

# **2010 IEEE Conference on Sustainable Utilization and Development in Engineering and Technology**

## **(STUDENT 2010)**

**Kuala Lumpur, Malaysia  
20 – 21 November 2010**



IEEE Catalog Number: CFP1019K-PRT  
ISBN: 978-1-4244-7504-9

## Table of Contents

Feasibility Study of FPGA based Real-Time Controller for Autonomous Vehicle Applications <i>Chan Kim Chon, Tan Ching Seong, Cheng Chia Loon, Lee Khai Shan, Kho Ching Leong, Fong Yong Sheng, Teng Chun Man</i>	33
Ground Plane Detection for Autonomous Vehicle in Rainforest Terrain <i>Teoh Chee Way, Tan Ching Seong, Tan Yong Chai</i>	39
Design Considerations of Autonomous Amphibious Vehicle <i>Tee Yu Hon, Teoh Boon Yew, Tan Dennis E. B., Wong Zhen Yang, Tan Ching Seong, Tan Yong Chai</i>	55
Performance of Gamma Type Low Differential Stirling Engine Powered by Steam; <i>Chong Kok Keong, Tan Ming Hui, Tan Woei Chong</i>	63
Single Phase Grid Tie Inverter for Photovoltaic Application <i>Tan Kheng Kwang, Syafrudin Masri</i>	45
An Enhanced Method for Identification of Capacitor Switching Transient using Approximate Entropy <i>C. T., Hsieh; K. L., Lew; C. S., Tsai; S. J., Huang</i>	64
A New Automated Food Delivery System Using Autonomous Track Guided Centre-Wheel Drive Robot <i>Tan Yong Chai, Lew Bent Fei, Tan Khim Leng, Goh Kae Vin, Lee Kien Loong, Khor Zhi Chao</i>	54
Ultra Fast Charging System on Lithium Ion Battery <i>C. K., Leong; Y. H., Gan; G. D., Gan; Z. Y., Phuan; M. K., Yoong; B. K., Cheah; K.W., Chew</i>	59
Studies of Regenerative Braking in Electric Vehicle <i>M. K., Yoong; Y. H., Gan; G. D., Gan; C. K., Leong; Z. Y., Phuan; B. K., Cheah; K.W., Chew</i>	62
A Novel Variance Reduction Technique for Monte Carlo Method Analysis in Narrow Space Light Propagation Conditions <i>Fam Chen Yep, Tan Ching Seong</i>	68
3D Finite Element Simulation of Magnetic Particle Inspection <i>Wong Brian Stephen, Low Yi Guang, Wang Xin, Ho Jee-Hou, Tan Ching Seong, Ooi Jong Boon</i>	72
Electronic Speaking Glove for Speechless Patients, <i>A Tongue to a Dumb</i> <i>Syed Faiz Ahmed, Syed Muhammad Baber Ali, Sh. Saqib Munawwar Qureshi</i>	78
Enhanced Multiband Feature Technique for Face Recognition under Varying Illumination <i>Ch'ing Sue Inn, Seng Kah Phooi, Ang Li-Minn</i>	83

Prediction of Thermal Profiles using Artificial Neural Network	87
<i>Christine Gee Kar-Ling, Ho Chin Kuan, Somnuk Phon-Amnuaisuk</i>	
Development of an Indoor Environment Monitoring System with Secure Digital (SD) Card Storage	93
<i>Peh Cheng-Wei, Wong Vee-Khee, Teh Ying-Khai</i>	
A Preliminary Study of the Progress of Research on Using Bayesian Networks for Educational Assessment	97
<i>Tan Chon Sern, Tay Yong Haur</i>	
Design and Development of an Embedded System for Measuring Hardness of Foot in Diabetic Patients	3
<i>V. Veena Aishwarya, V. Thulasi Bai</i>	
A Wearable Vital Signs Monitoring System for Pervasive Healthcare	8
<i>Xu Lin, Guo Dagang, Francis Tay Eng Hoch, Xing Shusong</i>	
Toy-Inspired Human Machine Interface Design	2
<i>Xing Shusong, Luo Zhiqiang</i>	
Detection of License Plate Characters in Natural Scene with MSER and SIFT Unigram Classifier	7
<i>Lim Hao Wooi, Tay Yong Haur</i>	
A Hardware Architecture of Prewitt Edge Detection	;
<i>Aramesh Seif, Mohammad Mohammadpour Salut, Muhammad Nadzir Marsono</i>	
Stereo Vision with 3D Coordinates for Robot Arm Application Guide	24
<i>Eng Swee Kheng, Anwar Hasni Abu Hassan, Ali Ranjbaran</i>	
Design and Motion Control of a Cable-driven Dexterous Robotic Arm	28
<i>G. Z., Lum; Mustafa S. K.; H. R., Lim; W. B., Lim; G., Yang; S. H., Yeo</i>	
A Framework for Area Coverage and the Visual Search for Victims in USAR with a Mobile Robot	34
<i>Wong Choon Yue, Seet Gerald, Sim Siang Kok, Pang Wee Ching</i>	
Expressive Action Design for Social Robots by Choreography	3;
<i>Xing Shusong, Xu Lin</i>	
Submicron PMOS in Mixers Circuits	45
<i>Yeap Kim Ho, Ibrahim Ahmad, Zairi Ismael Rizman, Chew Kerlit, Chong Kok Hen, Yong Yun Thung`</i>	
Design of a Highly Linear 900MHz Single Ended LNA in 0.35μm CMOS Process	49
<i>Faiza Zafar, Hifza Abid, Javeria Ahmed, Hashim Raza Khan, Rashad Ramzan, Qamar-ul-Wahab</i>	