

# **2016 International Electronics Symposium (IES 2016)**

**Denpasar, Indonesia  
29-30 September 2016**



**IEEE Catalog Number: CFP16D37-POD  
ISBN: 978-1-5090-1641-9**

**Copyright © 2016 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:    | CFP16D37-POD      |
| ISBN (Print-On-Demand): | 978-1-5090-1641-9 |
| ISBN (Online):          | 978-1-5090-1640-2 |

**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 Contents

---

|                                                                |       |
|----------------------------------------------------------------|-------|
| 2016 International Electronics Symposium (IES) Committee ..... | iv    |
| Foreword.....                                                  | viii  |
| Speech from Director of PNB .....                              | x     |
| Welcome Message from General Chair of IES 2016.....            | xii   |
| Opening Message .....                                          | xiv   |
| Guidelines IES 2016 .....                                      | xvii  |
| Maps and Location for IES 2016 .....                           | xviii |
| Technical Program .....                                        | xxii  |
| Keynote Speaker 1 .....                                        | xlvi  |
| Keynote Speaker 2 .....                                        | xlvi  |
| Workshop 1 : Education Service Learning .....                  | xlvi  |
| Workshop 2 : Internet of Things.....                           | l     |
| Workshop 3 : Global Environmental Systems Leader (GESL).....   | li    |
| Workshop 4 : Humanoid Robot .....                              | lii   |

**Session** : Parallel Session 01  
**Location** : Room 1  
**Moderator** : Eko Henfri Binugroho  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Robotics, Automation & Mechatronics  
**Topic** : 1

Page:

1

7

13

19

| Time        | ID Paper   | Title                                                                                             | Author(s)                                                                                                                                                                    |
|-------------|------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10.30-10.50 | 1570305664 | Robust Adaptive Proportional Derivative-Active Force Control for Unmanned Hexacopter              | Yohanes Surya, Endra Pitowarno (Politeknik Elektronika Negeri Surabaya (PENS), Indonesia)                                                                                    |
| 10.50-11.10 | 1570296562 | Nonlinear Controller Design for Wall Inspection by a Quad Rotor Helicopter under Wind Disturbance | Ting Tsan, Naoki Uchiyama (Toyohashi University of Technology, Japan), Oliver Sawodny (University of Stuttgart, Germany)                                                     |
| 11.10-11.30 | 1570305751 | Kinematic Analysis of 7 DoF Head Humanoid FLoW: V-REP Simulation                                  | Juliardi Fajar Hidayatullah, Dadet Pramadihanto, Raden Sanggar Dewanto, Ahmad Subhan Khalilullah (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)       |
| 11.30-11.50 | 1570305765 | Speed and Balancing Control for Unicycle Robot                                                    | M. Anfa'ur Rosyidi, Eko Henfri Binugroho, Ekti Radin Charel S., R. Sanggar Dewanto, Dadet Pramadihanto (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia) |

**Session** : Parallel Session 02  
**Location** : Room 2  
**Moderator** : Bambang Sumantri  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Robotics, Automation & Mechatronics  
**Topic** : 2

|    | Time        | ID Paper   | Title                                                                                                                        | Author(s)                                                                                                                                                                                            |
|----|-------------|------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25 | 10.30-10.50 | 1570305373 | Backstepping Development As Controller In Fast Response Three Phase Induction Motor Based On Indirect Field Oriented Control | Dedid Cahya Happyanto (Politeknik Elektronika Negeri Surabaya, Indonesia); Rizana Fauzi, Jumaddil Hair (Politeknik Palu, Indonesia)                                                                  |
| 31 | 10.50-11.10 | 1570305784 | PENS-Wheel (One-Wheeled Self Balancing Vehicle) Balancing Control using PID Controller                                       | Desna Riattama, Eko Henfri Binugroho, Raden Sanggar Dewanto, Dadet Pramadihanto (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                                  |
| 37 | 11.10-11.30 | 1570297081 | Embedded Iterative Learning Contouring Controller Design for Biaxial Feed Drive Systems                                      | Yogi Muldani Hendrawan (Polytechnic of Manufacturing Bandung, Indonesia)(Toyohashi University of Technology, Japan); Kenneth Renny Simba, Naoki Uchiyama (Toyohashi University of Technology, Japan) |
| 42 | 11.30-11.50 | 1570300548 | Simulation Water Level System With Feedback Feedforward Control                                                              | Joke Pratilastiarso, Erik Tridianto, Hendrik Elvian GP, Eko Budi U, Nila Vera, Aprilia Ika C (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                     |

