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| Book Name: | [Engineering Research: Perspectives on Recent Advances](https://www.bookpi.org/bookstore/product/engineering-research-perspectives-on-recent-advances-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_4531** |
| Title of the Manuscript:  | **Design of a Novel Robotic Fish Structure Utilizing PVC Gel Actuators** |
| Type of the Article | **BOOK CHAPTER** |

**Special note:**

**A research paper already published in a journal can be published as a Book Chapter in an expanded form with proper copyright approval.**

**Source Article:**

**This chapter is an extended version of the article published by the same author(s) in the following journal.**

**Modern Mechanical Engineering, 2024, 14, 57-72.**

[**https://doi.org/10.4236/mme.2024.143006**](https://doi.org/10.4236/mme.2024.143006)

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| PART 1: Comments |
|  | Reviewer’s comment**Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | **This work advances bio-inspired robotics by presenting a PVC gel actuator-based robotic fish model that mimics sub-carangiform swimming. The study illuminates soft robotics, underwater maneuverability, and propulsion efficiency for marine research, surveillance, and environmental monitoring. The article uses soft actuators to promote biomimetic movement and flexible materials in aquatic robots. This research might influence bio-mimetic robotics and autonomous underwater vehicles (AUVs).** |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | **Yes** |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | **The abstract summarizes the findings but might be more structured and clear.It should state the study's goal, methodology, and a brief overview of the results and importance. Remove repeating sentences to simplify the abstract. To improve scientific rigor, briefly discuss experimental outcomes or comparisons.** |  |
| **Is the manuscript scientifically, correct? Please write here.**  | **The book discusses robotic fish design effectively, although some technical aspects, Better clarity and technical correctness are needed when explaining the PWM signal and oscillation process.** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | **Need to add more references** |  |
| Is the language/English quality of the article suitable for scholarly communications? | Yes but need to refine again |  |
| Optional/General comments | **General Comments:** 1. Clarity & Readability: Complex sentences can be streamlined for readability. Breaking big phrases into small ones provides clarity.
2. Grammar & Syntax: The material has grammatical faults and difficult phrases. Enhancing fluency requires proofreading.
3. Technical Consistency: Actuator setup and motion dynamics might use clearer explanations and consistent language.
4. Label and reference figures and tables in the text. For instance, Figure 9 is addressed vaguely.
5. Repetition: PVC gel actuator benefits are repeated several times. Consolidating these concepts will clarify and affect the study.

**Section-Specific Comments:** **Section 2.4: Robotic Fish Structure and Design** * The phrase "The working model bio-inspired robots of the design unit are based on parameters like body size (distribution of body size) and also on swimming patterns (pattern of undulation)" recurs. Rephrase for clarity.
* The description of sub-carangiform swimmers is useful, but it could need more examples or comparisons.
* Topics shift abruptly from structure to actuators. Form and function should be more clearly linked to promote cohesion.

**See Section 3 for an overview of circuit board design.*** The PWM signal discussion is unclear. Provide further facts or a simple picture to explain how signals govern fish movements.
* The statement “circuit board provides the robots’ oscillation and swimming synchronizing the PWM signals with implicit waves" is vague. What are "implicit waves"? It requires further explanation.

**Section 4: Robot Fish Assembly Process** * Informative yet unstructured process description. Bullet points and numbered phases increase readability.
* Mentioning materials (e.g., plastics or synthetic materials) is acceptable, but specifying the plastics and why they were chosen is better.

**Section 5: Benefits of the Robot Fish** * We mention many benefits, but some overlap. Flexibility and mobility are discussed in "Adaptability and Versatility" and "Bio-Inspired Design". These might be merged for clarity.
* Expand "This reduction in weight and size can be highly beneficial since it enhances maneuverability and ease of deployment in underwater military applications"—why is weight reduction useful in military applications?

**Section 6: Conclusion** * + The conclusion covers significant topics but might elaborate on future developments.
	+ The "structural design angle of 55.52˚" is intriguing but requires explanation. Why was it chosen?
	+ The notion that "it will be impossible for the robot fish to operate with high-speed swimming" contradicts efficient mobility. Consider revising for logic.
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| **PART 2:**  |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in details)* |  |

**Reviewer details:**

**Krishnavamshi Ganduri, Woxsen University, India**