DEV BHOOMI
—UTTARAKHAND—
UNIVERSITY

SCHOOL OF ENGINEERING AND COMPUTING is organizing

International Conference

Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)

IN COLLABORATION WITH

UJVN Limited
(A Govt. of Uttarakhand Enterprise)

31st Aug to 02nd Sep 2023

International
Conference

" Smart Innovative Technologies for
Green and Sustainable Development "
(SITGSD-2023)

Editor in Chief : Dr.(Prof.) Ritika Mehra
Editor : Mr. Rohit Dobriyal, Mr. Mukesh Rajput

NEW AGE UNIVERSITY

ABOUT DBUU

The transformation of erstwhile Dev Bhoomi Group of Institutions to Dev Bhoomi Uttarakhand University brings with it a proud legacy spanning close to two decades. The University is built around its core values based on academic excellence, diversity and mutual respect, shared governance, social consciousness and environmental sustainability. Dev Bhoomi Uttarakhand University stands tall on the edifice of higher education and has ushered an array of opportunities for the youth. Spread over an area of 42 acres, in lush green environs, the University offers plethora of programmes in its 10 constituent schools. With a keen eye on promoting impactful research, the University and its highly qualified faculty is in process of branding research flagship areas. Stress is being laid on experiential and project based learning, blended mode of pedagogy, academic audits, inter-disciplinary research, value added courses and entrepreneurship. Dev Bhoomi Uttarakhand University has set the momentum to adopt NEP-2020 in a phased manner. Working towards realization of goals of quality enhancement and sustenance, developing systems for consistent and catalytic improvement shall remain the focus of Dev Bhoomi Uttarakhand University.

भगत सिंह कोश्यारी

पूर्व राज्यपाल, महाराष्ट्र व गोवा राज्य

पूर्व मुख्यमंत्री, उत्तराखण्ड राज्य

BHAGAT SINGH KOSHYARI

Former Governor of Maharashtra & Goa

Former Chief Minister of Uttarakhand

सत्यमेव जयते

Date : 16 / 08 / 2023

संदेश

मुझे यह जानकर प्रसन्नता हो रही है कि द इंस्टिट्यूशन ऑफ इंजीनियर्स (इंडिया) जो कि अभियंताओं की सर्वोच्च मानद संस्था है। जिसकी स्थापना सन 1920 में हुई थी और यह संस्था रॉयल चार्टर्ड की उपाधि से सम्मानित है. संस्था के उत्तराखंड स्टेट सेंटर देहरादून, देवभूमि उत्तराखंड विश्वविद्यालय देहरादून एवं आपदा जागरूकता एवं प्रबंधन फोरम आई ई आई के सौजन्य से दिनांक 31 अगस्त से 2 सितंबर 2023 तक **"हरित एवं सतत विकास के लिए उत्तम नवाचार प्रौद्योगिकी"** (International Conference Smart Innovative Technologies for Green and Sustainable Development) पर तीन दिवसीय अंतरराष्ट्रीय सम्मेलन का आयोजन किया जा रहा है सम्मेलन में स्वच्छ उर्जा, जलवायु परिवर्तन देश के विकास में इंजिनियर्स के योगदान आदि पर संवाद कर भविष्य के लिए नीति निर्धारण के लिए गये सुझाव आयेंगे तो इससे प्रदेश व देश लाभान्वित होगे। इस अवसर पर स्मारिका का प्रकाशन जनता के लिए लाभकारी रहेगा। सम्मेलन व स्मारिका के लिए मेरी हार्दिक शुभकामना।

मैं समारिका विमोचन एवं आयोजन की सफलता के लिए हार्दिक बधाई एवं शुभकामनाएं प्रेषित करता हूँ।

भवदीय

(भगत सिंह कोश्यारी)

<u>संदेश</u>

हमें अपार हर्ष है कि 'द इंस्टीट्यूशन ऑफ इंजीनियर्स' (इंडिया), उत्तराखंड स्टेट सेंटर देहरादून, 'देवभूमि उत्तराखंड विश्वविद्यालय' एवं आपदा जागरूकता एवं प्रबंधन फोरम साथ मिलकर "International Conference on Smart Innovative Technologies for Green and Sustainable Development" पर तीन दिवसीय अंतरराष्ट्रीय सम्मेलन का आयोजन कर रहें है। जैसे की विदित हैं कि 'द इंस्टीट्यूशन ऑफ इंजीनियर्स' (इंडिया) अभियंताओं की अग्रणी मानद संस्था है, जिसकी स्थापना सन् 1920 में हुई थी। यह संस्था, प्रौद्योगिकी के विभिन्न क्षेत्रों में नवाचारों के माध्यम से समाजिक कल्याण के लिए सतत प्रयत्नशील रहती है।

हमें जानकर खुशी हुई कि दिनांक 31 अगस्त से 2 सितंबर 2023 तक आयोजित होने वाले इस अंतरराष्ट्रीय सम्मेलन में अंतरराष्ट्रीय और राष्ट्रीय स्तर के विशेषज्ञ, हरित अर्थव्यवस्था को ध्यान में रखते हुए, जलवायु परिवर्तन के प्रभाव, स्वच्छ हरित ऊर्जा, ऊर्जा के नये स्रोत और विद्युत वाहन आदि विषयों पर अपने विचार रखेंगे। मुझे पूर्ण विश्वास हैं कि विशेषज्ञों के विचारों व व्याख्यानों से राष्ट्र और विशेषत: हमारा उत्तराखण्ड लाभांवित होगा।

हम इस अंतरराष्ट्रीय सम्मेलन के आयोजक, 'द इंस्टीट्यूशन ऑफ इंजीनियर्स' (इंडिया) 'देवभूमि उत्तराखंड विश्वविद्यालय' एवं 'आपदा जागरूकता एवं प्रबंधन फोरम' के सभी आयोजकों और सहयोगियों को शुभकामनाएं देते है, साथ ही सम्मेलन की सफलता के लिए शुभकामनाएं प्रेषित करते है।

मंगला जी

(माताश्री मंगला जी
एवं श्री भोले जी महाराज)
प्रेरणास्त्रोत द हंस फाउंडेशन

MESSAGE

Dear Participants and Guests,

I am truly delighted to extend my warmest greetings to all those attending the International Conference on *"Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)"* at Dev Bhoomi Uttarakhand University. It is an honor to witness the convergence of brilliant minds and groundbreaking ideas in the picturesque city of Dehradun.

In an era where the pursuit of sustainability is paramount, this conference stands as a beacon of hope and collaboration. The theme of smart technologies driving green solutions underscores the importance of innovation in tackling our world's challenges. Let us harness the power of collective knowledge to pave the way for a greener and more sustainable future.

Wishing you all an inspiring and fruitful conference.

Dr. Anil Sahasrabudhe
Chairman NETF

MESSAGE FROM CHIEF PATRON

Since 2005, DBUU (formerly DBGI) has grown into a one of the largest and prominent educational institution in Dehradun. People from all over India and neighboring countries come here to study with us, and we are proud of the varied perspectives they bring to our School. Being in the heart of Dehradun, our students and academics have unlimited opportunities for collaboration, research, highest quality learning and developing their career prospects.

Fueled by the groundbreaking work of our faculty in such critical areas as finance and policy, innovation and entrepreneurship, technology, healthcare, and sustainability will take DBGI to the next level. DBUU offers unparalleled opportunities that will help in launching a meaningful career and make an impact. I am very happy to note that School of Engineering & Computing (SoEC) of Dev Bhoomi Uttarakhand University is organizing three days International Conference on "Smart Innovative Technologies for Green & Sustainable Development (SITGSD-2023)" The conference is another step of our endeavor towards realizing the vision of the university. On behalf of Dev Bhoomi Uttarakhand University. I welcome all the participants in the Conference.

I wish all the best for the successful organizing of the conference.

Mr. Sanjay Bansal
CHANCELLOR
DEV BHOOMI UTTARAKHAND UNIVERSITY

We welcome you to experience the world through, DBUU.

Dev Bhoomi Group of Institution was established in 2005, with the idea of serving nation with the power of education and professional skills. Since our founding as one of the leading Institution in Uttarakhand, Dev Bhoomi Group of Institutions, has embraced a spirit of innovation, analytics, and entrepreneurship in its culture and ideology.

I am very pleased to note that School of Engineering & Computing (SoEC) of Dev Bhoomi Uttarakhand University is organizing two days International Conference on " Smart Innovative Technologies for Green & Sustainable Development (SITGSD-2023)". Attending conferences, gives attendees and participants the chance to listen to different points of view and learn new ideas and trends in your field. Participating in important conferences will make you a known figure in academic circles and an active member of the academic community.

On Behalf of Dev Bhoomi Uttarakhand University, I welcome all the participants for the conference and I wish everyone all the best for the success of conference.

Mr. Aman Bansal
PRO CHANCELLOR
DEV BHOOMI UTTARAKHAND UNIVERSITY

I am pleased to know that the Dev Bhoomi Uttarakhand University is organizing International Conference on "Smart Innovative Technologies for Green & Sustainable Development (SITGSD-2023)" on 31 Aug- 2 Sep 2023. India has the potential of becoming an economic superpower by focusing on computing and communication technologies, and University is committed to being an academic partner in this growth story. In the short span of time Dev Bhoomi Uttarakhand University has made its mark as a provider of quality education.

This conference has seen the convergence of renowned academicians and researchers. I congratulate each of them for their efforts and contribution to the global think tank on the very important area of computing and Communication Technologies.

I am confident that this occasion will be used to explore new horizons in Computer Science, Computer Applications , Electrical, Electronics and dissemination of knowledge in this area.

