
ABSTRACTS

doi:10.22306/am.v5i4.68

Received: 05 Oct. 2020

Revised: 30 Oct. 2020

Accepted: 09 Nov. 2020

APPLICATION OF DENAVIT HARTENBERG METHOD IN SERVICE ROBOTICS

(pages 47-52)

Erik Prada

Technical University of Kosice, Faculty of Mechanical Engineering, Letna 9, Kosice, Slovak Republic, EU, erik.prada@tuke.sk (corresponding author)

Srikanth Murali

Technical University of Kosice, Faculty of Mechanical Engineering, Letna 9, Kosice, Slovak Republic, EU, srikanth.murali@tuke.sk

Lubica Miková

Technical University of Kosice, Faculty of Mechanical Engineering, Letna 9, Kosice, Slovak Republic, EU, lubica.mikova@tuke.sk

Jana Ligušová

KYBERNETES, s.r.o., Omska 14, Kosice, Slovak Republic, EU, jana.ligusova@kybernetes.sk

Keywords: Kinematics, Denavit-Hartenberg method, Service Robot

Abstract: This work focuses primarily on the D-H method, as one of the most important methods used in the process of designing robotic structures. In the introduction, the history of the D-H method and its general use is briefly mentioned. In the following section, the algorithm for applying D-H in the form of mathematical formalism is explained. In this part, the individual steps of creating transformational relationships are explained in more detail. The next chapters deal in more detail with individual application types within service robotics. The first type deals with the application deployment of the mobile robotic platform, the second deals with the mobile humanoid robotic structure, the other deals with the four-legged robotic mechanism and the last type with the application of the robotic arm.

doi:10.22306/am.v5i4.69

Received: 19 Oct. 2020

Revised: 21 Nov. 2020

Accepted: 14 Dec. 2020

DESIGN AND FABRICATION OF RUNNING CHEETAH MECHANICAL TOY USING FOUR-BAR LINKAGE

(pages 53-60)

Adimas Wicaksana

Universitas Pamulang, Jl. Surya Kencana no. 1 Pamulang, dosen01678@unpam.ac.id

Keywords: four-bar linkage, mechanism design, 3D printing

Abstract: Four-bar is the simplest planar 1-DOF closed loop linkage. It has been studied for centuries for its versatility and simplicity. In this paper a novel design method to obtain a four-bar linkage given a path and its endpoints will be presented. This method will then be applied to a case study of making a model that produces a specified movement based on reference animation. The mechanism obtained had an average root-mean-square of position error of roughly 14.3 pixels for front leg and 25.9 pixels for hind leg. This number is quite small compared to the perimeter of the traced path, which are 530 pixels and 617 pixels for front leg and hind leg respectively. A prototype model of the designed mechanism was fabricated to verify its manufacturing viability and to confirm the correctness of the path generated.
