CONTENTS of PROCEEDINGS
ELECTRONICS 2003

Book 1

Jordanova M., T. Dachev, D. Mishev, A. Atanasova, P. Kanchev, Description of Bulgaria-ITU Telecommunication and Telemedicine Pilot Project for Septemvri Region 3

Levkov Ch., Computation of Heart Rate Variability Parameters In Electrocardiographic Holter System 9

Iliev I., S. Tabakov, Portable Physiological Electrostimulator 14

Cvetanov D., I. Iliev, Bluetooth – A Standard for Wireless Communication and its Application in Medical Devices 19

Cvetanov D., I. Iliev, Implementation of Communicational Interfaces in Biomedical Signal Registration. Advantages and disadvantages 26

Jekova I., T. Stoyanov, Measurement of Electrocardiogram Parameters. Implementation in Classification Systems 31

Sokolović M., Pr. Petković, DSP Chain Testing in an Integrated Power-Meter 37

Dimitrov I., St. Apostolov, A System for Transmitting of Telemechanic Information, Voice and Data 43

Ovcharov St., N. Tuliev, P. Yakimov, E. Balkanska, Investigation on Electronic Instruments for Power Factor Correction 49

Ovcharov St., T. Alexandrov, N. Tuliev, P. Yakimov, E. Balkanska, Transducer of Electrical Quantities in Three Phase Systems with High Resolution 55

Kostadinov A., G. Mihov, Electrical Energy Consumption Automatic Meter Reader 59

Nenov N., T. Rouzhekov, G. Mihov, E. Dimitrov, Technology for Dynamic Wheel Load Measuring of Railway Carriages 64

Stanchev A., St. Ovcharov, VHDL Programmed Circuit for Controlling the Process of Storing and Reading Data In a Digital PC-Based Oscilloscope 70

Aleksiev D., N. Krantov, V. Zerbe, Evaluation Board for Digital Systems Designing 76

Djamiykov T., N. Krantov, G. Grozdanov, Evaluation Board to Control Sensor System 81

Marinov M., I. Topalov, V. Zerbe, M. Dontschewa, Application of Micromechanical Accelerometers for Machine Condition Monitoring 86

Kostov Pl., T. Ivanova, Sv. Sapunova, I. Dandolov, I. Ilieva, Plant Growth Measurements During the Svet Greenhouse-IIB Space 92

Experiments on the MIR OS - a Basis for Development of a Closed Plant Space Habitat
Gousheva M., Pl. Angelov, Pl. Hristov, On a Possibility to Monitor Seismic Activity by Specific Wave Plasma Complex 98
Mardirossian G., B. Boytchev, Some Improvements and Innovations at the Bulgarian Geomagnetic Observatory 104
Bochev V., K. Chukanov, Assessment of Uncertainty in Prognosis of Variation of Controlled Parameters Aviation Technique 110
Spasov G., L. Petrov, G. Petrova, R.Popov, Simulation Model of Computer Network for Flight Plans Control 114
Spasov G., Z. Velchev, G. Petrova, A Distributed System for Control of Technological Process in Canning Industry 120
Katrandzhiev N., R. Chalucova, G. Krivoshiev, P. Bozhilov, A. Lyungov, The Nondestructive Assessment of the Potatoes Internal Quality by Using the Method "Seeing Through Layers" (STL) 126
Georgieva Y., St. Tzonkov, K. Georgieva, Variable Structure Control of Fermentation Processes 132
Babatov I., A. Kirchev, Universal Modular Controller for Data Acquisition and Control 138
Kolev I., Ts Karadzhov, Analysis and Circuit Solutions of Position-Sensitive Photodetectors 143
Kolev I., I. Stoeva, Infrared Channels for Control of Actuators 149
Yordanov St., Kr. Ormandgiev, Synthesis of Neural Controller for Governing of Active Water Turbine Fed by Means of Long Pressure Pipeline 154
Shindov P., Direct Laser Writing of Ohm Contacts CdO by UV Laser Processing for Photosensor – CdS by Spray Deposition Technique 160
Shindov P., M. Budakova, Direct Laser Writing of Ohm Contacts from CdO Processing for Photosensor CdS-CdSe Prepared by Spray Deposition Technique 164
Craciun A., L. Perniu, M. Vulpe, S. Moraru, Nickel Based Rechargeable Battery Testing and Recondition 168
Mardirossian G., G. Jelev, H. Nikolov, Al. Mardirossian, Electronic and Optic- Electronic Part of the System for Tsunami Physical Modeling 174
Stoyanov P., M. Mihov, G. Georgiev, The System for Integration of Civil and Military Flight Data Plans 180

