

# International Journal of Engineering Research and Applications (IJERA)

**Editor-In-Chief**

**Prof. Manju Sharma**

## Editorial Board Members

Dr. Hadi Arabshahi, Iran	A. K. M Nazmus Sakib, Bangladesh
Dr. Eugen Axinte, Romanian	Dr. Rao, P.hd, USA
Dr. Yaduvir Singh, India	Dr. Aknuas William, Australia
Dr. Shahram Jamali, Iran	

## Associate Editorial Board members

Sukumar Senthil Kumar Universiti Sains Malaysia, School of Mathematical Sciences, Malaysia	Dr. Prasanta K Sinha Durgapur Institute of Advanced Technology & Management, Durgapur
Dr. Bensafi Abd-El-Hamid Abou Bekr Belkaid University of Tlemcen, Algeria Tamilnadu, India	Dr. A.V.Senthil Kumar Director, MCA depart, Hindusthan College of Arts and Science,
Dr. Prasanta K Sinha Deputy Director, Durgapur Institute of Advanced Technology & Management, West Bengal	Dr. Suresh Prasad Singh H.O.D.(Chemical Engineering), B. I. T. Sindri, Dhanbad
Hari Mohan Pandey Middle East College of Information Technology, Under Coventry University, U.K.	Patrick Tiong Liq Yee Universiti Teknologi Malaysia, Malaysia,
Dr. V S Giridhar Akula Professor and Principal, Avanthi's Scientific Technological and Research Academy (JNTU), Hyderabad	Dr. Santosh K. Pandey Department of Information Technology Board of Studies, The Institute of Chartered Accountants of India

## Contact Details

**Ukraine Office**  
First floor, ST Street,  
Ivano-Frankivsk, 76008, Ukraine

**India Office**  
SC-89, Shastri Nagar,  
Ghaziabad, UP, India

Email: [ijera.editor@gmail.com](mailto:ijera.editor@gmail.com)  
Website: [www.ijera.com](http://www.ijera.com)



# International Journal of Engineering Research and Applications (IJERA)

**Volume 13 - Issue 4**  
**April 2023**

**Peer Reviewed Refereed Journal**



*All Papers are indexed in Index Copernicus*



# International Journal of Engineering Research and Applications (IJERA)

Volume : 13 Issue : 4 Series 2

ISSN : 2248-9622

April 2023

## Contents :

<b>Performance Analysis of Square Shaped Microstrip Patch Antenna</b>	<b>113-116</b>
<b>Design and Development of Energy Efficient Hybrid Solar Cell Based on Polymer</b>	<b>117-123</b>
<b>Development and Assessment of Polyherbal Granules As A Dietary Supplement</b>	<b>124-132</b>
<b>Digital Data Storage on DNA</b>	<b>133-139</b>
<b>Low Cost Adsorption Studies Solutions Using Lemon Peel</b>	<b>140-145</b>
<b>Threads of Carcinogens – A Study on Cancer Causing Fabrics</b>	<b>146-154</b>
<b>Design Utilisation Of Battery Bank Fuel Cell In Case Of Solar Pv System</b>	<b>155-160</b>
<b>Reactive power and power factor correction of the electrical power system network of Kuwait</b>	<b>161-164</b>
<b>MedEx: Secured Medical Report Management System using Blockchain Technology</b>	<b>165-170</b>
<b>IOT Based Automated Smart Surveillance and Parking Management</b>	<b>171-177</b>
<b>The use of fuzzy models for the analysis of the behavior of large-scale systems</b>	<b>178-186</b>
<b>Use of fuzzy arithmetic in classification and cluster analysis problems</b>	<b>187-198</b>
<b>Design of Dual-band Inverted Ladder shaped patch antenna for 5Gmm Wave Mobile, Satellite &amp; Radar Applications</b>	<b>199-205</b>
<b>Predicting Student's Performance Using Combined Heterogeneous Classification Models</b>	<b>206-218</b>
<b>Detection of Distributed Denial of Service (DDoS) Attack Using Machine Learning and Deep Learning algorithms</b>	<b>219-224</b>