2021 29th National Conference with International Participation (TELECOM 2021)

Sofia, Bulgaria
28 – 29 October 2021

IEEE Catalog Number: CFP21V40-POD
ISBN: 978-1-6654-3345-7

Copyright © 2021 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: CFP21V40-POD
ISBN (Print-On-Demand): 978-1-6654-3345-7
ISBN (Online): 978-1-6654-3344-0

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
Web: www.proceedings.com

CONTENTS

Smart Recommendation of Telecommunication Services (Inited Paper) **1**
Ivan Ganchev, Haiyang Zhang, Máirtín O'Droma

Implementation Aspects of Mobile Edge Location Service in 5G **9**
Ivaylo Atanasov, Evelina Pencheva, Emilia Dimitrova

Prediction of Radio Wave Attenuation due to Clouds using ANN and its business aspects **13**
Hitesh Singh, Vivek Kumar, Kumud Saxena, Boncho Bonev, Ramjee Prasad

An ANN Model for predicting Radio Wave Attenuation due to Rain and its Business Aspect **17**
Vivek Kumar, Hitesh Singh, Kumud Saxena, Boncho Bonev, Ramjee Prasad

Channel Activity Analysis of Cognitive Radio with PCA Preprocessing and Different Clustering Methods **20**
Todor D. Tsvetkov, Ilia G. Iliev

Study of Band Gap Structure for Improving Antenna Radiation Pattern **24**
Ivaylo Nachev, Ilia G. Iliev

Multichannel IoT System for Weather and Air Quality Monitoring **28**
Rosen Miletiev, Emil Iontchev, Rumen Yordanov

Assessment of Energy Absorption and Hemolysis of RBCs Due to a Wearable Antenna **32**
Gabriela Atanasova, Boyana Angelova, Margarita Kouzmanova, Nikolay Atanasov, Momchil Paunov, Maria Gurmanova

Intelligent Support System for People with Visual Impairments **36**
Nikolay Gospodinov, Georgi Krastev

Design and Research of Smart IoT Control System for Electrical Appliances **39**
Neven Nikolov, Ognyan Nakov, Daniela Gotseva

Design of a System for Intelligent Agriculture and Monitoring of the Optimal Parameters of Agricultural Crops **43**
Stanyo Kolev

Most Favorable Results for Forecasting Methods for Natural Gas and Photovoltaic Energy Consumption **47**
Silvia Baeva, Ivelina Hinova

Intelligent Architecture for Real-time Personal Health Monitoring in the Context of 3G/4G/5G Networks **53**
Valentina Markova, Todor Ganchev, Evelina Pencheva, Ivaylo Atanasov

Smart System for Control and Monitoring a DC Motor **57**
Spas Ivanov, Nikolay Hinov

Power Conscious Routing Protocol for Ad-hoc 6LoWPAN Networks **61**
Ravinder Beniwal, Kamelia Nikolova, Georgi Iliev

Comparison between Different Topologies of IP Networks Using MPLS **65**
Ivan Nedyalkov, Georgi Georgiev

Benefits and Challenges of Big Data Analysis in Telecom Industry **69**
Boyan Jekov, Milena Petkova, Lyubomir Gotsev, Vladimira Petkova

Analysis of Software Vulnerabilities, Measures for Prevention and Protection and Security Testing **73**
Ognian Nakov, Roumen Trifonov, Galya Pavlova, Plamen Nakov

Performance Evaluation of Constellation Diagram Analysis-based Methods for PCA Detection **77**
Dimitriya Mihaylova, Viktor Stoynov, Georgi Iliev, Zlatka Valkova-Jarvis, Vladimir Poulkov

Simulation and Test of RSA Algorithm on Mail Server Device **81**
Eriselda Guri Malaj, Galia Ilieva Marinova

A Study of Documents Management System Based on Web, Case Study: University **85**
Besart Prebreza, Daniela Gotseva, Plamen Nakov

Recommendation Systems Based on Textual Document Analysis **90**
Rrezart Prebreza, Daniela Gotseva, Ognyan Nakov

Face Recognition by Wavelet Transformation, Deep FFNN and ANFIS Approach **96**
Ivelina Balabanova, Georgi Georgiev

Speech Profile Recognition by Fourier Spectral, FFNN and ANFIS Techniques **100**
Ivelina Balabanova, Georgi Georgiev

Design and Deployment of Kubernetes Cluster on Raspberry Pi OS **104**
Milen Hrabarov Todorov

Studying Contactless Charging System for an Electric Scooter **108**
Dimitar Arnaudov, Bozhidar Tashkov, Ivailo Hristov, Ivan Yutidzhiyan, Krasimir Kishkin

Urban Intelligent Transport Management Systems **113**
Ivan Stankov, Varbinka Stefanova-Stoyanova

Comparative analysis of MTP and DSR protocols in Vehicular ad-hoc network **117**
Tsvetan Marinov, Maria Nenova, Georgi Iliev

Pasture Research Using Aerial Photography and Photogrammetry **121**
Kalin Dimitrov, Iliyan Damyanov, Durhan Saliev, Tsvetan Valkovski

An Adaptive Pan-Tilt Camera Control for Visual Target Tracking **125**
Plamen Petrov

Two-Dimensional Significant Bit Prediction of Wavelet Image Decomposition Coefficients **129**
Mikola Patlayenko, Abdullah Qays Taher, Olena Osharovska, Valentina Solodka, Volodymyr Pyliavskyi

Gaussian Adaptive Filtering of Low Resolution Video using Anisotropic Tensor **133**
Ivo Draganov, Rumen Mironov

The Prediction of Weather's Data for Wind, Power System Using Graph Database **137**
Arbër Sh. Perçuku, Ivan S. Stankov

Loss Power Investigation in an LLC DC-DC Converter Operating above the Resonant Frequency **141**
Tsvetana Grigorova, Aleksandar Vuchev, Stoyan Vuchev

Designing and Simulation of Bistable Multivibrators with Operational Amplifiers in Multisim **145**
Ivanka Tsvetkova, Adriana Borodzhieva

Low-Cost Remote Laboratory for Cyber-Physical Experiments **149**
Yassen Gorbounov, Hao Chen

Classification of Business Processes in Telecommunications **153**
Anna Bekyarova-Tokmakova, Nevena Mileva, Dimitar Tokmakov

A Concept of a New Knowledge Based Multimodal Affective Tutoring System **157**
Miroslav Markov, Todor Ganchev

Synthesis and Implementation of a Digital Control System for a Buck DC-DC Converter **161**
Vladimir Dimitrov, Nikolay Hinov, Kiril Genev

Perspectives for the Strategy Industry 4.0 **167**
Josif Avramov