

Progress Presentation-I

e-Yantra Summer Internship-2018
FishBot

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IIT Bombay

June 7, 2018

Overview of Project

Progress Presentation-I

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Overview of Project

Overview of Task

Task Accomplished

Challenges Faced

Future Plans

Thank You

- **Project Name :** FishBot
- **Objective :** To Design and Implement a bio-inspired Robotic Fish.
- **Deliverables :**
 - 1 Fishbot should be able to swim underwater.
 - 2 Wireless control must be working underwater.

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Week	Task	
	Mechanical	Electronics
1	Understanding the requirements and analysing fish dynamics & mapping the challenges that need to be addressed	
2	Finalizing the material to be used and start of design.	Finalizing the electronics needed and verifying the wireless communication medium.
3	Simulating and Finalizing the design and start of manufacturing	Finalizing the PCB design & start of manufacturing. Start writing code for fish control.
4	Assembling the 1st prototype of fishbot and testing outside water. Documenting the observations while testing.	
5	2nd prototype of the design based on design faults and electronics limitation. Assembling and testing of design and electronics.	
6	Testing the final design and electronics, underwater at constant buoyancy. Documenting the observations and creation of User Manual for fishbot.	

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Design Approach

Understanding motion of fish

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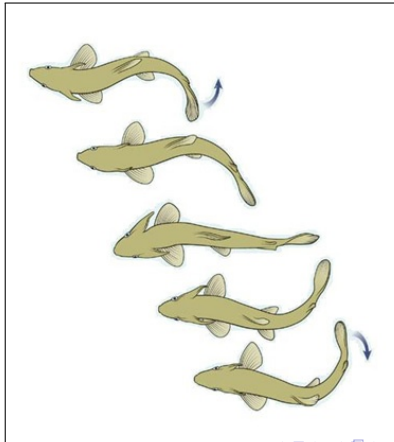
Task
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- Understanding the basic principles of fish locomotion and selecting one suitable for our project
- Analysing the potential challenges that needs to be addressed



Actuation and Motion

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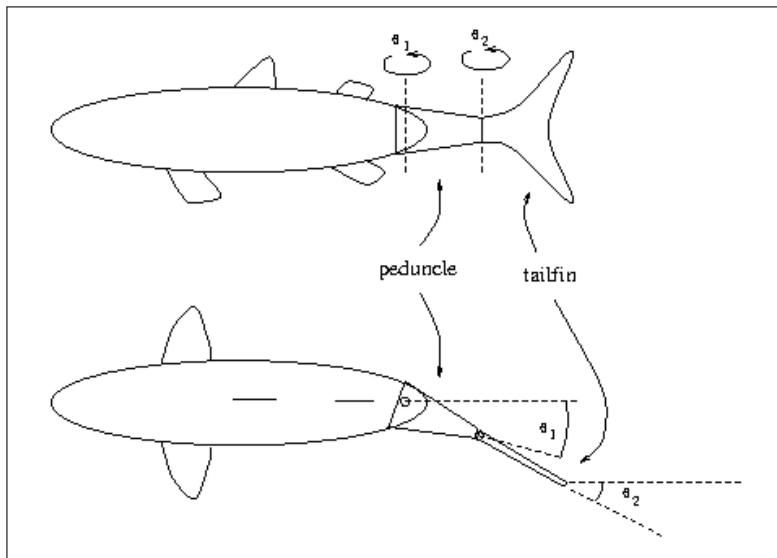
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Design of the fish

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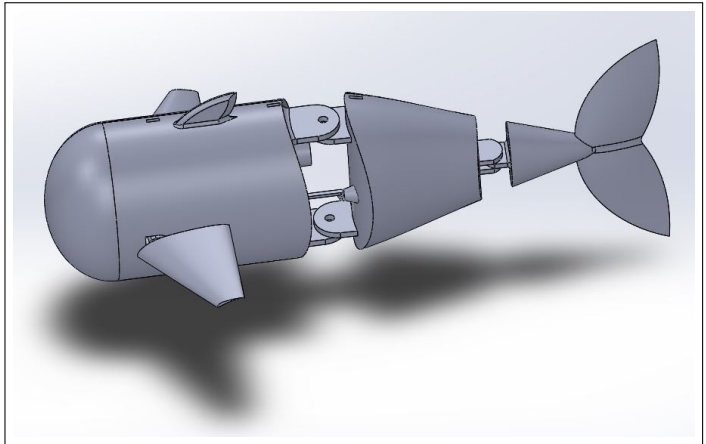
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■ 3D Modelling the fish body



