

# **2021 International Conference on Mechatronics, Robotics and Systems Engineering (MoRSE 2021)**

**Bali, Indonesia  
17 – 19 November 2021**



**IEEE Catalog Number: CFP21MOR-POD  
ISBN: 978-1-6654-0845-5**

**Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21MOR-POD
ISBN (Print-On-Demand):	978-1-6654-0845-5
ISBN (Online):	978-1-6654-0844-8

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# Table of Content

<b>Welcome Message</b> .....	iii
<b>Conference Organization</b> .....	iv
<b>Technical Program Committee Member and Reviewers</b> .....	vi
<b>Technical Session &amp; Program Schedule</b> .....	vii
<b>Table of Content</b> .....	xii
<b>Evaluation of Novel Safety Concepts for Automotive Perception in Real-World Environments</b> .....	1
<i>Stelzer, P; Strasser, A; Steinbaeck, J; Steger, C; Schratte, M; Druml, N</i>	
<b>Prototype of A Multistory Motorcycle Parking Garage</b> .....	7
<i>Arthaya, B; Witjamulia, SC; Wahab, F</i>	
<b>Sensor Placement for Qualitative Fault Diagnosability in Large-Scale Adaptive Structures</b> .....	13
<i>Stiefelmaier, J; Gienger, A; Tarín, C; Sawodny, O; Böhm, M</i>	
<b>Traffic Flow Estimation Using Cloud-Based Traffic Velocities for In-Vehicle Application</b> .....	19
<i>Benninger, L; Sawodny, O</i>	
<b>Self-Check-In Access Control Kiosk with Automated Card Dispensing and Storage System</b> .....	25
<i>Rusli, L; Louiscious, H</i>	
<b>Study Sensorless Sliding Mode Control for Permanent Magnet Synchronous Motor in Solar E-TUKTUK</b> .....	30
<i>Piseth, T; Bunthern, K; AM, S; Chrin, P</i>	
<b>Path Following Control of an Autonomous Bus Based on Lyapunov Stability Function</b> .....	36
<i>Nugroho, J; Rizaldi, F; Nazaruddin, YY; Widyotriatmo, A; Azis, N.A</i>	

<b>Development of a Robotic Arm and End-Effector for COVID-19 Testing .....</b>	<b>42</b>
<i>Mallouh, MA;, Haddad, H; Mansour, F; Alshibi, Z; Hijazin, M</i>	
<b>Control Lyapunov-Barrier Function Implementation for Mobile Robot Model With Hardware in the Loop .....</b>	<b>48</b>
<i>Widiarta, G.H, Romdlony, M.Z; Rosa, M.R; Trilaksono, B</i>	
<b>Maze Mapping Based Modified Depth First Search Algorithm Simulator for Agricultural Environment .....</b>	<b>54</b>
<i>Budiman, J.S; Laurensia, M; Arthaya, B</i>	
<b>Kinematic Design of Integrated Rotational Axis Mechanism for IGUS Delta Robot .....</b>	<b>60</b>
<i>Rusli, L; Aveka, K</i>	
<b>Implementation of ORB-SLAM-2 Algorithm for Localization and Mapping Using Monocular Camera Sensor .....</b>	<b>64</b>
<i>Anggraeni, P; Ramadhan, NJ; Ridwan; Asshydiqi, MTA</i>	
<b>Authors Index .....</b>	<b>70</b>