**Session** : Parallel Session 03  
**Location** : Room 3  
**Moderator** : Tri Harsono  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Electronics, & Electrics  
**Topic** : 3

|    | Time        | ID Paper   | Title                                                                                                                            | Author(s)                                                                                                                                                                                                                                 |
|----|-------------|------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 48 | 10.30-10.50 | 1570300276 | A Seawater-Quality Analysis Semantic-Space in Hawaii-Islands with Multi-Dimensional World Map System                             | Yasushi Kiyoki, Asako Uraki, Chalisa Veesommai (Keio University, Japan)                                                                                                                                                                   |
| 54 | 10.50-11.10 | 1570305501 | Hand-Wrist Bone Assesment for Automatic Age Identification                                                                       | Riyanto Sigit, Tri Harsono, Farah Devi Isnanda, Eva Dwi Rochmawati, Elvi Triyana, Cicik Nofindarwati (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia); Rosy Setiawati (Airlangga University of Surabaya, Indonesia) |
| 60 | 11.10-11.30 | 1570305737 | Classification of Biomedical Thermal Data of Thermoacoustic Tomography to Detect Physiological Abnormalities in the Body Tissues | Rika Rokhana, Santi Anggraini (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                                                                                                                                      |
| 66 | 11.30-11.50 | 1570300666 | LOVETT Scalling With MYO Armband for Monitoring Finger Muscles Therapy of Post-Stroke People                                     | Achmad Alfian Hidayat, Zainal Arief, Heny Yuniarti (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                                                                                                    |

**Session** : Parallel Session 04  
**Location** : Room 4  
**Moderator** : Mochammad Zen Samsono Hadi  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Electronics, & Electrics  
**Topic** : 4

|    | Time        | ID Paper   | Title                                                                                                | Author(s)                                                                                                                         |
|----|-------------|------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 71 | 10.30-10.50 | 1570288361 | Wireless Energy Transmission System using Electromagnetic Induction for Home Appliances              | Pola Risma, Yurni Oktarina, Tresna Dewi, and M. Taufik Roseno (Politeknik Negeri Sriwijaya, Indonesia)                            |
| 76 | 10.50-11.10 | 1570297089 | Long-Range Wireless Sensor Networks for Geo-location Tracking: Design and Evaluation                 | Ahmad Muzaffar bin Baharudin, Wanglin Yan (Keio University, Japan)                                                                |
| 81 | 11.10-11.30 | 1570300392 | Group Mobility Based Clustering Scheme for Mobile Wireless Sensor Networks                           | M. Zen Samsono Hadi, Yuichi MIYAJI, Hideyuki UEHARA (Toyohashi University of Technology, Japan)                                   |
| 87 | 11.30-11.50 | 1570305655 | Smart Sensor Device for Detection of Water Quality as Anticipation of Disaster Environment Pollution | Taufiqurrahman, Ni'am Tamami, Dito Adhi Putra, Tri Harsono (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia) |

**Session** : Parallel Session 05  
**Location** : Room 5  
**Moderator** : Bima Sena Bayu Dewantara  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Robotics, Automation & Mechatronics  
**Topic** : 5

|     | Time        | ID Paper   | Title                                                                                         | Author(s)                                                                                                                                                                                              |
|-----|-------------|------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 93  | 10.30-10.50 | 1570294546 | From Concrete to Abstract: Multilayer Neural Networks for Disaster Victims Detection          | Indra Adji Sulistijono, Anhar Risnumawan (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                                                                           |
| 99  | 10.50-11.10 | 1570296563 | Coverage Path Planning for Mobile Robots Using Genetic Algorithm with Energy Optimization     | Tobias Rainer Schöafle, Shuaiby Mohamed, Naoki Uchiyama (Toyohashi University of Technology, Japan), Oliver Sawodny (University of Stuttgart, Germany)                                                 |
| 105 | 11.10-11.30 | 1570300441 | Generation of a Socially Aware Behavior of a Guide Robot Using Reinforcement Learning         | Bima Sena Bayu Dewantara (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)(Toyohashi University of Technology, Japan); Jun Miura (Toyohashi University of Technology, Japan)       |
| 111 | 11.30-11.50 | 1570297057 | Neuro-based Controller for Push Recovery Behavior Under External Perturbations in Biped Robot | Azhar Aulia Saputra (Tokyo Metropolitan University); Achmad Subhan Khalilullah, Dadet Pramadihanto (Politeknik Elektronika Negeri Surabaya, Indonesia); Naoyuki Kubota (Tokyo Metropolitan University) |

