Proceedings

of the 3rd international conference and workshop Mechatronics in Practice and Education – MECHEDU 2015

May 14 – 15, 2015
Subotica, Serbia

Organized by:

Subotica Tech – College of Applied Sciences
Subotica, Serbia

in cooperation with:

Faculty of Technical Sciences– Novi Sad, Serbia

Donát Bánki Faculty of Mechanical and Safety Engineering – Budapest, Hungary

Faculty of Engineering – Szeged, Hungary

Editors:

László Gogolák and Igor Fürstner

Published by:
Subotica Tech – College of Applied Sciences

Title

Proceedings of the 3rd international conference and workshop
Mechatronics in Practice and Education – MECHEDU 2015

Publisher

Subotica Tech – College of Applied Sciences
24000 Subotica, Marka Oreškovića 16, Serbia

Editors

László Gogolák and Igor Fürstner

Technical Editors

Sanja Maravić Čisar and Atila Nađ

Manuscript Submitted for Publication

05.05.2015.

Printing

Birografika MB doo, Subotica

Circulation 50

CIP classification

CIP - Каталогизација у публикацији
Библиотека Матице српске, Нови Сад

007.5(082)

**INTERNATIONAL Conference and Workshop "Mechatronics in Practice and Education"
(3 ; 2015 ; Subotica)**
Proceedings of the 3rd International Conference and Workshop Mechatronics in Practice and Education - MECHEDU 2015, Subotica, 14-15 May 2015 / organised by Subotica Tech, College of Applied Sciences in cooperation with Faculty of Technical Sciences Novi Sad, Donát Bánki Faculty of Mechanical and Safety Engineering, Budapest, Faculty of Engineering, Szeged ; editors László Gogolák and Igor Fürstner. - Subotica : Tech - College of Applied Sciences, 2015 (Subotica : Birografika). - 199 str. :
ilustr. ; 30 cm

Tiraž 50. - Bibliografija uz svaki rad. - Registar.
ISBN 978-86-918815-0-4
a) Мехатроника - Зборници

COBISS.SR-ID 296260103

Table of Contents

DUAL BLDC MOTOR DRIVER FOR ARM OF HUMANOID ROBOT MARKO 1

Aleksandar Batinica

Srđan Savić

Milutin Nikolić

Mirko Raković

Branislav Borovac

BANKING KIOSK'S STAMPING SUB-SYSTEM REALIZATION 6

Ivan Beg

Branislav Tejić

Igor Baranovski

Dragana Oros

Gordana Ostojić

Stevan Stankovski

INVESTIGATING THE COEFFICIENT OF PERFORMANCE OF AHEAT-PUMP WITH INTERNAL HEAT EXCHANGER 10

Dorottya Boros

Róbert Sánta

INTRODUCTION OF SMART MATERIALS TECHNOLOGY–BASED PRODUCTS IN THE AUTOMOTIVE INDUSTRY 14

Dragos CORNEA

Ciprian BULEI

Mihai–Paul TODOR

Imre KISS

DC MOTOR SPEED CONTROL IN LABVIEW 22

Sándor Csikós

Ádám Bálint

RECOGNITION OF OBJECTS AND PLACES IN 3D POINT CLOUDS FOR ROBOTIC APPLICATIONS 25

Robert Cupec

Emmanuel Karlo Nyarko

Damir Filko

Luka Markasović

VIBRATION OF A ROBOT ARM 31

Livija Cveticanin

STATISTICAL ANALYSIS OF SECURITY THREATS IN SERBIA 36

Petar Čisar

Sanja Maravić Čisar

APPROACH IN IEEE 802.11 SECURITY ANALYTICS AND ITS INTEGRATION IN UNIVERSITY CURRICULA... 41

Dalibor Dobrilovic

Borislav Odadzic

Zeljko Stojanov

Zlatko Covic

THE USE OF ICT IN COLLABORATION AND COMMUNICATION IN ACCESSING KNOWLEDGE CONTENT AT HIGHER EDUCATION INSTITUTIONS IN SERBIA 47