Sealing of Body

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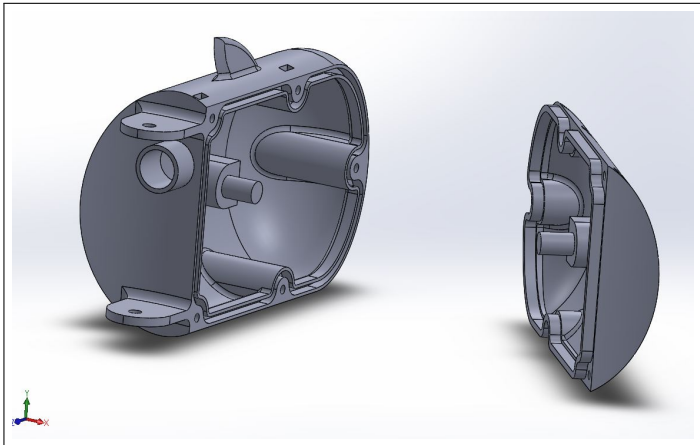
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■ Sealing with gaskets and bolts (Front body)



Sealing of Body

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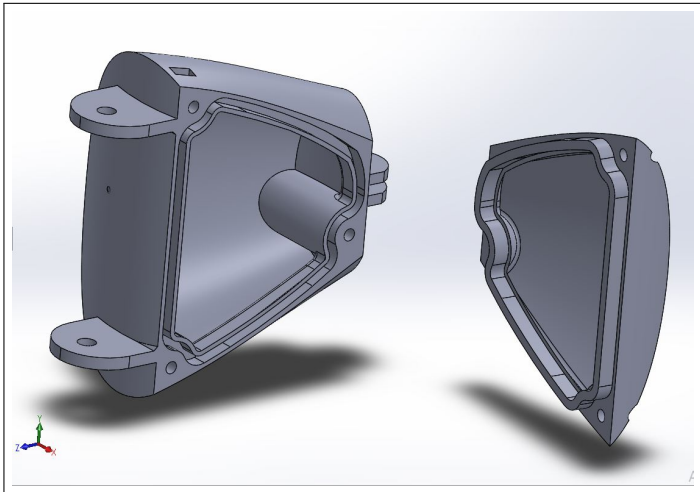
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■ Modular Body (Midbody)



A look inside

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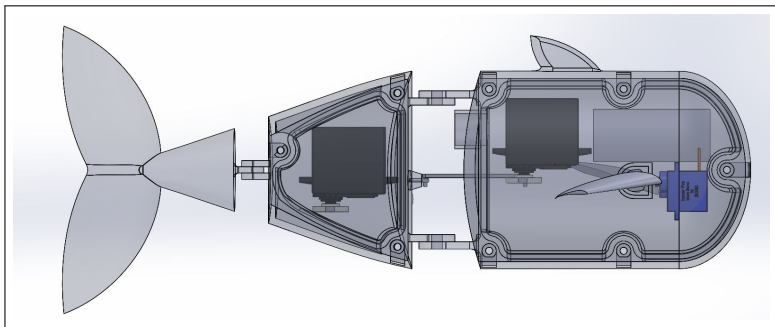
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The Electronics