**Session** : Poster Presentation and Exhibition Session  
**Location** : The Denpasar Ballroom  
**Time** : 11.50 - 13.20  
**Date** : Thursday, September 29<sup>th</sup>, 2016

|     | No | Paper ID   | Title                                                                                                                                      | Author(s)                                                                                                                                                       |
|-----|----|------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 117 | 1  | 1570300444 | Prototype Design EDR (Event Data Recorder) on Motorcycle                                                                                   | Ali Husein Alasiry, Endah Suryawati Ningrum, Eko Budi Utomo, Latif Nurohman Bayu Nugroho (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia) |
| 122 | 2  | 1570305405 | Vein Detection System using Infrared Camera                                                                                                | Habib Khirzin Al Ghozali, Setiawardhana, Riyanto Sigit (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                                   |
| 128 | 3  | 1570300033 | The Experimental Study of Twisted Tape Effect on Heat Transfer Performance of Hairpin Heat Exchanger                                       | Teguh Hady Ariwibowo, Prima Dewi Permatasari, Aulia Arif Shalihuddin (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                     |
| 132 | 4  | 1570305164 | Analysis Technique of Cell Zooming Using Lower-to-Higher Scheme on Centralized Algorithm Towards Green Cellular Network in Surabaya        | Rosabella Ika Yuanita, Okkie Puspitorini, Haniah Mahmudah (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                                |
| 138 | 5  | 1570306067 | Circular Waveguide BPF Composed of Artificial Dielectric Resonators                                                                        | Barokatun Hasanah, Achmad Munir (Institut Teknologi Bandung, Indonesia)                                                                                         |
| 142 | 6  | 1570299041 | Psychomotor Game Learning Using Skeletal Tracking Method With Leap Motion Technology                                                       | Rizal Asrul Pambudi, Nana Ramadijanti, Achmad Basuki (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                        |
| 148 | 7  | 1570300413 | Road Condition Monitoring Application Based on Social Media With Text Mining System Case Study: East Java                                  | Istiq Septiana, Yuliana Setiowati, Arna Fariza (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                              |
| 154 | 8  | 1570300432 | Mobile Based of Mitigation and Emergency System for Landslide in Ponorogo, East Java, Indonesia                                            | Muhammad Rizki Dzulkarnain, Arna Fariza, Arif Basofi (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                        |
| 160 | 9  | 1570300502 | Implementation of Relay Demodulate and Forward on Multihop Communication System Using Wireless Open Access Research Platform (WARP) Module | Ida Anisah, Hendy Briantoro (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                                                 |
| 165 | 10 | 1570305416 | Proximity Coupled X-Band Patch Antenna Array with Dual Polarization                                                                        | Retno Widiandari and Achmad Munir (Institut                                                                                                                     |

|     |    |            |                                                                                                                                                                                                                                         |
|-----|----|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |    |            | Teknologi Bandung, Indonesia)                                                                                                                                                                                                           |
| 169 | 11 | 1570305519 | Management Information System of Mapping Prone Area Social Disaster in Indonesia<br>Risma Afitah, Arna Fariza, Jauari Akhmad Nur Hasim (Politeknik Elektronika Negeri Surabaya, Indonesia)                                              |
| 175 | 12 | 1570305692 | Eye Gaze System to Operate Virtual Keyboard<br>Vidya Itsna Saraswati, Riyanto Sigit, Tri Harsono (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                                                                 |
| 180 | 13 | 1570304815 | Implementation of FPGA Technology As Human-Machine Interface To Z80 Microprocessor Learning Module<br>Mariyanto Hadi, Rusminto Tjatur Widodo, Ali Husein Alasiry (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia) |
| 185 | 14 | 1570300637 | Design and Build of Hydropower Testing System in Scale of Laboratory<br>Setyo Nugroho, Fifi Hesty Sholihah, Nur Fadlilah Husnandanti, Muhammad Rozaki, Ardanto Kusuma Nurindiyono (Politeknik Elektronika Negeri Surabaya, Indonesia)   |

**Session** : Parallel Session 01  
**Location** : Room 3  
**Moderator** : Tri Harsono  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Electronics, & Electrics  
**Topic** : 6

|     | Time        | ID Paper   | Title                                                                                                                 | Author(s)                                                                                                                                     |
|-----|-------------|------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 191 | 14.50-15.10 | 1570300363 | Architecture Design of Low Level Control Omni Directional Robot with RTOS-RTX ARM Cortex-M4                           | Muhammad Ismi Musyafani, Fernando Ardilla, Mochammad Mobed Bachtiar (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)     |
| 197 | 15.10-15.30 | 1570300649 | Design and Implementation of FPGA Soft Processor for Holonomic Robot Low Level Control                                | Purwanto, Fernando Ardilla, Iwan Kurnianto Wibowo (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                       |
| 203 | 15.30-15.50 | 1570300467 | A New Recursive Shared Segmented Split Multiply-Accumulate Unit For High Speed Digital Signal Processing Applications | R.Uma (P.B college of Engineering, India);Jebashini Ponnian (University Kuala lumpur, Malaysia); Vijiya Kumar (Pondicherry University, India) |
| N/A | 15.50-16.10 | 1570300668 | Design of Data Acquisition and Encryption system based on FPGA                                                        | Monica Kamtamkar, K S Bapat (MITCOE Savitribai Phule Pune University, India)                                                                  |