Dr. Preeti Kothiyal
VICE CHANCELLOR
DEV BHOOMI UTTARAKHAND UNIVERSITY

MESSAGE FROM CO PATRON

MESSAGE FROM GENERAL CHAIR

It is my great pleasure to welcome you to the International Conference on " Smart Innovative Technologies for Green & Sustainable Development (SITGSD-2023)" at Dev Bhoomi Uttarakhand University, Dehradun, India on 31 Aug- 2 Sep 2023. The Conference is organized with the objective of bringing together researchers, developers and practitioners from academia and industry working in the area of computers, communication Technology, and applications. Over the past 18 years, DBUU has provided a cross-disciplinary venue for researchers and practitioners to address the various issues Academia & Industry.

The SITGSD-2023 promises you revitalizing discussions, rich and varied networking. The conference strives for the exchange of the latest advances in Technology.

We are also grateful to all the authors who trusted the conference with their work. A Special thanks to the all the panelists for sharing their views on current research topics. We also thank our Patron Mr. Sanjay Bansal for his vision and leadership.

We look forward to an exciting Conference of insightful presentations, discussions, and sharing of technical ideas with colleagues from around the world. We thank you for attending the conference and we hope that you enjoy your visit to Dev Bhoomi Uttarakhand University, Dehradun.

Dr. R.K. Tripathi
PRO VICE CHANCELLOR
DEV BHOOMI UTTARAKHAND UNIVERSITY

MESSAGE FROM CONVENER

We are delighted to welcome our delegates in International Conference on " Smart Innovative Technologies for Green & Sustainable Development (SITGSD-2023)" at Dev Bhoomi Uttarakhand University, Dehradun, India on 31 Aug- 2 Sep 2023.

We wish to welcome our eminent keynote speakers:

1. Dr.Gleb G. Rogozinsky, Leading researcher, Institute of Transport Problems of Russian Academy of Sciences, St.Petersburg, Russia
2. Dr. Bhim Singh, SERB National Science Chair and Emeritus Professor, Department of Electrical Engineering, Indian Institute of Technology Delhi
3. Dr. M V Reddy Associate Professor/ Senior researcher Department of Materials Science and Engineering, Chemistry and Physics, National University of Singapore (NUS). Singapore.
4. Dr. Bui Thanh Hung, Data Science Laboratory, Industrial University of Ho Chi Minh city, Vietnam.

We are also thankful to our Patron Shri Sanjay Bansal for his vision, support and guidance. We look forward to an exciting Conference of meaningful presentations, discussions, and sharing of ideas with colleagues from around the world.

We welcome you to Dev Bhoomi Uttarakhand University Dehradun and hope that this year's conference will challenge and inspire you, and result in new knowledge, collaborations, and friendships.

Dr. Ritika Mehra
DEAN, SOEC
DEV BHOOMI UTTARAKHAND UNIVERSITY

Er Narendra Singh, FIE
Past President

Mob : 9412051590

A Century of Service to the Nation

Message

I am very happy to note that the Institution of Engineers (India), Uttarakhand State in association with Devbhoomi Uttarakhand University, Dehradun and & Disaster Awareness and Management Forum, IEI is organizing three days **"International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)"** on **31st Aug - 2nd Sep 2023**. at Dehradun.

In the conference, topics like climate change, environment, clean energy, disaster management, energy conservation and green energy and electric transport etc. will be discussed. The people of the state will be benefited from this international conference

A souvenir is also being released by the organizers on this auspicious occasion, I congratulate the editor and all the colleagues on its successful release.

I take this opportunity to extend my best wishes to Organizing Committee for holding this **International Conference.**
I wish for all Grand Success.

(Narendra Singh)
Past President

ER. R. R. TANWAR
BE (E), C. ENG (I), PGDMM, PGDPOM, PGADBM, MBA, FIE
Council Member & President IEI-AA

- FMR – Senior Technical officer (CW&PC), CEA, GOI-MOP
- FMR– Sub-Divisional Officer, NHPC India Ltd. (GOIU)
- FMR – Chief Project Manager, NALCO (Smelter),NIDC,(GOIU)
- FMR – Chief Engineer (Elect), NIDC(GOIU)
- FMR – General Manager (Elect/Admn.) & Disciplinary Authority, THDC India Ltd. (GOIU)
- FMR – President, Officer's Association, NIDC (GOIU)
- FMR – Advisor, Officer's Association, THDC India Ltd. (GOIU)
- FMR – CEO, Tuff Energy Pvt. Ltd.(Hydro)
- CEO & Managing Director, NGR Rising Energy

Message

It gives me immense pleasure to note that Uttarakhand State Centre & Disasters Awareness and Management Forum (DAMF) of The Institution of Engineers (India) in collaboration with Dev Bhoomi Uttarakhand University is organizing Three days International Conference on **"SMART INNOVATIVE TECHNOLOGIES FOR GREEN AND SUSTAINABLE DEVELOPMENT"** from 31st August to 2nd September 2023.

The theme of this International Conference is very relevant in the present day scenario for future of the developing countries, when the concerns one being raised across the world about the Smart Innovative Technologies for Green and Sustainable Development. Greentech include technologies and systems that use less energy and resources, draw on renewable resources, produce clean energy and help reduce and repair environmental harm. Regarding sustainable development, LED light technology, Solar-power, Carbon capture and storage technologies are Self-sufficient.

Environmental Sustainability includes artificial intelligence (AI), blockchain, internet-of-things, and BigData. Artificial Intelligence. According to the Council on Foreign Relations, AI has the capability to help reduce up to 80 percent of CO_2 emissions by 2050.

Environmental technology (envirotech) or green technology (greentech), also known as clean technology (cleantech), is the application of one or more of environmental science, green chemistry, environmental monitoring and electronic devices to monitor, model and conserve the natural environment and resources.

Green technology is technology that is built and used in a manner that preserves the atmosphere and conserves natural resources. The value of green technology, which is part of the clean energy division of the sustainable technology revolution, cannot be overstated.

I am sure that eminent speakers and the participants would deliberate on the issues during the three days International Conference and come out with cost effective viable solutions and international best practices for the policy makers and others stakeholders.

I wish the event a great success and convey my best wishes to the participants & organizers.

(R. R. TANWAR)

Disaster Awareness and Management Forum
The Institution of Engineers (India)

Uttarakhand State centre- UKSC, Opp ISBT Flyover, Saharanpur Road, Dehradun - 248002
Phone: 0135-2641190, 7417906447, Email: damf@ieindia.org

Er. S. C. Goyal, FIE
Chairman, BOG-DAMF

मंा

मेरी ओर से

आपदा प्रबंधन एवं जागरुकता फोरम, दी इंस्टीट्यूशन आफ इंजीनियर्स (भारत), की एक स्वायत्त इकाई है, जिसका मुख्यालय देहरादून मे है। इसका उद्देश्य आपदा से जन मानस को जागरुक करना है। इसके लिये यह फोरम छोटे छोटे समूह बनाकर उनमे विभिन्न आपदाओं के प्रति साहित्य बांट कर एवं उस पर चर्चा कर छोटी छोटी बातों पर ध्यान देने हेतु प्रेरित करता है। मेरा प्रयास है कि पूरे उत्तराखण्ड में इस तरह के कार्य करूं इसके अतिरिक्त कार्यशाला, सेमिनार, वेबिनार के माध्यम से भी सन्देश देते हैं।

इस फोरम ने देव भूमि उत्तराखण्ड विश्वविद्यालय के साथ मिल कर इस अंतर्राष्ट्रीय सम्मेलन मे भाग लेने का निश्चय किया चूंकि यह विश्वविद्यालय उत्तराखण्ड राज्य का एक महत्वपूर्ण विश्वविद्यालय है। इसमे अच्छे–अच्छे पाठ्यक्रम सम्मिलित हैं। इससे उत्तीर्ण विद्यार्थियों को अच्छे संस्थानों मे सम्मानित कार्य मिल जाता है।

विकास की इस दौड़ में हमको प्रकृति के साथ मिलकर जन मानस की अपेक्षाओं के अनुरूप कार्य करना है। इसी को ध्यान मे रखते हुए इस अंतर्राष्ट्रीय सम्मेलन का विषय पूरी तरह से सामयिक है।

मुझे आशा ही नही पूर्ण विश्वास है कि हम अपने पूर्ण प्रयासों से इस अंतर्राष्ट्रीय सम्मेलन के द्वारा अपना सन्देश देने में सफल होंगे।

सुभाष चन्द्र गोयल
12-7-23
सुभाष चन्द गोयल

INDIAN INSTITUTE OF TECHNOLOGY, DELHI
DEPARTMENT OF ELECTRICAL ENGINEERING
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Dated: August 20, 2023

Message

I am happy to know that this year The Institution of Engineers (India), Uttarakhand State in association with The Devbhoomi Uttarakhand University, Dehradun and Disaster Awareness and Management Forum, IEI is organizing three days "International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)" on 31st Aug - 2nd Sep 2023 at Dehradun.

The theme of the Conference is very appropriate and relevant. Last few years have seen the menace caused by COVID-19 thus causing it to be one of the most challenging time periods for the human race and it is the time for 'Engineering Innovation'. It is now, therefore, more significant than ever for engineers to have the technical background to understand new advancements and the communication skills to collaborate with other disciplines. I am happy to note that the coverage of issues in the conference is quite wide ranging and multi-disciplinary and deliberations therein help the participants to gain excellent understanding of the complex issues. I am sure that the conference is to stimulate awareness of the latest developments and emerging trends in engineering, and would lead to enhancement of knowledge, skills, abilities, and attitudes required to face 21st century challenges and opportunities for betterment of human society and global environment. Such event in an academic institute serves as a forum for inspiring new ideas, presenting cutting edge studies and encouraging collaborations amongst academicians, scholars, and industrialists.

