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Technology Reports of Kansai University
Volume 62, Issue 3, April 2020, Pages 605-617

Design and modelling of four-legged amphibious robot (Article)

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Abstract

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This paper proposed a method to model the gait movement of four-legged amphibious robot. This type of robot has shown a great potential to perform complex operations in difficult and challenging land and underwater environments. Not only they can monitor and manipulate complicated environment conditions during disasters such as floods, landslides, and others, but it can also perform deep ocean exploration, underwater structures manipulation, disaster rescue operations, and reconnaissance. The promising advantages of amphibious underwater robots have motivated researchers to propose different design strategies for the structures and control methods of such vehicles. To design and model the four-legged amphibious robot, the connection between the input links with the output links was identified in this paper. The system architecture and system prototype were developed for model performance test. The tests were conducted and analyses using the SAM- the Ultimate Mechanism Designer for various configurations of the links in terms of the angle, angular velocity and the angular acceleration. © 2020 Kansai University. All rights reserved.

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Author keywords

Amphibious robot Mathematical modelling Prototype development Underwater robot

Indexed keywords

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Funding sponsor	Funding number	Acronym
Ministry of Higher Education, Malaysia	FRGS 17-031-0597	MOHE

Funding text

The author would like to thank financial support from the Ministry of Higher Education Malaysia under fundamental research grant FRGS 17-031-0597.

ISSN: 04532198

CODEN: TRKUA

Source Type: Journal

Original language: English

Document Type: Article

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