**Session** : Parallel Session 02  
**Location** : Room 4  
**Moderator** : Mochammad Zen Samsono Hadi  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Electronics, & Electrics  
**Topic** : 7

|     | Time        | ID Paper   | Title                                                                                          | Author(s)                                                                                                                       |
|-----|-------------|------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 209 | 14.50-15.10 | 1570305643 | Characteristics of RAMS Coatings using Non-Ferrous Materials for AUVs                          | Nanang Syahroni, Hari Wahjuningrat Suparno, Henggar Budiman (Politeknik Elektronika Negeri Surabaya, Indonesia)                 |
| 215 | 15.10-15.30 | 1570305604 | Molecular Dynamics Simulation of a Reversible Hydrophobic-Hydrophilic Functionalized Surface   | Lukman Hakim, Wahyu Dita Saputri, Siti Mariyah Ulfa (Brawijaya University, Indonesia)                                           |
| 219 | 15.30-15.50 | 1570306593 | Experimental Approach of Quality Enhancement for Image Acquisition of Ground Penetrating Radar | Achmad Munir, Ilfiyantri Intyas, Habibur Muhaimin, and Andriyan Bayu Suksmono (Institut Teknologi Bandung, Indonesia)           |
| 223 | 15.50-16.10 | 1570298551 | Time-Frequency Analysis of Underwater Ambient Noise of Mangrove Estuary                        | Syauqina Idzni Adzhani, Hani'ah Mahmudah, Tri Budi Santoso (Politeknik Elektronika Negeri Surabaya, Indonesia)                  |
| 228 | 16.10-16.30 | 1570297009 | Antenna Tracking System Based on Pulse of Synchronization CVBS (Design System And Analyze)     | Herti Miawarni (Bhayangkara Surabaya University, Indonesia); Eko Setijadi (Sepuluh Nopember Institute of Technology, Indonesia) |

**Session** : Parallel Session 03  
**Location** : Room 5  
**Moderator** : Bima Sena Bayu Dewantara  
**Date** : Thursday, September 29<sup>th</sup>, 2016  
**Track** : Power & Energy Technology  
**Topic** : 8

|     | Time        | ID Paper   | Title                                                                                                        | Author(s)                                                                                                                                                       |
|-----|-------------|------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 234 | 14.50-15.10 | 1570297182 | Influence of Charge Behavior on Breakdown Strength of Kraft Paper in Liquid Nitrogen                         | Tomohiro Kawashima, Yuta Kitagawa, Yoshinobu Murakami, Naohiro Hozumi, Masayuki Nagao (Toyohashi University of Technology, Japan)                               |
| 238 | 15.10-15.30 | 1570300429 | Maximum Power Point Tracking of Photovoltaic Module for Battery Charging Based on Modified Firefly Algorithm | Syechu Dwitya Nugraha, Endro Wahjono, Epyk Sunarno, Dimas Okky Anggriawan, Eka Prasetyono and Anang Tjahjono (Politenik Elektronika Negeri Surabaya, Indonesia) |
| 244 | 15.30-15.50 | 1570300520 | Two-phase Buck Converter for Battery Charger of Small Scale Wind Turbine Power System                        | Purnomo Sejati, Hiroshi Suzuki and Takashi Yasuno (Tokushima University, Japan)                                                                                 |
| 248 | 15.50-16.10 | 1570300579 | Design of Measurement System Hydrostatic Force                                                               | Setyo Nugroho, Nyoman Ade Satwika (Electronic Engineering Polytechinc Institute of Surabaya, Indonesia)                                                         |

**2016 International Electronics Symposium (IES)**  
 Date : September 30<sup>th</sup>, 2016  
 Venue : Patra Jasa Bali Resort and Villas, Indonesia

| Time        | Friday, September 30 <sup>th</sup> , 2016               |                                       |                                     |                                     |                                     |  |  |  |  |
|-------------|---------------------------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|--|--|--|
|             | Workshop on<br>Global<br>Environmental<br>System (GESL) | Workshop on<br>Humanoid<br>(Robotics) | Room III:<br>Topic 9                | Room IV:<br>Topic 10                | Room V: Topic<br>11                 |  |  |  |  |
| 09.30-09.50 |                                                         |                                       | Oral<br>Presentations<br>(6 Papers) | Oral<br>Presentations<br>(6 Papers) | Oral<br>Presentations<br>(6 Papers) |  |  |  |  |
| 09.50-10.10 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 10.10-10.30 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 10.30-10.50 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 10.50-11.10 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 11.10-11.30 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 11.30-14.00 | Lunch + Friday Prayer                                   |                                       |                                     |                                     |                                     |  |  |  |  |
|             | Room I:<br>Topic 12                                     | Room II:<br>Topic 13                  | Room III:<br>Topic 14               | Room IV:<br>Topic 15                | Room V: Topic<br>16                 |  |  |  |  |
| 14.00-14.20 | Oral<br>Presentations<br>(4 Papers)                     | Oral<br>Presentations<br>(4 Papers)   | Oral<br>Presentations<br>(4 Papers) | Oral<br>Presentations<br>(4 Papers) | Oral<br>Presentations<br>(4 Papers) |  |  |  |  |
| 14.20-14.40 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 14.40-15.00 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 15.00-15.20 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 15.20-15.40 | Coffee Break                                            |                                       |                                     |                                     |                                     |  |  |  |  |
|             | Room I:<br>Topic 17                                     | Room II:<br>Topic 18                  | Room III:<br>Topic 19               | Room IV:<br>Topic 20                | Room V: Topic<br>21                 |  |  |  |  |
| 15.40-16.00 | Oral<br>Presentations<br>(4 Papers)                     | Oral<br>Presentations<br>(4 Papers)   | Oral<br>Presentations<br>(4 Papers) | Oral<br>Presentations<br>(4 Papers) | Oral<br>Presentations<br>(4 Papers) |  |  |  |  |
| 16.00-16.20 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 16.20-16.40 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
| 16.40-17.00 |                                                         |                                       |                                     |                                     |                                     |  |  |  |  |
|             | Free Time                                               |                                       |                                     |                                     |                                     |  |  |  |  |
| 18.30-20.00 | Awards + Closing Ceremony + Dinner (Farewell Party)     |                                       |                                     |                                     |                                     |  |  |  |  |

