

Comparison of PID and Fuzzy Controllers in an Omnidirectional Robot to Follow People

Publisher: IEEE

Cite This

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Abstract

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Abstract:

In this work we are interested in evaluating the response of proportional-integral-derivative and fuzzy controllers. The controllers are implemented in an omnidirectional robot for the purpose of tracking a person. A kinect device is used to detect the person and the distance between the person and the visual sensor is obtained. To follow the person to a set distance, the speed of the motors is controlled. The proportional-integral-derivative controller parameters are optimized with a genetic algorithm. Experiments were performed in a simulated environment CoppeliaSim. The results obtained suggest that the response of the controllers evaluated are comparable. Therefore, it is shown that the use of a genetic algorithm is a good strategy to improve the response of the proportional-integral-derivative controller.

Published in: 2022 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC)

Date of Conference: 09-11 November 2022

DOI: 10.1109/ROPEC55836.2022.10018745

Date Added to IEEE Xplore: 25 January 2023

Publisher: IEEE

► ISBN Information:

Conference Location: Ixtapa, Mexico

▼ ISSN Information:

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