



IEEE Latin America Transactions

FEBRUARY 2020, Volume 18 Issue 2

IEEEXplore, DOI, ISI, ISSN 1548-0992

SPECIAL ISSUE: Embedded Systems

Table of Contents.....	178
Editorial.....	180
A Literature Review on Embedded Systems	
L. De Micco, F. Vargas, and P. Fierens.....	188
Measurement of 4G LTE Cells with SDR Technology	
D. Gutierrez, F. Gimenez, C. Zerbini, and G. Riva.....	206
Extending SMS Service Coverage in Rural Areas by Using LoRa Communication Technology	
F. Gimenez, C. Zerbini, and G. Riva.....	214
Adaptive: An Adaptive Routing Protocol for Vehicle Delay-Tolerant Networks	
R. Silva, P. Braga, H. Mendes, and M. Aguiar.....	223
Implementing Cryptographic Pairings on ARM Dual-Core Processors	
R. Cuiman, A. Cabrera, and S. Sánchez-Solano.....	232
Embedded Tunable Laser Control for WDM Optical Communications Systems	
M. Bustillos, and G. Rinalde.....	241
A Critical Embedded System Challenge: The FloripaSat-1 Mission	
G. Marcelino, S. Martinez, L. Seman, L. Slongo, and E. Bezerra.....	249
Printed Circuit Board Design Methodology for Embedded Systems Targeting Space Applications	
C. Rigo, L. Seman, M. Berejuck, and E. Bezerra.....	257
Dual-Antenna Dual-Band High Performance Cubesat-Compatible GPS Receiver	
S. Rodríguez, J. García, G. Scillone, J. Díaz, E. López, and R. López.....	265
Supervision System for Emergency Brake and Traction-System Isolation on Train Formations	
I. Di Vito, P. Gomez, and A. Lutenberg.....	273
Modular System for the Monitoring of Railway Signaling Equipment	
L. Dórdolo, S. Germino, G. Ramoscelli, A. Permingeat, C. Mancón, L. Francucci, D. Baliña, A. Laiuppa, and A. Lutenberg.....	280
FPGA Implementation of a Critical Railway Interlocking System	
M. Menéndez, F. Larosa, R. Ghignone, N. Alvarez, and A. Lutenberg.....	288
Assessment of Noise Impact on Hybrid Adaptive Computational Intelligence Multisensor Data Fusion Applied to Real-Time UAV Autonomous Navigation	
Â. de Carvalho, L. Frutuoso, and E. Hideiti.....	295
Environmental Monitoring Using Embedded Systems on UAVs	
E. Vázquez-Carmona, J. Vasquez-Gomez, and J. Herrera-Lozada.....	303

Low-Cost Image and Video Processing Using High-Performance Middleware in Single-Board Computers with Open Internet Standards	
C. Pérez, M. Cleva, D. Liska, C. da Fonseca, and D. Aquino.....	311
A Light Implementation of a 3D Convolutional Network for Online Gesture Recognition	
F. Brandolt, and F. Vargas.....	319
A Scalable Neuromorphic Architecture to Efficiently Compute Spatial Image Filtering of High Image Resolution and Size	
M. Abarca, G. Sánchez, L. García, J. Avalos, T. Frías, K. Toscano, and H. Pérez.....	327
Isophote-Based Low-Computing-Power Eye-Detection Embedded-System	
C. Ordoñez, E. Blotta, and J. Pastore.....	336
FPGA Based Implementation of ImageZero Compression Algorithm	
L. Leiva, M. Vázquez, M. Tosini, O. Goñi, and J. Noguera.....	344
Optimization of Electricity Distribution in Latin America by Using Embedded Systems	
G. Alvarez, and J. Sarli.....	351
Embedded NILM as Home Energy Management System: A Heterogeneous Computing Approach	
F. Garcia, W. Souza, and F. Marafão.....	360
Multi-Sensor Embedded System with Multiple Communications Based on EDU-CIAA	
J. Julián, E. Orosco, and C. Soria.....	368
Didactic Prototype for Teaching the MQTT Protocol Based on Free Hardware Boards and Node-RED	
A. Andrada, R. Murdocca, C. Sosa, and J. Dondo.....	376
Sensor Network for Monitoring and Fault Detection in Drip Irrigation Systems Based on Embedded Systems	
F. Capraro, S. Tosetti, and P. Campillo.....	383
Human Real Time Localization System in Underground Mines Using UWB	
F. Capraro, M. Segura, and C. Sisterna.....	392
Displacement Aid System for People with Visual Impairment Using Magnetic Coils	
B. Villeda, J. Arroyo, and R. Nuñez.....	400
Failure Monitoring and Recovery System During Manufacturing Process	
P. Parsekian, F. Watanabe, D. da Cunha, M. Branciforti, and R. Aroca.....	407
Scheduling and Resource Planner Based on Multicriteria Method for Partially Dynamically Reconfigurable Systems	
A. Nuñez, J. Dondo, M. Berón, C. Sosa, and M. Murdocca.....	414
Fast Constrained Generalized Predictive Control with ADMM Embedded in an FPGA	
V. Berndsen, D. Martins, R. Costa, and J. Normey.....	422
Hybrid Sorting Algorithm Implemented by High Level Synthesis	
L. De Micco, M. Acosta, and M. Antonelli.....	430
Control System for the Synthesis of Thin Films by Pulsed Laser Deposition	
J. Conde, C. Kuo, and J. Silveyra.....	438
Fully Embedded Flow Control Device for Microfluidic Applications	
C. Aguilar-Avelar, M. Esparza, F. Chacón, D. Aráiz-Hernández, B. Soto-García, J. Yee-de León, L. Velarde-Calvillo, and A. Abarca-Blanco.....	446
New Methodology and Instrumental System for Floating Structures Monitoring and Analysis	
M. Cabrerizo-Morales, M. Rodriguez-Sanchez, J. Vaquero, A. Rodriguez-Moreno, S. Borrromeo, and R. Molina-Sanchez.....	455