**Session** : Parallel Session 01  
**Location** : Room 3  
**Moderator** : Riyanto Sigit  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Multimedia  
**Topic** : 9

|     | Time        | ID Paper   | Title                                                                                      | Author(s)                                                                                                                                                                    |
|-----|-------------|------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 252 | 09.30-09.50 | 1570297066 | 3D Data Reconstruction of Motorcycle's Event Data Recorder (EDR)                           | Endah Suryawati Ningrum, Taratia Panggayuh, Mohamad Safrodin (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                                           |
| 256 | 09.50-10.10 | 1570305777 | Kalman Filter for Angle Estimation using Dual Inertial Measurement Units on Unicycle Robot | Ekti Radin Charel S., Eko Henfri Binugroho, M. Anfa'ur Rosyidi, R. Sanggar Dewanto, Dadet Pramadihanto (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia) |
| 262 | 10.10-10.30 | 1570300457 | 3D Sign Language Translator Using Optical-Flow                                             | Dyah Rahma Kartika, Riyanto Sigit, Setiawardhana (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                                                       |
| 267 | 10.30-10.50 | 1570298907 | View Based 3D object Retrieval using Local Binary and Ternary Pattern                      | Hero Yudo Martono (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                                                                                      |
| 271 | 10.50-11.10 | 1570305377 | Heart Video Tracking System On Long Axis View                                              | Riyanto Sigit, Tri Harsono, Baiq Herawati Aisyah Noor (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                                                  |

**Session** : Parallel Session 02  
**Location** : Room 4  
**Moderator** : Amang Sudarsono  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Information Communication Technology  
**Topic** : 10

|     | Time        | ID Paper   | Title                                                                                                     | Author(s)                                                                                                                                     |
|-----|-------------|------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 277 | 09.30-09.50 | 1570304585 | An Implementation of Anonymous Authentication System in Wireless Sensor Network Using VLR Group Signature | Amang Sudarsono, M. Udin Harun Al Rasyid, Mike Yuliana (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                 |
| 283 | 09.50-10.10 | 1570300619 | Detecting and Blocking Onion Router Traffic Using Deep Packet Inspection                                  | Ferry Astika Saputra, Isbat Uzzin Nadhori, Balighani Fathul Barry (Politeknik Elektronika Negeri Surabaya, Indonesia)                         |
| 289 | 10.10-10.30 | 1570305447 | Performance Analysis of MIMO-OFDM Systems with SIC Detection based on Single-RF with Convolutional Code   | Oktavia Kartika Sari, I Gede Puja Astawa, Anang Budikarso (Politeknik Elektronika Negeri Surabaya, Indonesia)                                 |
| 295 | 10.30-10.50 | 1570306007 | Wideband Printed Dipole Antenna Fed Using Modified Planar Marchand Balun                                  | Achmad Munir, Shendiary Avirolanda, Endon Bharata (Institut Teknologi Bandung, Indonesia)                                                     |
| 299 | 10.50-11.10 | 1570301648 | Performance of Energy Detector with Certain and Uncertain Noise in OFDM Cognitive Radio System            | N.Armi, Chaeriah. B.A.W, F. Oktafiani (Indonesian Institute of Sciences, Indonesia); F. Y. Suratman, A. Wijaya (Telkom University, Indonesia) |