I appreciate the efforts made by the organizing team working tirelessly to make all the arrangements in time. The conference has gone through the rigorous process of reviewing, thoughtful planning of keynotes, tutorials, and panel discussions. The conference provides a great opportunity to various researchers, practicing engineers to share their views and experiences. All the topics on **smart innovative technologies for green and sustainable development** are timely and important to the present context.

I warmly welcome the delegates and participants to this esteemed conference.
I wish SITGSD-2023 to be a great success.

(Professor Bhim Singh)

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

SOLOMENKO INSTITUTE OF TRANSPORT PROBLEMS OF THE RUSSIAN ACADEMY OF SCIENCES
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___24.07.2023___ № 11624/____110____

На № _____ от _____

Leading researcher
of the Laboratory of Ecology of
Transport Systems
Dr. Sci. (Tech) Gleb G. Rogozinsky

Message

As the appointed keynote speaker and member of the International Advisory Committee of the Smart Innovative Technologies for Green and Sustainable Development Conference (SITGSD-2023), I wanted to take a moment to extend my heartfelt gratitude for giving me the opportunity to address the audience and be a part of this remarkable gathering.

Economic crisis, international conflicts, and ongoing environmental concerns have undoubtedly posed formidable challenges for green technologies and sustainable development in recent years. However, it is precisely during such times of adversity that innovation and collaboration become paramount.

It is with great enthusiasm and eagerness that I look forward to sharing my insights and experiences with the participants and guests of the SITGSD. Conferences like this serve as a crucible for knowledge exchange and intellectual growth, and I am truly honored to be a part of such a transformative occasion.

Furthermore, I would like to express my profound gratitude to the organizers who have orchestrated the Conference - School of Engineering and Computing at Dev Bhoomi Uttarakhand University and the Institution of Engineers (India). Your meticulous efforts and dedication in organizing this event are commendable. I am confident that the SITGSD-2023 will have a resounding success.

It is my sincere hope that my contribution will add value to the overall conference experience and contribute to the pursuit of excellence in our respective fields.

Warm regards,

Dr. Gleb Rogozinsky

SANDEEP SINGHAL
Managing Director

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ISO 9001-2008 Certified

MESSAGE

It is heartening to know that Institute of Engineers (India), Uttarakhand State Centre, Dehradun in collaboration with Dev Bhoomi Uttarakhand University (DBUU) & Disaster Awareness and Management Forum IEI is organizing three days "International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)" on 31st August – 2nd September 2023.

United Nations General Assembly formally adopted for sustainable Development comprising a set of 17 sustainable development goals, integrated in a way to have transformative vision for a better world. This collaboration of DBUU & Disaster Awareness and Management Forum IEI will definitely boost the pace of sustainable development for smart innovative technologies.

I extend my best wishes to Institute of Engineers (India), Uttarakhand for the grand success of the conference.

18.8.23

(Sandeep Singhal)
Managing Director

Anil Kumar
Managing Director

Uttarakhand Power Corporation Limited

(A Govt of Uttarakhand Undertaking)
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CIN : U40109UR2001SGC025867

MESSAGE

It gives me immense pleasure to know that Institute of Engineers (India), Uttarakhand State Centre, Dehradun in collaboration with Dev Bhoomi Uttarakhand University (DBUU)& Disaster Awareness and Management Forum IEI is organizing three days "Internationl Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)" on 31st August- 2nd September-2023.

United Nations General Assembly formally adopted for sustainable Development comprising a set of 17 sustainable development goals, integrated in a way to have transformative vision for a better world. This collaboration of DBUU & Disaster Awareness and Management Forum IEI will definitely boost the pace of sustainable development for smart innovative technologies.

I extend my best wishes to Institute of Engineers (India), Uttarakhand for the grand success of the conference.

(Anil Kumar)
Managing Director

Dated: 18th August, 2023

MESSAGE

It is my pleasure to extend my best wishes to the organisers of a 3-day International conference on 'Smart Innovative Technologies for Green and Sustainable Development (SITGSD-23) being organised by Uttarakhand State Centre of IEI, in association of Disaster Awareness and Management Forum and Devbhoomi Uttarakhand University, Dehradun from August 31 to September 2, 2023 at Dehradun.

The conference will provide platform to International and national experts on the themes and sub themes of the conference to share their knowledge with each other and delegates.

The deliberations in the conference will enhance knowledge on the subject matter.

I wish the conference a big success and congratulate the organisers on organising the conference,

With best wishes,
Sincerely,

Prof. M P Jain
Member,
Advisory Committee of Conference

The Institution of Engineers (India)

Res: 142 South Vanasthali, Ballupur Chowk, Dehradun-248001

Er H K Upreti, FIE

Phone : 0135-2641190
Mob : 9412992971

A Century of Service to the Nation

MESSAGE

Our Uttarakhand State Centre of the Institution of Engineers (India) and Disaster Awareness and Management Forum, IEI in association with Devbhoomi Uttarakhand University, Dehradun is organizing three days **"International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)"** on **31st Aug - 2nd Sep 2023**. at Dehradun.

In this international conference experts from India & abroad will put their views on green energy and its effects on climate change, and other new sources of energy.

I congratulate organizers of this conference for their interring efforts in brining publication of a souvenir on this occasion. I Wish the conference a grand success and convey my best wishes to all members of organizing team.

(H K Upreti)

The Institution of Engineers (India)

AN ISO 9001:2008 CERTIFIED ORGANIZATION
(Established 1920, INCORPOREATED BY ROYAL CHARTER 1935)

UTTARAKHAND STATE CENTRE

Engineer's Bhawan

Near ISBT Flyover, Saharanpur Road, Dehradun-248002

Phone : 0135-2641190
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Email : uttarakhandsc@ieindia.org

Er Dharm Chandra, FIE
Chairman
Er Satish Chand Chauhan, FIE
Honorary Secretary

A Century of Service to the Nation

Message

It is my proud privilege and pleasure to inform that the Institution of Engineers (India), Uttarakhand State Centre and Disaster Awareness and Management Forum, IEI in association with Devbhoomi Uttarakhand University, Dehradun is organizing three days **"International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)"** on 31st Aug - 2nd Sep 2023 at Dehradun.

Experts, scientists and engineers of international and national level will present their views in the conference. In the conference, topics like climate change, environment, clean energy, disaster management, energy conservation and green energy will be discussed. The people of the state will be benefited by the conclusions that will emerge from this international conference.

A souvenir is also being released by the organizers on this auspicious occasion,I congratulate the editor and all the colleagues on its successful release.

I take this opportunity to extend my best wishes to the Organizing Committee for this **International Conference.**

(Dharm Chandra)
Chairman

MESSAGE

I feel immense pleasure that our uttarakhand State Centre of the Institution of Engineers (India) and Disaster Awareness and Management Forum, IEI in association with Devbhoomi Uttarakhand University, Dehradun is organizing three days **"International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)"** on 31st Aug - 2nd Sep 2023. at Dehradun.

In the international conference experts will deliberate lecture on various experts of green energy & its effects on climate change and other new sources of energy and its use in our modern day life.

I Wish a grand success of this conference and convey my best complements to all the organizers.

(J P Tomar)
Convenor

Er Narendra Singh
Past President
IEI Kolkata

Er Dharm Chandra
Chairman, IEI UKSC

Er S C Goyal
Chairman, IEI DAMF

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The Institution of Engineers (India), Uttarakhand State Centre, Near ISBT Flyover, Dehradun

The Institution of Engineers (India)

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Er R V S Chauhan, FIE
Past Chairman

Phone : 0135-2641190
Mob : 9719516358

A Century of Service to the Nation

Message

I am very happy to know that the Institution of Engineers (India), Uttarakhand State in association with Devbhoomi Uttarakhand University, Dehradun and & Disaster Awareness and Management Forum, IEI is organizing three days "**International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)**" on **31st Aug - 2nd Sep 2023**. at Dehradun.

In the conference, topics like climate change, environment, clean energy, disaster management, energy conservation and green energy and electric transport etc. will be discussed. The people of the state will be benefited from this international conference

A souvenir is also being released by the organizers on this auspicious occasion, I congratulate the editor and all the colleagues on its successful release.

I congratulate organizers of this conference for their continued efforts in brining publication of a souvenir on this occasion. I am sure this souviner would be highly useful for Engineers, Tecknocrats and Students.

I wish the workshop a great Success.

(Ranveer Singh Chauhan)
Past Chairman

Dr Shashi Kumar, IFS(Retd)

Former Director General, Indian Council of Forestry Research & Education

And Director, Indira Gandhi National Forest Academy

New Forest, Dehradun-248006
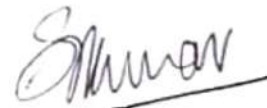
MESSAGE

It is heartening to learn that an international conference on "Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)" is being organized by The Institution of Engineers India & Disaster Awareness and Management Forum, Dehradun in collaboration with Dev Bhumi Uttarakhand University, Dehradun. The conference has aptly been named and the topics like climate change, clean energy and the environment have very wisely been chosen by the committees concerned.

It is a matter of great pleasure to associate myself with this international conference and I am sure that the target group is going to benefit immensely, which will be the real outcome of the conference.

At the outset I wish all the best for the full-fledged success of this conference. I am sure that the way this has taken off the success and utility will go in the annals of the history of The Institution of Engineers India and Dev Bhumi Uttarakhand University, Dehradun.

(Shashi Kumar)

@ amanjoshi14@gmail.com

https://www.linkedin.com/in/amanjoshi

Aman Joshi
Co-Founder and Director,
Fidato Consultants Pvt. Ltd.

MESSAGE

I trust this message finds you well. I am writing to extend my sincere gratitude for the honor and privilege of addressing the audience at the "Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)" conference, organized by DBUU. It is truly an honor to serve as a member of the advisory board for such a crucial and forward-thinking event.

