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Autore	Long Banh Tien
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Altri autori (Persone)	NangHo Xuan HuyPham Thanh KimYun-Hae IshizakiKozo HyungsunKim NguyenDuc-Toan TruongVu Van Hong MinhNguyen Thi Duc AnPham
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1. Formation maneuver of wheeled mobile robots based on attitude estimation -- 2. Analyze the Reasonableness of the Testing Velocity Value in Headform Impactor to Bonnet Top Tests -- 3. A Design of Obstacle Avoidance Algorithm for AGV -- 4. A COMPREHENSIVE COMPARISON OF MACHINE LEARNING MODELS FOR SMART ELECTRONIC NOSES -- 5. STUDY ON THE FOUR-WHEELED AUTONOMOUS VEHICLE CONTROL SYSTEM BASED ON ACKERMANN KINEMATIC MODEL WITH 2 FRONT-WHEEL STEERING - Pham Van Bach NGOC -- 65. Classification system based on UR5 robotic arm and 2D camera -- 66. Research on Industrial Communication Network for Controlling Two Elevators with Reducing Anti-Jerk -- 67. Algorithm and Software for Automatic Processing Measured Instantaneous Angular Velocity on Marine Propulsion Plant -- 68. Research And Improvement Of A 6-Degree-Of-Freedom Robotic Arm Application Of Camera For Object Grasping -- 69. Study On The Influence Of Technological Parameters In The 3d Printing Filament Production Process From Recycled Plastic Bottles Using Taguchi Experimental Design -- 70. Study On The Influence Of Tool Path Parameters On The Surface Accuracy Of The Saddle When Machining On A 3-Axis Cnc Milling Machine.

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Sommario/riassunto

This book presents selected, peer-reviewed proceedings of the 4th International Conference on Material, Machines and Methods for Sustainable Development (MMMS2024), held in the city of Da Nang, Vietnam, from September 18 to 21, 2024. The conference establishes a comprehensive understanding of the key elements that drive sustainable development, with a particular focus on materials, machinery, and methodologies. Building on this foundation, the conference seeks to provide a holistic approach that guides policymakers, industries, and researchers in aligning local technological advancements with global sustainable development objectives. This alignment is intended to support informed decision-making that prioritizes greener solutions, particularly in relation to materials, machinery, and methods. The papers presented in Volume 3 of this proceedings book highlight innovative research in sustainable machine design, energy management, and life cycle engineering for manufacturing. Key topics include MFL inspection optimization, digital twin-enabled robotic arms, 3D printing with recycled plastics, and fluxgate sensor enhancements. Robotic advancements such as differential drive systems and delta parallel trajectory control are paired with studies on AI-driven fall detection and smart electronic noses. Contributions on STATCOM-FESS control systems and energy-efficient magnetizer designs emphasize green solutions for industrial processes. The authors extend their sincere appreciation to the International Organizing and Academic Committees of the Conference for their dedication and invaluable insights, which were instrumental in upholding the high standards of this event. The authors hope that this proceedings book will serve as a rich resource for academics, researchers, engineers, and students, fostering further scientific inquiry and innovation in the pursuit of sustainable development.

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