**Session** : Parallel Session 03  
**Location** : Room 5  
**Moderator** : M. Udin Harun Al Rasyid  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Information Communication Technology  
**Topic** : 11

|     | Time        | ID Paper   | Title                                                                        | Author(s)                                                                                                                                              |
|-----|-------------|------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 303 | 09.30-09.50 | 1570300506 | DNA: Web-based Content Posting Interaction in Pervasive Display              | Moh. Hasbi Assidiqi, Son Kuswadi (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                                                 |
| 309 | 09.50-10.10 | 1570300663 | Macro-sized Basidiomycota Species Recognition Using Shape and Color Features | Hilmy Assodiky, Achmad Basuki, Fadilah Fahrul Hardiansyah (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                        |
| 315 | 10.10-10.30 | 1570305511 | Application For Heart Abnormalities Detection Through Iris                   | Entin Martiana K., Ali Ridho Barakbah, Syarifa Akmilis S., Aditya Afgan Hermawan (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia) |
| 323 | 10.30-10.50 | 1570305547 | Determination System Delegate for Accessing Medical Record                   | Ira Prasetyaningrum, Mike Yuliana, Maharani Saniah (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                               |

**Session** : Parallel Session 01  
**Location** : Room 1  
**Moderator** : Dadet Pramadihanto  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Robotics, Automation & Mechatronics  
**Topic** : 12

|     | Time        | ID Paper   | Title                                                                                  | Author(s)                                                                                                                                                |
|-----|-------------|------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 329 | 14.00-14.20 | 1570300259 | Basic Walking Trajectory Analysis in FLoW ROBOT                                        | Dimas Pristovani R, M. Rindo W, Eko Henfri B, Achmad Subhan KH, Dadet Pramadihanto (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia) |
| 335 | 14.20-14.40 | 1570300658 | Design of Humanoid Robot Stable Walking Using Inverse Kinematics and Zero Moment Point | Ario Sunar Baskoro, Mark Gabriel Priyono (University of Indonesia, Indonesia)                                                                            |
| 340 | 14.40-15.00 | 1570305327 | Trajectory Dancing Modelling of Humanoid Robot Dancing 33 Degree of Freedom            | Barorotul Abror, Adnan Rachmat Anom Besari, A. Subkhan KH, Dadet Pramadihanto (Politeknik Elektronika Negeri Surabaya, Indonesia)                        |
| 345 | 15.00-15.20 | 1570305564 | Flocking for Nonholonomic Robots with Obstacle Avoidance                               | Azka Muji Burohman, Augie Widyotriatmo, Endra Joelianto (Bandung Institute of Technology, Indonesia)                                                     |

**Session** : Parallel Session 02  
**Location** : Room 2  
**Moderator** : Shiori Sasaki  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Knowledge and Data Engineering  
**Topic** : 13

|     | Time        | ID Paper   | Title                                                                             | Author(s)                                                                                                    |
|-----|-------------|------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 351 | 14.00-14.20 | 1570285306 | Ant Colony Algorithm for Feature Selection on Microarray Datasets                 | Tresna Maulana Fahrudin, Iwan Syarif, Ali Ridho Barakbah (Politeknik Elektronika Negeri Surabaya, Indonesia) |
| 357 | 14.20-14.40 | 1570297151 | A Bigraph Representation Model and Directional Search Mechanism for Debates       | Diep Thi-Ngoc Nguyen, Yasushi Kiyoki (Keio University, Japan)                                                |
| 363 | 14.40-15.00 | 1570300454 | Semantic Analysis of Deforestation Soil Effect using Multispectral Reflectance    | Irene Erlyn Wina Rachmawan, Yasushi Kiyoki (Keio University, Japan)                                          |
| 369 | 15.00-15.20 | 1570300476 | Land Cover Changes from 1995 to 2016 in Sebus Forest of Sambas Regency, Indonesia | Muriadi, Wang Lin Yan (Keio University, Japan)                                                               |

**Session** : Parallel Session 03  
**Location** : Room 3  
**Moderator** : Riyanto Sigit  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Multimedia  
**Topic** : 14

|     | Time        | ID Paper   | Title                                                                                                         | Author(s)                                                                                                                |
|-----|-------------|------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| 375 | 14.00-14.20 | 1570298688 | Student Grouping Using Adaptive Genetic Algorithm                                                             | Putu Indah Ciptayani, Kadek Cahya Dewi, I Wayan Budi Sentana (Politeknik Negeri Bali, Indonesia)                         |
| 380 | 14.20-14.40 | 1570297050 | A music composition system with time-series data for sound design in next-generation sonification environment | Shunsuke HANANOI, Kazuki MURAOKA, Yasushi KIYOKI (Keio University, Japan)                                                |
| 385 | 14.40-15.00 | 1570305743 | Transparency Modeling for Mesh Object Using Ray Tracing                                                       | Liliana, Edward Pramanata Yoewono, Rolly Intan (Petra Christian University, Indonesia)                                   |
| 389 | 15.00-15.20 | 1570307911 | Skill Level Animation Technique on Dental Care Motion Graphic for Children                                    | Widi Sarinastiti, Dwi Susanto, Rodhiyah Mutammimah (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia) |