The theme of the conference, focusing on smart innovative technologies for green and sustainable development, is not only timely but also aligns perfectly with the pressing global need for sustainable solutions. The intersection of technology and sustainability holds immense promise, and this conference provides an ideal platform to explore, discuss, and promote these transformative ideas.

I commend DBUU and The Institution of Engineers (India) for its commitment to fostering meaningful conversations and collaborations that can drive positive change. The opportunity to address the audience and share insights on leveraging innovative technologies for sustainability is one that I deeply appreciate. I am eager to contribute to the conference's success by engaging with fellow advisory board members, esteemed speakers, and participants from diverse backgrounds.

By bringing together experts, scholars, industry leaders, and stakeholders, SITGSD-2023 has the potential to catalyze groundbreaking discussions, facilitate knowledge exchange, and inspire tangible actions. I am confident that the outcomes of this conference will resonate far beyond its duration, contributing to the broader dialogue on sustainable development and its intersection with technology.

Thank you once again for entrusting me with the privilege to address the audience. I look forward to joining the event and collaborating with the DBUU community to create a more sustainable, innovative, and prosperous future.

With Warm Regards,

Aman Joshi

NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION TECHNOLOGY (NIELIT)
(An Autonomous Scientific Society of Ministry of Electronics and Information Technology, Government of India)

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www.nielit.gov.in/haridwar/index.php

Scientist 'E' &
Director-in-charge of
NIELIT Haridwar

ANURAG KUMAR

Message

I wish to express my deepest gratitude for providing me with the extraordinary opportunity to address the esteemed audience and participate in the profoundly insightful SITGSD (Smart Innovative Technologies for Green and Sustainable Development) Conference 2023. It is an honour beyond words to get an opportunity to listen to the discussions on the challenges that surround green technologies, a subject of paramount importance in our rapidly evolving world.

I am immensely appreciative of the meticulous planning and dedicated efforts demonstrated by the Conference - School of Engineering and Computing at Dev Bhoomi Uttarakhand University and the Institution of Engineers (India). Your commitment to fostering a platform that encourages intellectual discourse and knowledge exchange is truly commendable. I believe that this conference will not only shed light on the intricacies of green technologies but will also emphasize on the collective responsibility we share in shaping a sustainable future.

I believe that the opportunity to engage with fellow participants, all driven by a shared passion for sustainable development, shall be a deeply enriching experience. And, the impact of this conference will undoubtedly reverberate far beyond its duration.

Once again, I extend my heartfelt gratitude for allowing me to be a part of this remarkable gathering. I look forward to contribute to this initiative and hope that we all put our best foot forward for the advancement of green technologies and contributing to the collective goal of creating a sustainable and environmentally conscious world.

Deep regards,

Anurag Kumar

Ref No.: 5/35 IE(I)/UKSC/ 2023

Dated: 1 08/2023

Message

It is my pleasure to state that Uttarakhand State Centre of The Institution of Engineers (India) in association with Devbhoomi Uttarakhand University, Dehradun and Disaster Awareness and Management Forum, IEI is organizing three days **"International Conference Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)"** on **31st Aug - 2nd Sep 2023**. at Dehradun.

In the international conference, international and national level experts will focus on green economy, effects of climate change, clean green energy, new sources of energy and electric vehicles etc. I am sure that the nation and especially our state of Uttarakhand will be benefitted by the views and lectures of the experts.

I convey my heartfelt compliments & congratulate to the members of the Organizing Committee for their untiring efforts in *successfully organizing the event.*

(S C Chauhan)
Honorary Secretary

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SITGSD 2023 COMMITTEE'S

HIGHLIGHTS
ICCISC 2022

INTERNATIONAL CONFERENCE
on
COMPUTATIONAL INTELLIGENCE
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10th - 11th June 2022

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[36]	SITGSD_46	Himanshi Chaudhary and Pooja Sharma	LEVERAGING THE INTERNET OF THINGS FOR ENVIRONMENTAL MONITORING	IIMT University
[37]	SITGSD_47	Dr. Sanjukta Vidyant, Himanshi Chaudhary and Pooja Sharma	Utilization, Challenges, and prospects of emerging plant-based biofuels	IIMT University
[38]	SITGSD_49	Gunjan Awal, Yudhveer Singh Moudgil, Sumit Bumbak and Jaishree Agrawal	Future of E-Commerce via Augmented Reality and Virtual Reality: An Application of AI	Graphic Era University
[39]	SITGSD_50	Dhajvir Rai, Ritika Mehra and Sachin Sharma	Prototype of Autonomous Vehicle by using Machine Learning Techniques	Dev Bhoomi Uttarakhand University

[40]	SITGSD_52	Suneel Kumar Singh Bonal, Rahul Panwar, Rohit Kumar and Abhishek Chakravorty	Plumes and Fibrin Spectroscopy Sensors model: a Solution for Renal Dialysis	Dev Bhoomi Uttarakhand University
[41]	SITGSD_54	Sharanappa Godiganur, Srikanth H V and Veerbhadrappa Telgane	Effects of Nano Additives on Performance and Emission Characteristics of CI engine with Mahua Biodiesel and Diesel Blends as Fuel	Dhole Patil College of Engineering
[42]	SITGSD_55	Ritika Mehra and Govind S Panwar Panwar	Title: 3D Mapping using Visual Odometry and AI Brain Automated Robot	Dev Bhoomi Uttarakhand University
[43]	SITGSD_59	Laxmi Sagar and Dbhagwan Das	Fault Diagnosis System for SPV Power Plant	G.L.Bajaj Institute of Technology & Management, Greater Noida
[44]	SITGSD_60	Dr. Pinky Bahuguna, Dr. Kamal Joshi and Prof. R C Dangwal	Exploring Obstacles Encountered by Start-ups in Leveraging 'Start-up India' Initiative	Medhavi Skills University, Sikkim
[45]	SITGSD_61	Arunesh Kumar Singh, Rohit Kumar, D. K. Chaturvedi and Ibraheem Naseerudin	Electric Vehicle Charging Scheduling: A Review and Optimization Framework	Jamia Millia Islamia, New Delhi
[46]	SITGSD_62	Deepa R	Feature Extraction and Classification Using Ensemble Method to Enhance Parkinson's Disease Prediction	VTU University
[47]	SITGSD_63	Puttaswamy B S and Dr. N Thillaiarasu	ALABerT: Automated Recognition of English Hand Written Images for Human Personality Prediction Using Hybrid Deep Learning Models	P E S College of Engineering, Mandya; REVA University Bengaluru; Sunrise University
[48]	SITGSD_64	Akhilesh Pandey	A Corelative Study of Brain Tumor Detection Using Segmentation Techniques	Sunrise University

[49]	SITGSD_65	Lovepreet Singh, Simran Kaur, Divyansh Chauhan, Ganga Negi and Ritika Mehra	REVIEW CONTRIBUTIONS IN SPEECH RECOGNITION FOR HCI	Dev Bhoomi Uttarakhand University
[50]	SITGSD_66	Ankur Painyuli, Ganga Negi, Ritika Mehra and Jaishree Agarwal	A Reassessment on Image Perceiving Equipment's	Dev Bhoomi Uttarakhand University
[51]	SITGSD_67	Mahak Joshi, Ganga Negi and Ritika Mehra	Blockchain Technology & Its Scope in Various Fields: A Comprehensive Review	Dev Bhoomi Uttarakhand University
[52]	SITGSD_68	Akhilesh Pandey and Monisha Awasthi	Applying Design Thinking to Improve Customer Experience in Online Shopping	Uttaranchal University
[53]	SITGSD_69	Saqib Masood Salaria and Swati Gupta	CIRCULAR ECONOMY AND WASTE MANAGEMENT: A PARADIGM SHIFT TOWARDS SUSTAINABLE RESOURCE MANAGEMENT	Dev Bhoomi Uttarakhand University
[54]	SITGSD_70	Pratibha Verma, Mukesh Verma, Rohit Goyal and Abha Sharma	DISCOM Based Business Model for Solar Rooftop with Zero Investment Cost by Prosumers of Uttarakhand State of India.	Himgiri Zee University

[1] Rahul Kumar Jha (Tribhuvan University). *Cybersecurity and Confidentiality in Smart Grid for enhancing Sustainability and Reliability.*

Abstract. Ensuring cybersecurity and confidentiality in smart grids is crucial for enhancing sustainability and reliability in today's technology-driven world. With the increasing reliance on smart grid technologies, it is imperative to address the potential cybersecurity risks and protect the confidentiality of sensitive data. This paper focuses on exploring the challenges and strategies associated with cybersecurity and confidentiality in smart grids. It examines the importance of safeguarding smart grid infrastructure from cyber threats to maintain sustainable and reliable energy delivery systems. The paper investigates various techniques and technologies, including encryption, authentication, intrusion detection, and secure communication protocols, that can be employed to enhance the cybersecurity and confidentiality of smart grids. By highlighting the significance of a robust cybersecurity framework and the integration of privacy-preserving measures, this research aims to contribute to the development of secure and resilient smart grid systems. The findings and recommendations presented in this paper provide valuable insights for policymakers, industry professionals, and researchers involved in the design and implementation of secure smart grid solutions, ultimately leading to the advancement of sustainable and reliable energy infrastructures.

Keywords: Smart Grids, Cybersecurity, IDPS, Reliability, Sustainability, Confidentiality, Anonymization

[2] Vaibhav Verma (Sharda University) and Arslan Khan (Sharda University). *Contextual Search Techniques: A Comparative Analysis and Future Directions.*

Abstract. Contextual search aims to improve the effectiveness of information retrieval by taking into account the context of the user and the search query. This paper provides a comprehensive survey of recent research on contextual search, covering various approaches that have been proposed to address this problem. Specifically, we review three major categories of techniques for contextual search: (1) using context information to enhance traditional content-based search, (2) presenting search results in context, and (3) utilizing relevance feedback to refine search queries and results. We summarize the strengths and weaknesses of each approach, and identify promising directions for future research. Our survey highlights the importance of considering user context in search systems and provides insights into how this can be achieved. We conclude that a combination of these techniques, tailored to specific contexts and user needs, is likely to provide the most effective approach to contextual search.