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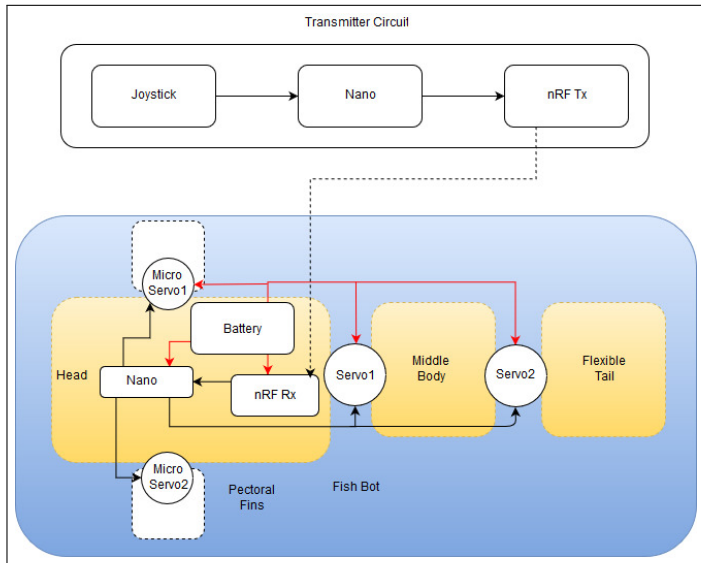
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Electronic components chosen and Why?

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- nRF24L01 (2.4 GHz)
- Arduino Nano
- Reed Switch / Hall sensor
- LM338 Regulator
- MG958 Servo Motors
- 11.1V 1500mAh 30C LiPo Battery

Designed PCBs

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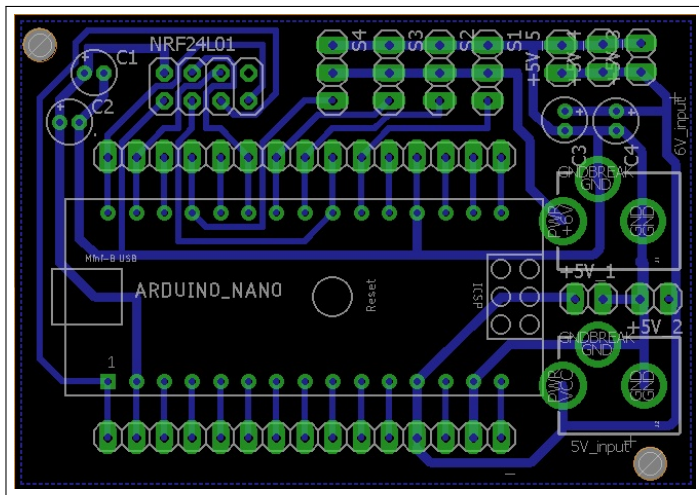
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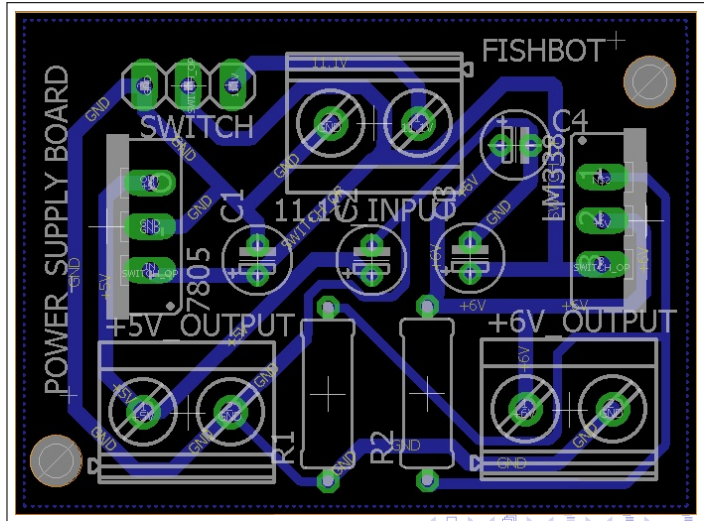
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■ Controller Board



Designed PCBs

■ Power Supply Board



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Future Plans

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- Waterproofing the body
- Actuating without waterproof servos
- Buoyancy
- Maintaining CG and CB
- Underwater communications
- Miniaturizing the circuits

Future Plans

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- Completion of fabrication and assembly of the fish
- Integrating the electronics into the fish body
- Leak-proofing the fish body and waterproofing the circuits
- Testing underwater

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Questions, Queries, Doubts, Suggestions?

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THANK YOU !!!