**Session** : Parallel Session 04  
**Location** : Room 4  
**Moderator** : Amang Sudarsono  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Information Communication Technology  
**Topic** : 15

|     | Time        | ID Paper   | Title                                                                                                                                                     | Author(s)                                                                                                                                                                                                                                 |
|-----|-------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 395 | 14.00-14.20 | 1570297067 | IoT/Smart Building as employee gamification engine for Measurable ROI                                                                                     | Riza Alaudin Syah (Kii Corporation Japan)                                                                                                                                                                                                 |
| 399 | 14.20-14.40 | 1570299487 | The Internet of Things (IoT) and Transformation of the Smart Factory                                                                                      | Wu Rong (National Instruments Singapore); Gobinath Tamil Vanan (National Instruments Malaysia); Mark Phillips (National Instruments Australia)                                                                                            |
| 403 | 14.40-15.00 | 1570305756 | Design and Implementation of Smart Environment Monitoring and Analytics in Real-Time System Framework Based on Internet of Underwater Things and Big Data | Muhammad Herwindra Berlian, Tegar Esa Rindang Sahputra, Buyung Jofi Wahana Ardi, Luhung Wahyu Dzatmika, Adnan Rachmat Anom Besari, Rahardhita Widyatra Sudibyo, Sritrusta Sukaridhoto (Politeknik Elektronika Negeri Surabaya, Indonesia) |

**Session** : Parallel Session 05  
**Location** : Room 5  
**Moderator** : M. Udin Harun Al Rasyid  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Information Communication Technology  
**Topic** : 16

|     | Time        | ID Paper   | Title                                                                                            | Author(s)                                                                                                                                                                               |
|-----|-------------|------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 409 | 14.00-14.20 | 1570300435 | Building Platform Application Big Sensor Data for e-Health Wireless Body Area Network            | M. Udin Harun Al Rasyid, Wiratmoko Yuwono, Syamsudin Al Muharom, Ali Husein Alasiry (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                 |
| 414 | 14.20-14.40 | 1570304075 | An Implementation of Secure Medical Data Delivery for Rural Areas Through Delay Tolerant Network | Ahmad Zainudin, Amang Sudarsono, Bagas Mardiasyah Prakoso (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                                           |
| 420 | 14.40-15.00 | 1570305069 | SCLoc: Secure Localization Platform for Indoor Wireless Sensor Network                           | Prima Kristalina, Amang Sudarsono, Mohammad Syafrudin, Bimantara Ksatria Putra (Politeknik Elektronika Negeri Surabaya, Indonesia)                                                      |
| 426 | 15.00-15.20 | 1570305697 | FLoW-Linux: Virtualization Distribution Scheme for Fault Tolerant and System Enhancement         | Imaduddin Mukhtar, Adhe Widianjaya, Michael Saputra J, Tito Pramudana, A. Subhan Khalilullah, Dadet Pramadihanto (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia) |

**Session** : Parallel Session 01  
**Location** : Room 1  
**Moderator** : Bambang Sumantri  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Robotics, Automation & Mechatronics  
**Topic** : 17

|     | Time        | ID Paper   | Title                                                                                      | Author(s)                                                                                                                                                 |
|-----|-------------|------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 432 | 15.40-16.00 | 1570300318 | Ball Tracking and Goal Detection for Middle Size Soccer Robot Using Omnidirectional Camera | Anton Kurniawan Mulya, Fernando Ardilla, Dadet Pramadihanto (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                        |
| 438 | 16.00-16.20 | 1570306100 | PENS-Wheel (Self Balancing One-Wheel Vehicle) Mechanical design and Sensor System          | Bakhtiar Ramadhan, Eko Henfri Binugroho, Raden Sanggar Dewanto, Dadet Pramadihanto (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia) |
| 444 | 16.20-16.40 | 1570300421 | End-to-End Coconut Harvesting Robot                                                        | Teguh Satrio Wibowo, Indra Adji Sulistijono, Anhar Risnumawan (Politeknik Elektronika Negeri Surabaya, Indonesia)                                         |

**Session** : Parallel Session 02  
**Location** : Room 2  
**Moderator** : Shiori Sasaki  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Multimedia  
**Topic** : 18

|     | Time        | ID Paper   | Title                                                                                                                                        | Author(s)                                                                                                                           |
|-----|-------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 450 | 15.40-16.00 | 1570297208 | Performance Analysis of Filtering Techniques for Speckle Reduction on Breast Ultrasound Images                                               | Hanung Adi Nugroho, Yuli Triyani, Made Rahmawaty, Igi Ardiyanto (Universitas Gadjah Mada Yogyakarta, Indonesia)                     |
| 455 | 16.00-16.20 | 1570299850 | Applying DEM Data to Improve Performance of Water Extraction Indices using Landsat 8 OLI images in Mountainous Area                          | Elham Goumehei, Wanglin Yan (Keio University, Japan)                                                                                |
| 459 | 16.20-16.40 | 1570300559 | UAV-based Multispectral Image Analysis System with Semantic Computing for Agricultural Health Conditions Monitoring and Real-time Management | Jinmika Wijitdechakul, Yasushi Kiyoki, Shiori Sasaki (Keio University, Japan); Chawan Koopipat (Chulalongkorn University, Thailand) |
| N/A | 16.40-17.00 | 1570305535 | Modeling and Simulation of Plant Growth Using Neuro-fuzzy, Lindenmayer System, and Turtle Geometry                                           | Wiwiet Herulambang (Bhayangkara University, Indonesia)                                                                              |