Book 2

Vankov I., CMS Uniform Low Voltage Power Supply System 3
Gavrovski Cv., V. Filiposki, One Solution for Eliminating the problem of Detector Saturation in Portable Instruments for Ionizing Radiation 9

Tomov B., Pl. Dimitrov, Y. Matviichuk, Ts. Dachev, Y. Uchihori, H. Kitamura, K. Fujitaka, Calibration Results Obtained by Liulin-4 Type Spectrometers at the Nirs Himac Heavy Ion Synchrotron Facility 15
Deneva M., M. Nenchev, R. Barbe, J. Keller, All-Optical Diode Laser Arrangement for Producing Emission Spectrally Fixed at Reference Atomic Line 21
Kunov B., I. Vankov, L. Dimitrov, Low Voltage Power Supply for HCAL Photodetectors in CMS 26
Mitev M., L. Tsankov, Ch. Lenev, A Spectral Analyzer with a Logarithmic Energy-Code Scale - Nature, Features, Advantages and Drawbacks 30
Mitev M., I. Mitroshanov, Cv. Lazarov, Provident High Voltage Power Supply for a Scintillation Detector 36
Mitev M., P. Petrova, Amplitude-to-Digital Converter with Sliding Scale Based on Microcontrollers 42
Mitev M., D. Stankova, Al. Yordanov. Comparison of Methods for Measurement of Low-Level Gamma Exposure Dose 48
Boyadzhieva A., M. Deneva, M. Nenchev, Quantum Generator Using a New Output Coupler with Controlled Transmission and Reflection 54
Grozdanova A., I. Bakalski, P. Matanska, A. Dandarov, Assessment of the Sampling Error of Measurement of Point Spread Function in Lens Testing Systems 60
Sztojanov I., S. Paşca, M. Nicolae, Multiprocessor System for Genetic Algorithm Based Control 66
Makraduli M., DSP Based Variable Drive Motor Control System 72
Karakehayov Z., Low-Power Communication for Wireless AD-HOC Networks 77
Savov R., P. Zlatanov, I. Kurtev, Hardware - Software Method for Data Protection in Personal Computers 83
Hristov V., Performance of Early Packet Discarding with a Priority in Homogeneous ATM Networks 87
Karakehayov Z., L. Karakehayova, Vl. Savov, Languages and Tools for Codedesign in Embedded Systems Courses 93
Grigorov Ch., Z. Karakehayov, D. Bozduganov, An Experimental Software Tool for Scheduling of Distributed Real-Time Embedded Systems 99
Karakehayova L., M. Mironov, A Case Study of a Temperature Controller 103
Kurtev I., P. Zlatanov, Universal Microprocessor Subsystem for Test Equipment 109
Mihov G., St. Mollov, R. Ivanov, Universal Serial Bus in Industrial Measurements and Control Applications 113
Mollov S., S. Jilov, Smart Color Mark Sensor Using E3M-V 119
Manoev V., G. Mitev, Usage of Flash Cards for Data Storage in Simple Microcontroller Systems 125

Dimitrov E., K. Dilov, Real Time Operating Systems for MSP430 Family Microcontrollers 131
Gebov Vl., Main Principles at the Control of the Interruption for Processor with one Chip (mc68hc11) 137
Dzhekov T., A PWL Charge Control Model of the Power BJTs 143
Mashkov P., T. Pencheva, D. Popov, Vl. Mateev, Electronic Pulse Control for Low Inert Infrared Heaters 149
Popov E., L. Pindeva, B. Tsankovski, Controlling Frequency Influence on the Operation of Semiconductor RLC Inverters 155
Bobcheva M., G. Kynov, N. Hinov, Configuration of Transistor Inverter - Multifunctional Controller as a Basic Module for Education and Research In the Field of Power Electronics 161
Grigorova T., G. Bodurov, B. Pachedjieva, Series Resonant Converter with Secondary-Side Control of the Output Voltage 167
Karov R., Ts. Grigorova, Circuits Variety of Current Source Parallel Inverters for Induction Heating Application with Improved Performance 173
Kunov G., A. Krusteva, G. Staychev, High Frequency Converter with Series Resonance Circuit for Plasma-Chemical Surface Treatment at Atmospheric Pressure 179
Peev M., A. Krusteva, Analysis of the Electrical and Technological Regimes at the Pulse Reverse Electrodeposition of Abrasive Coatings 186