Keywords: Contextual search, Information Retrieval, Web Search, Relevance Feedback, Contextual Information, Search Engines

[3] Harsh Tomar (FET Agra College, Agra) and Nistha Gupta (FET Agra College, Agra). *HEART DISEASE PREDICTION SYSTEM USING MACHINE LEARNING.*

Abstract. Heart disease is one of the leading causes of death worldwide, emphasizing the need for accurate and early prediction of the disease. Machine learning techniques have shown great eventuality in colorful medical disciplines, including cardiovascular conditions. In this exploration paper, we propose a new machine learning-grounded approach for prognosticating heart disease threat. Our study utilizes a dataset of clinical and demographic features to develop and estimate prophetic models. We compare different machine learning algorithms like KNN, Random Forest and Logistic Regression further assess their performance in terms of accuracy, precision, recall, and F1- score. The results demonstrate the effectiveness of our approach in directly prognosticating heart disease risk, which can contribute to early intervention and forestallment strategies.

Keywords: KNN, Random Forest, Logistic Regression, python programming, confusion matrix, correlation matrix

[4] Sadiya Sulaiman (Karunya Institute of Technology and Science), Roshni Thanka (Karunya Institute of Technology and Science) and E Bijolin Edwina (Karunya Institute of Technology and Science). *Deep Learning in Medical Imaging: A Comparative Review of Models for Ischemic and Hemorrhagic Stroke Lesion Segmentation.*

Abstract. Stroke, primarily categorized as ischemic and hemorrhagic, stands among the top global causes of mortality and can lead to severe neurological conditions if left untreated. The advent of artificial intelligence, particularly deep learning, has brought significant advancements in medical imaging, including the automated segmentation of stroke lesions. This automation aids radiologists and surgeons in more effective diagnosis and treatment planning.

This review paper concentrates on deep learning methods used in segmenting ischemic and hemorrhagic stroke lesions, examining these models from an architectural standpoint. The paper begins with a discussion on the types of strokes. Subsequently, delve into review of deep learning models, specifically emphasizing their application in ischemic and hemorrhagic stroke lesion segmentation. The performance, advantages, and limitations of these models are assessed and comparisons among them are presented.

The paper concludes by spotlighting the current needs in this field and suggesting potential avenues for future research. The study aims to provide insights to both advanced researchers and newcomers in the field, thereby fostering future advancements in stroke lesion segmentation using deep learning methods.

Keywords: Hemorrhagic Strokes, Ischemic Strokes, Lesion Segmentation, U-Net, Deep Lab, GAN, FCN, Attention Model, Deep Learning, Neural Networks, Medical Image Analysis, CT Imaging, MRI Imaging

[5] Arushi Jain (Lady Irwin College, University of Delhi) and Prof Sadhna Jain (Aditi Mahavidyalaya, University of Delhi). *Bytes for Bites: Revolutionizing Sustainable Diets in India through Innovative Technologies.*

Abstract. Promoting sustainable diets is essential to address global challenges like climate change, food insecurity, and public health. This research paper explores the role of innovative technologies in fostering sustainable diets in India. With its diverse culinary heritage and large population, India faces pressing issues that necessitate the adoption of sustainable diets.

The paper will emphasize the urgency of this need, considering the negative environmental and health impacts of current dietary patterns. It will focus on technology as a catalyst for change and provides a comprehensive review of innovative technologies that can revolutionize food consumption and production at individual, community, and policymaker levels. Digital platforms and mobile applications play a crucial role, offering personalized information and recommendations, powered by AI, machine learning, and big data analytics, to empower informed dietary choices. The paper will also explore emerging technologies like blockchain and IoT, enhancing transparency and traceability in the food supply chain, promoting accountability, and encouraging sustainable sourcing. Furthermore, it will examine the transformative potential of VR and AR applications, educating and engaging individuals in making sustainable food choices, even during grocery shopping. The paper will address challenges related to accessibility, affordability, and the digital divide, stressing the importance of inclusive approaches.

It will conclude by underscoring how innovative technologies, like digital platforms, blockchain, IoT, and immersive experiences, empower individuals to make sustainable food choices, while enabling policymakers to implement effective interventions. By leveraging these technologies, India can mitigate the environmental impact of food production and consumption and improve public health outcomes.

Keywords: Sustainable Diets, Blockchain, Digital divide, Food insecurity, Climate change, Food consumption

[6] Mrs. Sadhna Jain (Aditi Mahavidyalaya, University of Delhi) and Mrs. Mamta Sharma (Aditi Mahavidyalaya, University of Delhi). *Innovative Technologies as Catalyst for Developing Greener and Sustainable Mindsets among Children.*

Abstract. Innovative technologies offer a huge potential to encourage children of all ages to think more environmentally and sustainably. Customized pedagogies that use these technologies can promote participation in environmental awareness and conservation. Children learn about environmental issues and create a bond with nature through interactive learning platforms, virtual experiences, and collaboration tools. Children can learn about global warming, climate change, deforestation, biodiversity, and sustainable habits using digital applications, gamification, and online platforms. These tools give students the ability to think critically, analyze data, and make decisions based on relevant scientific information that is age- and cognitively appropriate. Digital innovations that enable meaningful interactions and idea-sharing with peers globally include discussion boards, social media groups, and virtual reality experiences. Children should be made aware of the value of group efforts and the interconnectedness of environmental issues. Children can influence their communities, decision-makers, entrepreneurs, and others to embrace more sustainable practices by using technology to amplify their voices and can become champions for change. In conclusion, cutting-edge technologies encourage children of all age groups to adopt eco-friendly and sustainable ways of thinking. Children become responsible stewards of the environment and champions of sustainability through interactive and immersive learning experiences, and global interconnectedness, thus devising creative and workable solutions. All stakeholders need to work in collaboration to make optimal use of innovative technologies to develop greener and sustainable mindsets of children of all age groups and to address challenges.

Keywords: Innovative technologies, Pedagogies, Nurture, Children, Virtual reality, Greener, Sustainable

[7] Anurag Golwalkar (Medicaps University) and Bharat Pahadiya (Medicaps University). *Security of Autonomous Connected Vehicles: Challenges, Threats, and Countermeasures.*

Abstract. Autonomous connected vehicles (ACVs) continue to increase in use and become an integral part of our transportation systems, ensuring their security becomes supreme. ACVs rely on a complex network of interconnected systems and sensors that enable them to work autonomously and communicate with other vehicles and infrastructure. However, this connectivity also introduces potential vulnerabilities and threats that can be used by intruder. This research paper focuses on different security challenges faced by ACVs, identifies possible threats, and discuss countermeasures to minimize these risks. By understanding the security landscape of ACVs, we can derive safer and more secure transportation systems in the era of autonomous vehicles.

Keywords: Autonomous connected vehicles, Sensors, Security Attacks, V2V, V2I

[8] Neil Joshi (RGPV) and Neelesh Mehra (RGPV). *Threshold Based Text Region Identification and Extraction from Sign Board for Real Time Character Recognition.*

Abstract. Abstract: The text extraction and recognition from the image has very wide applications. For instance, it has been observed that in a new country or region having different native language, the language on sign boards is not understandable by the foreigners. So, if there will be a mechanism which capture the image of sign board and translate the extracted text written on sign board in the native language to desire language will be helpful. This extracted text can be further used in many applications like text-to-speech for visually impaired individuals, in security and surveillance by taking id number from the allotted id cards, license plate recognition in automated parking, collecting data from medical images, and many more. For the mentioned applications, the image is captured by some mobile phone or low-cost hand-held devices and a real time processing is also required. The image processing algorithms for text extraction found in literature are not suited for this application due to their computational complexity and cost. Also, they require costly hardware resources and large computation time. This paper presents a less complex and fast image processing algorithm for identification and extraction of the text area from image. The image captured in real time is pre-processed for noise removal. After pre-processing text are identified and extracted with the help of segmentation technique. The proposed algorithm uses global threshold segmentation method for text extraction process. The extracted text can be further processed for character recognition and speech to text conversion. The proposed algorithm is less complex and suitable for handheld devices.

Keywords: Image Segmentation, Text to Speech, Preprocessing, Noise Removal, Segmentation

[9] Satish Joshi (Dev Bhoomi Institute of Technology). *Analysis of G+5 Building by Using Shear Wall Considering Recent Earthquakes in Uttarakhand.*

Abstract. The problem of earthquake is not new thing. There are coming many challenges and problem with in the developing time of machinery and technology. Earthquake is being main problem for the world. Although the previous researcher has gained a lot of knowledge and information, but earthquake is a vast subject. Here we are doing a comparative study of the earthquake in Uttarakhand and Chamoli and their effects.

Usually, the stilt floor made open from all sides, and wall are used on other floors. Due to which there is a possibility of variation in its strength during an earthquake. Here the main objective of our study "Analysis of G+5 Building by Using Shear Wall Considering Recent Earthquake in Uttarakhand" is this, to make the building construction safer from the effects of earthquake in Chamoli and Uttarkashi zone V areas of Uttarakhand, the differences of stability of the structure of including shear wall or without shear wall in stilt floor and other floors is to be analysed by E-Tabs software.