**Session** : Parallel Session 03  
**Location** : Room 3  
**Moderator** : Riyanto Sigit  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Multimedia  
**Topic** : 19

|     | Time        | ID Paper   | Title                                                                       | Author(s)                                                                                                 |
|-----|-------------|------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 465 | 15.40-16.00 | 1570296499 | Speed of Spatial Query of Satellite Data on Various Database Storage Engine | I Ketut Swardika, Putri Alit W. Santiary (Politeknik Negeri Bali, Indonesia)                              |
| 471 | 16.00-16.20 | 1570300607 | Feature Extraction of Character Image using Shape Energy                    | Galih Hendra Wibowo, Riyanto Sigit, Aliridho Barakbah (Politeknik Elektronika Negeri Surabaya, Indonesia) |
| 476 | 16.20-16.40 | 1570297200 | Texture Analysis for Classification of Thyroid Ultrasound Images            | Hanung Adi Nugroho, Made Rahmawaty, Yuli Triyani, Igi Ardiyanto (Universitas Gadjah Mada, Indonesia)      |

**Session** : Parallel Session 04  
**Location** : Room 4  
**Moderator** : Amang Sudarsono  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Engineering Education  
**Topic** : 20

|     | Time        | ID Paper   | Title                                                                                                  | Author(s)                                                                                                                                                                                               |
|-----|-------------|------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 481 | 15.40-16.00 | 1570295117 | The Effects of Conversation-Gambits Visual-Novel Game on Students' English Achievement and Motivation  | Aliv Faizal (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                                                                                                                       |
| 487 | 16.00-16.20 | 1570296522 | Developing Mobile App of English Pronunciation Test Using Android Studio                               | Rizqi Mutqiyyah, Aliv Faizal Muhammad (Electronics Engineering Polytechnic Institute of Surabaya, Indonesia)                                                                                            |
| 493 | 16.20-16.40 | 1570300730 | Improving Basic Statistic Learning Through Computer-Assisted Instruction: Exploring Indonesian Student | Rosiyah Faradisa, Moh. Hasbi Assidiqi, Moh. Zikky (Electronic Engineering Polytechnic Institute of Surabaya, Indonesia)                                                                                 |
| 499 | 16.40-17.00 | 1570305746 | Preliminary Design of Interactive Visual Mobile Programming on Educational Robot ADROIT V1             | Adnan Rachmat Anom Besari, Sritrusta Sukaridhoto, Iwan Kurnianto Wibowo, M. Herwindra Berlian, M.A. Wildan Akbar, Yohanes Yohanie F.P., Aldi Bayu K (Politeknik Elektronika Negeri Surabaya, Indonesia) |

**Session** : Parallel Session 05  
**Location** : Room 5  
**Moderator** : M. Udin Harun Al Rasyid  
**Date** : Friday, September 30<sup>th</sup>, 2016  
**Track** : Information Communication Technology  
**Topic** : 21

|     | Time        | ID Paper   | Title                                                                                                      | Author(s)                                                                                                                                                    |
|-----|-------------|------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 504 | 15.40-16.00 | 1570297088 | A Dynamic Equalizer System with Person Flow and Semantic Analysis for Recognizing Environmental Situations | Takashi OGIWARA, Yasushi KIYOKI (Keio University, Japan)                                                                                                     |
| 510 | 16.00-16.20 | 1570300387 | Flood Disaster Risk System at Bengawan Solo River in East Java Region Using Fuzzy Method                   | Mursidayanti Aprilia Rukmana, Arna Fariza, Jauari Akhmad Nur Hasim (Politeknik Elektronika Negeri Surabaya, Indonesia)                                       |
| 516 | 16.20-16.40 | 1570300314 | Modeling and Analyzing of Seismo-Electromagnetics Disturbance on Crust of Earth Using FDTD Method          | Nabila Husna Shabrina and Achmad Munir (Institut Teknologi Bandung, Indonesia)                                                                               |
| 520 | 16.40-17.00 | 1570294830 | Performance Evaluation of 5.9GHz DSRC for Positioning and Docking System of AUV                            | Nanang Syahroni, Henggar Budiman, Hari Wahjuningrat Suparno, Gigih Dharma Sulistya, and Hani'ah Mahmudah (Politeknik Elektronika Negeri Surabaya, Indonesia) |