Book 3

Atghiaee A., G.C.M. Meijer, Droplet Measurement with a Capacitive Sensor 3
Aguilar R.N., G.C.M. Meijer, Smart Architecture for 3-D Ultrasonic Tracking System 7
Wang G., G. C. M. Meijer, A Switched-Capacitor Amplifier with Dynamic Element Matching in the Feedback Network 13
Andrejević M., Th. Liebezeit, Modeling of the Energy System for the Mission Level Design of the DEEPC AUV 19
Blendinger C., V. Mehrmann, P. Prochkov, A. Steinbrecher, Numerical Simulation of Train Traffic in Large Networks via Time-Optimal Control 25
Stanoeva M., A. Popov, Investigation of a Precise DAC Based on two Mismatched Capacitors 31
Fratu O., S. Halunga, Transient Behavior of Amplifier Gain Control Correction 37
Halunga S., O. Fratu, D. Paun, I. Berca, Turbocodes Bit Error Rate 43

Performances with Different Interleaver Structures
Iliev B., G. Meijer, Electrical Characterization of Rockwool Substrates 49
Kosev J., Two-Step Inductorless DC/DC Power Transformers: Classical Configurations, Efficiency a55nd Approximations
Sark Vl., V. Zerbe, Real Time Attitude System for Unmanned Air Vehicles 61
Jekov J., G. Mardirossian, St. Stoyanov, P. Panova, St. Velkoski, Non-Linear Receiver Reaction of Irradiation with Complex Spectral Composition 67
Stoeva M., Sl. Yordanova, Spatial Similarity Investigation of Image Objects 72
Yordanova Sl., M. Stoeva, Problems Connected with Orthogonal Transformations and Image Compression 78
Shoikova E., I. Pandiev, Commercial Sample/Track-and-Hold Amplifier Macromodels Development 84
Shoikova E., I. Pandiev, Verification and Validation of Commercial Sample/Track-And-Hold Amplifier Macromodels 91
Trushev I., I. Tabahnev, V. Mladenov, PSPICE Models of Sliding Mode Controller of DC/DC Converters 99
Sotirov D., G. Kokerov, E. Tsonev, E. Ganev, Evaluation of Precision and Reliability when Defining the Parameters of Normal Distribution of Random Value 105
Tzanov M., E. Manolov, F. Koparanov, Practical Experiments to Demonstrate the Basic Principles of Switched-Capacitor Circuitry 111
Koparanov F., E. Manolov, M. Tzanov, Switched-Capacitor Functional Blocks Prototyping by Using Standard Integrated Circuits 117
Manolov E., F. Koparanov, M. Tzanov, Analysis of Operation of First Order Switched-Capacitor Sigma-Delta Modulator 123
Manoilov P., FPGA Implementation of Image Processing Filters 129
Saramov E., A. Popov, Buffer Memory Structure with Optimization for Speed 135
Petrov B., Micro Programmable RISC-oriented FPGA-based Core for Real-time Data Stream Processing 141
Kukenska V., I. Simeonov, Designing of a Digital Module for Management of a Seven-Segmented Indication with Programming Logics Through the Use of the Description Language VHDL 147
Simeonov I., V. Kukenska, Designing of a Digital Module for Management of a Seven-Segmented Indication with Programming Logics Through the Use of the Graphical Editor in WebPack Integrated System 153
Koparanov F., S. Arnaudov, Special Postdetermination of Logical Functions: Algorithmic Procedure Using Integer Numeric Tables 159
Arnaudov R., M. Hristov, I. Aldimirov, Impact of the Frequency Jitter on 165

the Statistical Results of DSP Based Tests. Algorithm of Test Function Optimizing the Measurement
Arnaudov R., M. Hristov, I. Aldimirov, Iddg Measurement Test Method for Testing the Digital Part of a Mixed-Signal IC and Some Problem Aspects of its Aplication 171
Georgiev J., S. Hristov, P. Stojnova, Programmable TV Modulator for Cable Stations 177
Dobrev D., L. Jordanova, Principles for the Design of Receiving-Transmitting Equipment in Spread Spectrum Systems 183
Jordanova L., D. Dobrev, Parameters Optimization of the Optical Fiber Components for Cable Television 189
Christov C., A. Doseva, D. Kireva, Fail-Safe Qualitative Estimation of the Lineside Electronic Units in Cab Signaling System 195
Petkov I., Ah. Jerraya, Automatic Generation of HW-SW Interfaces for MPSOC 201
Vulpe M., A. Craciun, L. Perniu, A. Pelcz, Remote Controlling of Electrical Devices Using JAVA and RMI/HTTP Technology 207

