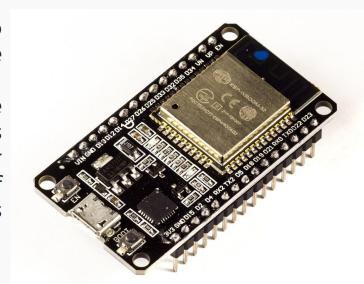
Currently designed to be plugged in for power with wireless communication however can be easily changed. Allows for better function of motors and water pump for testing.





Electronics

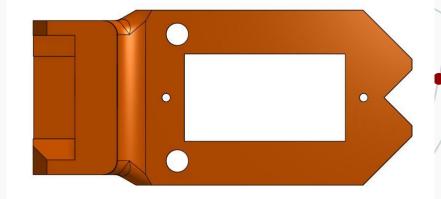
The robot arm is based on Arduino hardware and software however ideally we plan to replace that with an ESP32 micro-controller which has much more processing power, is cheaper and has superior wireless capabilities allowing for wireless control and future development of live camera feeds

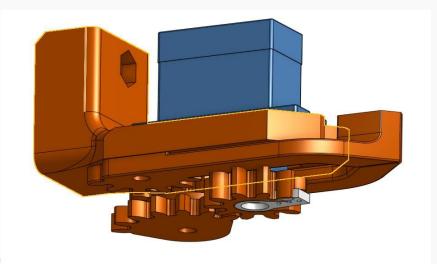


Computer That Will Be Language Used→ Python, C, C++

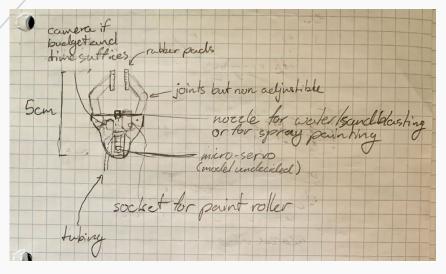
End-Effector

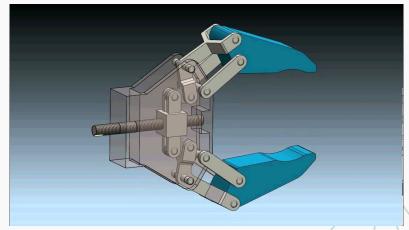
Designed to be without any index movement to allow for simple, modular and secure attachments for each purpose but easy to assemble to have a gripper if need be





End-Effector Prototyping







Questions/Feedback