Keywords: Shear wall, Sensitive zone V, Uttarkashi, Chamoli, E Tabs

[10] Rashi Singh (Indira Gandhi Delhi Technical University for Women) and Vibha Pratap (Indira Gandhi Delhi Technical University for Women). *Fabric Texture Analysis and Classification using OCT Images.*

Abstract. The aim of this paper is to investigate the effectiveness of machine learning models in fabric classification using Fabric OCT images (Cotton, Polyester, and Wool). NGTDM and GLCM features are extracted from the images, and the data is processed using three experimental setups before being presented to the machine learning models. These setups include unprocessed data, EDA1 and EDA2. The research questions addressed in this study include: a) Analyzing distinctive texture features for varied fabrics, b) Effect of Feature Engineering on different models over OCT dataset, c) Optimal approach. The results indicate that machine learning models are effective in fabric classification using texture analysis on OCT images. The use of EDA1 and EDA2 improved the AUC-ROC scores compared to unprocessed data. The Logistic Regression and Light GBM models with EDA2 achieved the highest AUC-ROC scores, 99.44 and 98.73, respectively. These findings suggest that OCT texture analysis is a reliable approach for fabric classification, and data preprocessing can enhance machine learning performance in the Textile Industry.

Keywords: Fabric Classification, Optical Coherence Tomography (OCT), GLCM, NGTDM, Machine Learning Algorithms, Exploratory Data Analysis (EDA)

[11] Sagar S (VIT), Sunidhi Gopalan (VIT), Bikash Lenka (VIT) and Anirudh Atkuru (VIT). *Blockchain for Data Traceability and Quality Control in the Food Supply Chain: A Comprehensive Analysis.*

Abstract. Blockchain technology has gained considerable interest as a transformative solution for supply chain

management in the agri-food industry. This article presents an overview of its implementation, benefits, and challenges in agri-food supply chain management. It explores the potential of blockchain to improve transparency and trust, thereby enhancing food safety, and consumer satisfaction in the agri-food sector. The article also discusses data collection, analysis techniques, the concept of digital twin, and the role of smart contracts in blockchain implementation. This article also tries to explore the potential of blockchain technology as a model for enhancing data traceability and quality control in the food supply chain. It emphasizes the importance of adopting a structured approach to store data on the blockchain ledger and provides insights into effective implementation strategies. The implications of transparent production and its impact on consumer interests are examined, considering both the benefits and disadvantages. The study also delves into the utilization of Ethereum smart contracts for facilitating reliable transactions among entities involved in the food supply chain. Additionally, it explores how blockchain applications can contribute to economically sustainable solutions for promoting transparency and reliability in the food production sector. The content highlights the significance of secure blockchain authentication and the accessibility of blockchain technology to the general public. Lastly, it identifies research gaps and unresolved issues that warrant further investigation in this domain.

Keywords: blockchain, agri-food supply chain, transparency, traceability, trust, quality assurance, food safety, consumer satisfaction, smart contracts, GIGO, Oracle entity, Digital Twin, Layered Approach

[12] Saurabh (Dev Bhoomi Institute of Technology), Ashuvendra Singh (Dev Bhoomi Uttarakhand University) and Qurat Ui Ain (Dev Bhoomi Institute of Technology). *PERFORMANCE OF CONCRETE BY PARTIAL REPLACEMENT OF COPPER SLAG WITH FINE AGGREGATE.*

Abstract. Concrete industry is moving toward industrial waste since natural resources are depleted on a regular basis. Through a design combination that meets different quality requirements and M35 grade of concrete using copper slag, we use copper slag for partial substitution of sand ranging from 0% to 20% by weight. Different compression strength measurements, such as compression strength and flexural strength, were examined, as well as a comparison of traditional and new concrete. When compared to a specified replacement rate, the test findings were acceptable. The results were obtained via the use of tests on concrete. Copper slag is a by-product of the copper production process that may be utilized to partly replace fine aggregate particles. The findings of research on the durability of copper slag concrete as a partial substitute for sand is analyzed. The findings of experimental research are presented, as well as many durability tests for partial copper slag substitution. This demonstrated that between 5% to 20% of copper, slag may be utilized to replace sand in M35 concrete grades.

Keywords: Industrial waste, Copper Slag, Compressive Strength, Flexural strength, Concrete, slump cone test

[13] Ranjeeta Mishra (Dev Bhoomi Institute of Technology) and Ashuvendra Singh (Dev Bhoomi Uttarakhand university). *CFD Investigation of the Effects of Wind Speed on Structural Building of Different Areas.*

Abstract. This paper addressed the effects of wind speed on the proposed buildings in various locations after obtaining reference values from CFD review articles and analyzing the issues with roughness, the forms of the buildings lower the pressure in the downward direction, and the leeward area at the rear of high-rise buildings in metropolitan areas raises the temperature. In a case study, temperature values are used to test the CFD method, and consumption data is used to normalize the building energy estimate. When the adjusted weather data was compared to the initial weather data, it was found that the building energy consumption. The warm air from the air system had decreased by 5%, 8%, and 37% for urban, suburban, and rural areas, respectively, while the cooling gain had increased by 2% per day in night times temperatures.

Keywords: Urban area, building model, CFD, Turbulent flow of wind, Thermal transfer enhancement

[14] Homraj Timilsena (Dev bhoomi Institute of Technology) and Ashuvendra Singh (Dev Bhoomi Uttarakhand university). *COMPARATIVE STUDY OF SEISMIC ANALYSIS OF RCC BUILDING USING IS CODE 1893:2016 (PART-1) AND NEPAL BUILDING CODE 105:2020.*

Abstract. Nepal lies in Indian Sub-Continent. Before Nepal Building code has been drafted use of Indian code were common. After recent amendment in NBC 105:1994, NBC 105:2020 is released. This paper presents the analysis of 3 storey with staircase cover, 5 storey with stair cover, 7 storey with stair cover and 10 storey with staircase cover. For all these cases study has been done in Hard soil, Medium Soil and Soft Soil using IS and NBC code. The response of building has been studied by using response spectrum method. For 3 and 5 storey building three models has been studied, model 1 uses time period having no effect of infill wall and model 2 uses time period based on based dimension using IS code, Model 3 uses time period mentioned in NBC code. For 7 and 10 storey building shear wall has been assigned, hence model 2 uses time period based on based dimension using IS code, Model 3 uses time period mentioned in NBC code. Base shear, Storey drift are compared for all three models in different soil types.

Keywords: Nepal, Nepal Building Code, NBC, Response spectrum, IS code, Time period

[15] Jagdish Chandra Patni (Jain University) and Ritu Pal (Tulas Institute). *Analysis of Business using Seller Pathway-A CRM platform.*

Abstract. Customer Relationship Management is an essential approach for many businesses when attempt to improve their relationship marketing campaigns. Rather than having a normal hostile position against consumers and suppliers, many major companies are currently making closed partnerships accompanying them. Those who notice the user's company's ability to constantly increase rates for end-customers whereas reducing system-wide pricing within in the provided chain. This is normally accomplished through a variety of relationship-building activities, such as customer partnering, supplier partnering, coalitions, and organizational partnering. This paper focuses on the discovery of various implementation issues in CRM and analysis of various factors involved in this. The aim of this research paper is to dispute the deployment of CRM technology as well as to analyze our personal.

Keywords: Customer Relationship Management, Relationship Marketing, CRM Technologies, Business method Management, Sales forecasting, Small and medium-sized enterprises (SME)

[16] Dr. Pooja Nahar (University of Rajasthan). *Importance of IOT in Environment Monitoring: A Comparative study of Covid19 impacts on Air.*

Abstract. Internet Of Things technologies are able to monitor and give information about the environmental conditions. Researchers can easily track the different parameters, affecting the environment and can control the situation. Environment is getting polluted day by day because of many reasons. Air pollution, water pollution and radiation pollution are major challenges faced by the environment. Contamination in a real environment can be found and measured by IOT tools and techniques. In this paper we took 7 cities of highly polluted city "Delhi" and analyzed their AQI before COVID 19 pandemic i.e., 2018 and the lockdown duration of 2019 and 2020. We have clearly seen that during lockdown AQI has been improved, only because of less vehicles. We state here the importance of IoT based wireless sensor devices in environment monitoring which can alarm us before getting too late. Vehicle emission is a very important factor, which badly affects the air. IOT can contribute in preparing guidelines for a country to minimize the pollution. Suitable monitoring is necessary for sustainable growth for any country. This paper also enlightens the impacts of Covid19 on the environment i.e., air. This study will help in understanding that if we control vehicle emission then surely it will improve the Air Quality Index.

Keywords: Internet of Things (IOT), Pandemic, Covid-19, Air Quality Index (AQI), World Health Organization (WHO)

[17] Aastha Mishra (0000-0003-4709-3307), Rajesh Sharma (0009-0003-6210-7305) and Preetvanti Singh (0000-0002-4575-1954). *Data analysis of Covid-19 pandemic and Prediction most effective remedy using support vector machine.*

Abstract. The research study was conducted to analyze the data of COVID-19 patients and determine the most effective drugs for treatment. The study collected data from 231 COVID-19 patients and analyzed various features such as demography, oxygen supplementation, length and mode of stay, drugs, and outcomes. The research work compares the performance of three data models logistic regression, random forest and SVM using the orange data analysis software (version 3.34). A Generalized SVM model was applied. Based on the findings of the study, it was observed that the patients had different clinical and investigational severities. The study noted that most deaths occurred in patients who had other comorbidities in addition to COVID-19. These patients also had low levels of oxygen supplementation. According to the results of the study, Remdesivir was found to be the most effective treatment for COVID-19, as it led to the recovery of most patients. Additionally, Heparin was also identified as an effective drug for treating the pandemic.

Keywords: Covid-19, Drugs, O2, RBF, SVM

[18] Likewin Thomas (PESITM SHIVAMOGGA), Thara K L (PESITM Shivamogga) and Sandeep T (PESITM Shivamogga). Modern Healthcare System for Remote Patient Monitoring.