Erika Eleven

Dijana Karuović

Marjana Pardanjac

Dragana Glušac

SPECIFICATION OF THE APPLICATION OF BIOMETRY IN THE PRACTICE OF LAW ENFORCEMENT 53

Krisztina Földesi

Tibor Kovács

MODIFICATION OF TECHNICAL DOCUMENTATION PREPARED BY STUDENTS FOR BUILDING A PRODUCT PROTOTYPE 60

Igor Fuerstner

Laslo Gogolak

VIRTUAL APPLICATION USED TO SIMULATE THE FUNCTIONALITY OF ENGINE CONTROL UNIT 66

Daniel IŞFĂNOI-TRIF

Csaba GHEORGHIU

Vasile ALEXA

Sorin RAŢIU

QUICKBOT AS EDUCATIONAL AND RESEARCH PLATFORM FOR MULTI MOBILE ROBOTIC SYSTEMS..... 70

Duško Katić

Aleksandar Ćosić

Željko Despotović

Branko Miloradović

LOOKUP TABLE BASED FUZZY CONTROLLER IMPLEMENTATION IN LOW-POWER MICROCONTROLLERS OF HEXAPOD ROBOT SZABAD(KA)-II 76

István Kecskés

László Székács

Péter Odry

EVALUATION OF SIMULATION ENGINES FOR CROWDSENSING ACTIVITIES 82

Imre Lendák

Károly Farkas

MODELING OF AUTONOMOUS HEXA-ROTOR MICROCOPTER 88

Gyula Mester

SUBJECT OF "LOW-DIMENSIONAL SELFASSEMBLING SYSTEM" IN THE MECHATRONICAL EDUCATION AT THE OBUDA UNIVERSITY 92

Ákos Nemcsics

Antal Ürmös

GENETIC ALGORITHM-BASED ADAPTIVE FUZZY LOGIC SYSTEMS FOR DYNAMIC MODELING OF QUADROTORS **96**

Attila Nemes

THE INFORMATION SECURITY STANDARDS DEALING WITH HUNGARIAN AND INTERNATIONAL ORGANIZATIONS **104**

Andras KERTI

Zoltan NYIKES

CALCULATING TRAFFIC PARAMETERS BY AVERAGING VEHICLE OCCURRENCES IN VIDEO FRAMES ... **114**

Almir Osmanović

Adin Softić

Bahrudin Šarić

Elvedin Trakić

COMPARISON OF HAND GEOMETRY AND FINGERPRINT BASED IDENTIFICATION **118**

Csaba OTTI

SELF-REGULATING MECHANISMS OF NATURE AND SOCIETY AND THE POSSIBILITIES OF CONSTRUCTING SUSTAINABILITY MODELS **122**

Eva Pataki

Andras Sagi

Danica Drakulic

DETERMINATION OF MAGNETIC CHARACTERISTICS OF SOME STEELS SUITABLE FOR MAGNETORHEOLOGICAL BRAKE CONSTRUCTION **130**

Aleksandar Poznić

Atila Zelić

Danijela Miloradović

AUTOMATIC MODIFICATION OF ADAPTER PLATES FOR THE MODULAR FIXTURES **134**

Attila Rétfalvi

Michael Stampfer

MECHANICAL DESIGN, MODELING AND CONTROL OF REMOTELY OPERATED RIVER UNDERWATER ROBOT **139**

Aleksandar Rodić

Ilija Stevanović

GAMIFICATION IN DEVELOPING CLOUD SECURITY AWARENESS **145**

Edit Szilvia Ruboczki

SUCCESSFUL COOPERATION BETWEEN THE INDUSTRY AND EDUCATION **149**

Anita Sabo

Bojan Kuljić

Tibor Szakáll

Andor Sagi

STUDENT PROJECTS ON PNEUMATICALLY DRIVEN MUSCLE-LIKE ACTUATORS **153**

József Sárosi

Attila Gergely

Fabian Tölgyi

IMPLEMENTATION OF AN FPGA-BASED WIND TURBINE HIL MODEL **158**

Laszlo Schaffer

Zoltan Kincses

THE INTERNET OF THINGS IN WEB 2.0 ENVIRONMENT **164**

Janos Simon

Zlatko Covic

SURVEY OF A MACHINE DRIVING SYSTEM OPERATION IN 2D AND 3D DIAGRAMS TORQUE VS. ANGULAR VELOCITY **168**

Rastislav Šostakov

Atila Zelić

Aleksandar Poznić

DETECTING IRREGULAR DYNAMICS OF AUTONOMOUS ROBOTIC SYSTEMS USING INFORMATION ENTROPY **172**

Josip Stepanić

Jelena Ćosić Lesičar

Marko Posavec

INFLUENCE OF PNEUMATIC CYLINDER SPEED CONTROL ON CONSUMPTION OF COMPRESSED AIR **175**

Jovan Šulc

Dragan Šešlija

Vladimir Srndaljčević

THE CHALLENGES OF THE INTELLIGENT RAILWAY NETWORK IMPLEMENTATION **179**

Dániel Tokodi

György Schuster

József Papp

DYNAMIC STRESS DISTRIBUTION IN COMPOSITE LEAF SPRINGS FOR ELECTROMAGNETIC VIBRATORY FEEDER **186**

Milica M.Vujović

Željko V. Despotović

INDEX OF AUTHORS **191**