Book 4

Błąd Gr., D. Klepacki, J. Potencki, Electro–Thermal Simulation of Heat Transferin Hybrid Microcircuits 3
Hotra Z., R. Holyaka, M. Hladun, I. Humenuk, The Compensation of Thermal Instabilty in Ion-Sensitive Field-Effect Transistors 9
Gheorghe G., Particular Considerations Regarding Energetic Equilibrium at Photoelectric Transducers - Part I 15
Gheorghe G., Particular Considerations Regarding Energetic Equilibrium at Photoelectric Transducers–Part Ii 23
Hristov M., G. Angelov, SPICE Models for MOSFETS: Towards the Nanotechnology Era 31
Ivanova M., S. Haese, A 5.88 GHz Mixer for Wireless LAN Applications 37
Dobrikov G., M. Rassovska, K. Kolentsov, I. Yordanova, Transparent Electrodes for Organic Light Emitting Devices 43
Videkov V., R. Radonov, B. Ianov, Web-based Test Module for SMD Technology 49
Veleva I., Bl. Donchev, G. Staychev, Methods for Analog Integrated Circuits Synthesis 55
Mihailova C., O. Antonova, D. Pukneva, E. Manolov, M. Hristov, Basic CMOS Analog Circuits for VLSI Design Education 61
Mihailova C., O. Antonova, D. Pukneva, E. Manolov, M. Hristov, Analog Array for Practical Investigation of DC Biasing Circuits 67
Antonova O., D. Pukneva, C. Mihailova, E. Manolov, M. Hristov, Analog 73

Array for Amplifier Circuits Prototyping
Pukneva D., O. Antonova, C. Mihailova, E. Manolov, M. Hristov, Determining Hand-Calculation MOS Transistor Model Parameters From BSIM Model 79
Spassov G., Matrix Correctons Computer Programme In Auger Electron Spectroscopy 85
Spassov G., Application of Auger Electron Spectroscopy in Microelectronics. Chemical Processes and Input Control 91
Stoyanov I., G. Nikolov, A Virtual Laboratory for Electronic Measurements 97
Stoyanov I., G. Nikolov, B. Nikolova, Remote Access Methods for Virtual Instrumentation 103
Vasilev V., T. Vassileva, I. Furnadziev, A. Bagnasco, A.M. Scapolla, Application Tools for Configuration and Control of Instrumentation in a Remote Laboratory 109
Vassileva T., Action-based e-Learning in Electronics 115
Shoikova E., I. Pandiev, Vl. Denishev, V. Stoyanov, Creating Scorm-Compliant Content "Printed Circuit Boards Design with OrCAD Layout" 121
Markova M., St. Stoeva, Where is the Learning in e-learning? Pedagogical Meta-model 129
Markova M., St. Stoeva, Question & Test Interoperability Standards Overview in e-Learning Environment 135
Markova M., St. Stoeva, Algorithm for On-line Assessment Using Fuzzy Logic 142
Bontchev B., D. Mutafchieva, Tasks Assignment and Control in ARCADE 149
Mechkov C., Building Electronics Tutorial 155
Mechkov C., Parallel Negative Feedback Circuit Builder 158
Hristov V., L. Taneva, Education on Microcontrollers with 68HC908GP32EVB System 161
Stoyanova L., St. Stefanova, B. Basheva, Groupwork Results in Education in Electronics 167
Stefanova St., Ts. Tsvetkova, T. Taneva, B. Tokushev, N. Kolev, A. Tsigularov, Internet-Based Information System of Technology School "Electronic Systems" Associated with the Technical University of Sofia 173
Stefanova St., Time Domain Recursive Digital Filter Design with Realization Based on Neural Network Structure 179
Tzanova Sl., H. Schauer, T. Takov, N. Mileva, Zl. Zografski, Innovation of the Electronics Education Through an Internet-based Performance Support System 185
Mustica M., S. Moraru, ECampus® - An E-Learning Management System as a WEB Based Application 190

Pelcz A., M. Vulpe, A. Moraru, L. Perniu, Unilateral/Multilateral Application Sharing 196
Perniu L., A. Moraru, D. Perniu, A.Pelcz , A. Craciun, Using ICT Products in the Context of E-Learning 202
Moraru A., A.Pelcz , A. Craciun, M. Vulpe, Using JAVA Applets in ICT Products on E-Learning Environment 208
Rahneva O., Testing and Assessment in Distributed Electronic Cluster – DeTC 214