Abstract. The advancements in the Internet of Things (IoT) with communication protocols have reshaped how healthcare is monitored. Remote Patient Monitoring (RPM) is the result of this advancement which assists in collecting vital information using IoT sensors and sending it for further analysis. In this paper, an RPM-based healthcare monitoring system is built with a wearable device using IoT. It collects the data of patients such as heart rate, oxygen saturation level, and temperature. The ESP32 Web Server sensor holds the sensor data such as the patient's body temperature, pulse rate, and oxygen level. The data collected through a wearable device is uploaded to the Thingspeak cloud for further analysis.

An experimental study was conducted on stroke patients because they cannot make proper movements in the paralyzed hand. A Hand glove similar to a data glove having a Flex sensor for each of the fingers in gloves and with an accelerometer, pulse sensor, and buzzer is developed. An accelerometer sensor senses the hand movement at every angle and analyses the messages conveyed. The pulse meter is used to monitor the pulse rate of the patient. The buzzer notifies the doctor if in case the temperature and pulse rate of a patient is more than normal.

[19] Bichitra Negi (DEV BHOOMI UTTARAKHAND UNIVERSITY), Tushar Verma (DEV BHOOMI UTTARAKHAND UNIVERSITY), Tabish Ansari (DEV BHOOMI UTTARAKHAND UNIVERSITY) and Kranti Jain (NATIONAL INSTITUTE OF TECHNOLOGY UTTARAKHAND). *Prediction of shear strength for SFRC beams by coupling Shear Resisting Mechanism with Critical Shear Displacement Approach.*

Abstract. Steel fibre reinforced concrete (SFRC) is a futuristic construction material be-cause of its structural properties. SFRC have high ductility and this leads to in-crease the post cracking strength. The most important advantage is that it acts as a crack arrestor and hence delays in micro crack development. With inclusion of steel fibre in normal concrete beam, the flexural strength as well as shear strength of beam increases.

The extensive study has been carried out for use of steel fibre to enhance shear behavior as ACI building code suggested that the steel fibre can be used as a partial replacement of stirrups in SFRC beams. Along with the experimental investigation, authors also studied different models to predict shear strength based on different approaches. The main objective of this paper is to develop a simple shear strength model. To have better understanding of shear strength of SFRC beams a mechanical model is developed by combining the Shear Resisting Mechanism (SRM) with Critical Shear Displacement Approach (CSDA) of Reinforced Concrete (RC) beam. A large database has been developed from the previous re-search in order the determine, compare and validate the shear strength. The analysis indicate that the predicted shear strength is in good correlation with the experimental results and also more conservative and reliable as compared to other models.

Keywords: Steel fibre reinforced concrete (SFRC), Shear strength, Shear resisting mechanism (SRM), Critical Shear displacement Approach (CSDA)

[20] Swetha R (Kumaraguru college of technology) and Rajathi N (Kumaraguru college of technology). *An Analysis on Handwritten Text Extraction Techniques on Medical Reports.*

Abstract. -Extraction of handwritten characters from the multiple case forms, by checking and dumping it for like 'n' number of columns in the excel sheet for the records is really a tedious process. So, to solve this issue I delve into this problem statement which will drastically resolve the time and cost consumption of the organization.

Keywords: Pattern Recognition, Character Recognition, Deep Learning

[21] Neha Singh (Indrashil University). *Exploring the Synergy between Data Mining and Data Analytics for Smart World Applications.*

Abstract. The proliferation of connected devices and the emergence of the smart world powered by the Internet of Things (IoT) have led to an increase in the amount of data produced from various sources. This rich data presents both challenges and opportunities for organizations seeking to gain valuable insights and make informed decisions. In this research article, we examine the fields of data mining and data analysis in the context of the smart world. Data mining involves searching and analyzing large data sets to find patterns, relationships, and information. It includes many techniques such as classification, clustering and association rule mining. Data analytics, on the other hand, focuses on analyzing data to uncover insights and support decision making. It includes descriptive analytics, diagnostic analytics, predictive analytics, and normative analytics. Together, these two disciplines provide a strong foundation for extracting intelligence from the vast amounts of data generated by the intelligent world. The purpose of this research paper is to explore the concepts, applications, challenges and benefits of data mining and data analysis in the smart world. We provide an overview of the techniques used in data mining, including their definitions, basic concepts and practical applications. Likewise, we discuss the different types of data analytics and their importance in using data to support smart decision making

Keywords: IOT, Data mining, classification, Data Analytics

[22] Neha Singh (Indrashil University). *Unravelling the Basics: A Primer on Blockchain Technology.*

Abstract. Blockchain technology has emerged as a powerful tool that can enhance transparency, security, and efficiency in diverse sectors. It is a decentralized and immutable ledger that records transactions across a network. The technology has the potential to revolutionize finance, supply chain management, healthcare, and more. By providing self-sovereign identity solutions, blockchain empowers individuals to have control over their digital identities and protects privacy. In intellectual property rights, blockchain is protecting creators' rights and enabling new models of ownership and monetization. Blockchain ensures transparency, traceability, and security in the management of intellectual property assets. Through tokenization, blockchain allows for fractional ownership, secondary markets, and fair compensation for creators. Overall, blockchain technology is reshaping industries by providing decentralized, transparent, and secure solutions. As blockchain continues to evolve and gain adoption, we can expect further advancements in finance, supply chain management, healthcare, government services, and intellectual property rights. The transformative power of blockchain is paving the way for a more efficient, transparent, and inclusive digital future.

Keywords: Blockchain, Technology, Financial, Transactions, Data, Transparent, Management

[23] Shashank Shekhar (Dev Bhoomi Uttarakhand University, Dehradun), Sushila Arya (Dev Bhoomi Uttarakhand University, Dehradun), Shubham Kumar Kushwaha (DBUU, Dehradun), Luxmi Yeasmin (DBUU, Dehradun) and Rohan Pathania (Dev Bhoomi Uttarakhand University). *Chemical Composition and Biological Activities of Calotropis gigantea (L.) Dryand. Oleoresin.*

Abstract. Calotropis gigantea (L.) Dryand. (Asclepiadaceae) commonly known as Giant calotrope and traditionally used in the treatment of bronchitis, asthma, leprosy, eczema and elephantiasis. The present research paper aims to investigate the chemical composition and biological activities of Giant calotrope leaves oleoresin (GCLO) and Giant calotrope rhizome oleoresin (GCRO). The plant material was subjected to cold percolation method in order to obtainoleoresins and analyzed for its chemical constituents using GC-MS. The comparative study of the rhizome and leave part oleoresins of Calotropis gigantea displayed that methanamine, n-butylidene (12.6%), 1-propen-2-ol, acetate (11.8%), 1,4-diacetyloxy-2,3-dicyano-benzene, (9.5%), 3-[n-acetyl-4-acetylanilino] propionic acid (8.3%), pentane (8.1%), 4-hydroxy butanoic acid, (7.4%), 5-ethyl-2,4-dimethyl- isoxazolidine, (6.6%), were present as major constituents in the GCLO, while n-butylidene- methanamine, (13.6%), 2-methyl- butane, (10.8%), 1-methyl- piperazine, (9.5%), ethanethioic acid, s-pentyl ester (8.4%), 3-methyl-2,4-pentanedione (7.8%), s-[4-cyanophenyl]-n,n- (7.2%), 2-acetylamino-3-(3,4,5-trimethoxyphenyl) (6.8%), 1-methyl-aziridine, (5.9%), pentane (5.8%) were present as major constituents in the GCRO. Both the oleoresins were studied for their biological activities, such as herbicidal, and antifungal activity. The oleoresins exhibited significant herbicidal activity against radish seed (Raphanus raphanistrum sub sp. sativus), and good to moderate antifungal activity against Aspergillus niger and Penicillium chrysogenum. The significant herbicidal and antifungal activities of both the oleoresins highlighting its potential as a valuable source the development of environmentally friendly biopesticides that could be an alternative to synthetic pesticides in the future.

Keywords: Calotropis gigantea, Oleoresins, GCMS, Hebicidal, Antifungal

[24] **Himanshu Birla (Dev Bhoomi Uttarakhand University, Dehradun), Sushila Arya (Dev Bhoomi Uttarakhand University, Dehradun), Himanshu Rawat (Dev Bhoomi Uttarakhand University, Dehradun) and Sandeep Dhyani (Beehive college of Advance Studies, Dehradun).** *Comparative Phytochemical Analysis and Biological Activity of Leaf and Flower part Oleoresin from Adhatoda vasica L.*

Abstract. Adhatoda vasica L. (family- Acanthaceae) is a widely recognized medicinal plant that has been used for centuries in various systems of medicine. The objective of this study was to investigate and compare the phytochemical composition and biological activities of the leaf and flower oleoresin obtained from Adhatoda vasica L. Gas chromatography-mass spectrometry (GC-MS) was employed for phytochemical analysis, resulting in the identification of forty-eight constituents, which accounted for 82.66% of the total oleoresin composition in Adhatoda vasica L. The major constituent found in the leaf and flower oleoresin was antipyrine (30.91%), followed by 5-hydroxymethylfurfural (24.24%). Additionally, the oleoresins exhibited significant herbicidal activity against R. raphanistrum seeds. These findings offer valuable insights into the potential applications of Adhatoda vasica L. oleoresin in the pharmaceutical and nutraceutical industries.

