Foreword and Editorial

International Journal of Advanced Science and Technology

We are very happy to publish this issue of an International Journal of Advanced Science and Technology by Science and Engineering Research Support Society.

This issue contains 8 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

The paper “Performance Evaluation of Different Frequency Bands of WiMAX and Their Selection Procedure” states that Worldwide Interoperability for Microwave Access (WiMAX) and other broadband wireless technologies are associated with a variety of frequency spectrums. It is essential to identify optimal frequency spectrum for implementing a technologically sturdy and strong WiMAX network. This paper compares different frequency spectrums centering various parameters like path loss, interference factors, coverage area, data rate, mobility, etc. This paper particularly focuses on comparison of frequency spectrums in terms of path loss using dissimilar propagation models. Simulations are done separately in three different environments (Urban, Suburban and Rural).

Paper “Sensing Performance Evaluation over Multihop System with Composite Fading Channel” discusses that Cognitive radio has been demonstrated for improved spectrum utilization by secondary users in the presence of spectrum holes. In this paper, a Cognitive Radio (CR) network is implemented over the cooperative multihop wireless link. A multihop network is a collection of relay nodes within transmitter and receiver. A fixed infrastructure based multihop architecture is assumed for the performance analysis of energy detection algorithm for spectrum sensing in CR. System performance estimation against channel impairments dominated by fading and shadowing effects is one of the prerequisite for performance analysis of such networks.

In the paper “Effect of Thermoplastic as Fine Aggregate to Concrete Mixture outlines an experimental study that measures the effects of thermoplastic when added to concrete cement and needs of the ecological sector in terms of recycling the waste plastic that harms not only the soil structure and the environment as per say but as well as the human who without their knowledge damage their health because of the degradation of this product.

The paper “A New Initialization Method to Originate Initial Cluster Centers for K-Means Algorithm” states that K means algorithm is most popular partition based algorithm that is widely used in data clustering. A Lot of algorithms have been proposed for data clustering using K-Means algorithm due to its simplicity, efficiency and ease convergence. In spite this K-Means algorithm has some drawbacks like initial cluster centers, stuck in local optima, etc. In this study, a new method is proposed to address the initial cluster centers problem in K-Means algorithm based on binary search technique. Binary search technique is a popular searching method that is used to find an item in given list of array. So in proposed method,
the initial cluster centers have obtained using binary search property and after that K-Means algorithm is applied to gain optimal cluster centers in dataset.

Paper “Compression of Satellite Imagery Sequences Using Wavelet for Detection of Natural Disaster” describes that Indonesia, geographically and geologically, is potentially encounter natural disasters. One of the tools used to early detect disaster is sensor of ocean waves change, but it has drawbacks including the time difference between information/warnings obtained with the disaster event is very short, less than 30 minutes. The faster detector is required, so the time difference will be longer. For example, early detection of natural disasters information system, which can be made with the pattern recognition of satellite imagery sequences of before and during natural disaster images. This study was conducted to determine the right wavelet to compress the satellite image sequences. The compressed images will be used to perform the pattern recognition of natural disaster using artificial neural network. This study use satellite imagery sequences of tornadoes and hurricanes.

This paper “Review on Histopathological Slide Analysis using Digital Microscopy” is concerned with the increasing research on better algorithms for segmentation of image, it is important to categories the already known technique, their conceptual basis and their overview. This paper presents a systematic survey of the algorithms used in automated cancer diagnosis based on histopathology. The various computational processes involved like pre-processing, feature-extraction, post-processing and disease detection (classifying the area of malignancy) are reviewed.

In the paper “A Simplified Electronic Voting Machine System”, an Electronic Voting Machine (EVM) system is proposed which is in operation as transparent as the digital system. The Simplified Electronic Voting Machine (SEVM) responds on some flow of pulses coming from the switch operated by voter and produces the output of the counting values, i.e., total casting votes of individual nominee and displays it. The machine is controlled both automatically and manually to operate the system for successive voters and to ensure that a voter can give only one vote to his/her chosen candidate of the same position. The manual controlling system must be operated by presiding officer who have the authorization to check and to declare a voter valid after checking some unique information, e.g., NID number where as the automatic controlling happens whenever a voter pushs a switch to vote. Designing and implementing of this SEVM system is very plain and convenient due to having discrete digital circuitry.

The paper “Design of a Novel Reconfigurable Fractal Antenna for Multi-Band Application” states that with advancement in communication technology over the past decade, there is an increasing demand for miniaturization, cost effective, multiband and wideband antennas. Fractal antenna designs can support in meeting these requirements. Though these antennas provide several advantages but at the same time miniaturization and performance of the fractal antennas can be further enhanced using reconfiguration concept. This paper proposes a novel hybrid reconfigurable fractal antenna that combines the advantage of both the categories. A reconfigurable fractal antenna is designed, simulated and optimized using Ansoft-High Frequency Structure Simulator (HFSS). The optimized antenna is fabricated and tested using Vector Network Analyzer. The fabricated antenna results are in good agreement with simulated results. The proposed antenna can be used for satellite communication,
medical imaging and microwave imaging application, Vehicular radar applications and wireless industry application.

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