Keywords: Adhatoda vasica L., Oleoresin, Phytochemical analysis, Biological activity

[25] Himanshu Rawat (Dev Bhoomi Uttarakhand University, Dehradun), Sushila Arya (Dev Bhoomi Uttarakhand University, Dehradun), Himanshu Birla (Dev Bhoomi Uttarakhand University, Dehradun) and Manisha Phaugat (Dev Bhoomi Uttarakhand University, Dehradun). *Phytochemical Evaluation and Herbicide Activity of Asparagus racemosus Wild. Oleoresin.*

Abstract. Asparagus racemosus Wild. (Family Asparagaceae) commonly known as Shatavari, is an important medicinal plant with a long history of traditional use in Ayurvedic medicine. The plant oleoresin, a concentrated extract of bioactive compounds, has attracted significant attention for its potential therapeutic properties. The paper deals with the evaluation and compare the chemical composition and the herbicidal activities of leave and rhizome methanol oleoresin of Asparagus racemosus. Gas chromatography-mass spectrometry (GC-MS) was employed for phytochemical analysis, resulting in the identification of sixty-nine compounds which contributing 79.45% of total oleoresin composition in Asparagus racemosus Wild. Major constituent found to be Phytol (13.33%) and 5-Hydroxymethylfurfural (13.16%). The herbicidal activity of Asparagus racemosus oleoresins was performed against against R. raphanistrum seeds and justified by analysis some reliable indices of allelopathy like seed germination, root and shoot length behaviour, which measured in terms of percentage and IC50 value. Results showed that the plant oleoresins significantly inhibit the germination. These findings offer valuable insights into the potential applications of Asparagus racemosus Wild. oleoresin to possess allelopathic property, bioherbicide formulation using this plant species seems to be very promising.

Keywords: Asparagus racemosus Wild, Oleoresin, Phytol, 5-Hydroxymethylfurfural, Herbicide activity

[26] Aryan Upadhyay (SOMC, Dev Bhoomi Uttarakhand University) and Vikas Tyagi (SOMC, Dev Bhoomi Uttarakhand University). *A BIBLIOMETRIC ANALYSIS ON FINTECH AND DIGITAL FINANCE USING VISUALIZING NETWORK.*

Abstract. Financial Technology (FinTech) the new innovation in technological and financial field that is revolutionizing and improving the automation of delivery and use of financial services. FinTech has attracted wide attention for the benefits that's come hand in hand with this new technology and has also gained wide recognition because of the increase in financial literacy over the last 5 years. From 2018 to 2022, the services of fintech shifted toward being consumer-oriented. This new industry now includes sectors like retail banking, investment management, education, and non-profit organizations, Fintech is also developing to adaptive to be used for cryptocurrencies and NFT's. The paper will expand on the argument of taking a proactive role in adoption of FinTech and how it will benefit an average individual.

Keywords: FinTech, Digital Finance, Financial stability, Bibliometric analysis, VOS viewer

[27] Sumit Bumbak (Dev Bhoomi Uttarakhand University) and Ritika Mehra (Dev Bhoomi Uttarakhand University). *Educational Data Mining required for transmission of Education Effectiveness.*

Abstract. In an emerging subject called Educational Data Mining, models are developed through analyzing educational data in order to enhance learning opportunities and institutional effectiveness. It offers innate knowledge about how education is delivered, which is used to raise the caliber of instruction and learning. Planning well can result in individualized instruction. It is an emerging field that explores data from a variety of educational contexts. It provides knowledge inherent in the transmission of education that is used to improve the quality of teaching and learning. Effective planning can enable personalized training. The main objective of higher education institutions is to provide good education delivery by means of highest level of quality by discovering knowledge to predict student performance. To study effectiveness of EDM studies, students' enrolment in a particular course, drawbacks related to traditional classroom teaching, finding unfair means cases in online examination, finding non-standard values in the result sheets of the students, and so on, are required to study the student behavior and improve their performance by the help of prediction. The prediction accuracy is selected as the evaluation criteria for the effectiveness of educational data mining techniques. This paper presents a study of the different components of educational data mining and its objectives.
Keywords: Educational Data Mining, Data Mining, KDD

[28] Sushil Rauthan (JBIT Dehradun). *WADEBS-Western Australian Desert Ecology Balance Solution.*

Abstract. In 1859 a bunch of 13 feral rabbits from Europe sailed to Australia. Now grew-up in a blasting manner near to 1 billion. The wild hunting dogs of Australia were hunted down to its extinction by man. This causes the birth of western desert during the span of 164 years. Also, there's the loss of crop every year by the rabbits. As population of Oz is not so much, so they don't have to panic. This means that the ecology of Western Australian Desert (WAD) has been disturbed to a much extent. In this paper I'm suggesting to introduce desert foxes & jackals with mongooses to this region. It will definitely balance the ecology of WAD. As over-grazing is one of the prevailing reasons of the formation of desert. Both rabbits and kangaroos are the contributors to over-grazing. They are also responsible for crops destruction in new era. This sort of experiment has been done in Yellowstone national park, when wolves were introduced to the park the ecology sustains and balance resurrected.
Keywords: Ecology, Feral Rabbit, Western Australian Desert (WAD), Over-grazing

[29] Dr. Mehvish Khalid (Dev Bhoomi Uttarakhand University, Dehradun). *An Exploratory Survey on Knowledge, Practice and Taboos in Relation to Menstrual Hygiene among Adolescent Girls in Selected School of Rural Community, Dehradun, Uttarakhand.*

Abstract. Menstruation and menstrual practices are still masked by taboos and sociocultural limitations, which leads to adolescent girls frequently have poor health outcomes because they are ignorant of scientific information and hygienic practices. Today's adolescent girls need to hear the important message that proper menstrual hygiene is essential, and that message must be delivered through educational television programmes, trained school health personnel, and knowledgeable parents. Poor menstrual hygiene practices are a major risk factor for reproductive tract infections
Keywords: Menstrual hygiene, adolescent girls, knowledge, Practice, Taboos

[30] Ms. Shradha Malla (Dev Bhoomi Uttarakhand University, Dehradun) and Dr. Mehvish Khalid (Dev Bhoomi Uttarakhand University). *Effectiveness of Guest lecture on Therapeutic Communication: Skills for interpersonal relationships (IPR) to enhance the level of knowledge and satisfaction of college students.*

Abstract. An autocratic style and oldest method of teaching i.e. lecture method has been used in current research study which focuses on the experience of students while attending it. The concept of a guest speaker is usually associated with an expert coming from outside to provide knowledge regarding specific topic. The expert was associated with the profession to make participants understand and correlate the things easily
Keywords: Effectiveness, Guest lecture, Therapeutic communication, Interpersonal relationships, knowledge and Satisfaction

[31] Dr. Mehvish Khalid (Dev Bhoomi Uttarakhand University, Dehradun) and Dr. Ratna Prakash (Pal College of Nursing and Medical Sciences). *Compare the Teaching Methods for Teaching Intra Natal Care Competency by Wiedenbach's "A Helping Art Of Clinical Nursing (1964)".*

Abstract. Self-directed learning is necessary to keep up with the social, political, and technological trends in this ever-evolving world. In order to successfully educate them for their future practice, nurse educators select several instructional strategies for nursing students. PBL is regarded as one of the best teaching strategies for bridging the knowledge gap between nursing theory and practice. In this article, Wiedenbach's conceptual framework from "A helping art of clinical nursing (1964)" is used in a modified form to analyze the teaching strategy's maximal applicability in this particular learning situation1

Keywords: compare, efficacy, teaching methods, wiedenbach's

[32] Sunil Kumar (Gurukula Kangri Deemed to be University), Vivek Goel (Gurukula Kangri Deemed to be University) and Anshika Kumari (Gurukula Kangri Deemed to be University). *Artificial neural networks and biodiesel production: A review.*

Abstract. For many of the most well-known biomass processes, artificial neural networks have become essential tools for predicting chemical behavior, which enables the optimization of required products and conditions. Recently, the petroleum industry, which has access to considerably larger databases for efficient algorithm training, was where these neural network approaches had the most success. This has proven to be incredibly helpful for applications involving, dynamic control, real-time of processes enabling quick variables monitoring and modulation. This review's objective is to summarize and assess studies that tried to use these neural network techniques for analyze numerous elements of biodiesel and how models handle typical problems. usefulness of these neural networks is evaluated and suggestions are made on how to improve their application and predictivity for the manufacture of future bio-based chemicals.

Keywords: Biodiesel, RSM, Artificial Neural Network, Production

[33] Gleb Rogozinsky (Institute of Transport Problems of Russian Academy of Sciences) and Igor Malygin (Institute of Transport Problems of Russian Academy of Sciences). *Artificial Soundscapes for Sustainable Cities: Technological Innovations in Eco-Acoustics.*

Abstract. This paper explores the integration of artificial soundscapes in smart cities, addressing the challenges and opportunities for creating harmonious urban environments. The study begins with an overview of acoustic ecology and its relevance in mitigating noise pollution and enhancing well-being in rapidly urbanizing areas. A set theory model of soundscape is presented, offering a template for intellectual generative systems and sound extraction algorithms. The model categorizes sound objects into short-term, mid-term, and long-term layers, encompassing a range of spectral characteristics and envelopes. Through the synthesis of these layers, a complete soundscape emerges.A model of software architecture of artificial soundscape design is proposed, enabling the control and manipulation of sound objects within sonification scenarios. These scenarios operate under the broader goals of smart cities, integrating with geoinformational systems and AI for a dynamic and adaptive auditory experience.

Furthermore, the study introduces an architecture model of soundscape integration in smart city technological environment, focusing on the use of IoT sensors, and data analytics to support artificial soundscape generation and management.The paper concludes by exploring future applications of artificial soundscapes in smart cities, including improved public health through noise reduction, enhanced citizen engagement platforms, and immersive virtual and augmented reality experiences. By embracing the interdisciplinary nature of soundscapes and harnessing computer music languages, cities can create more sustainable and people-friendly auditory environments, enriching the urban experience for residents and visitors alike.

Keywords: acoustic ecology, soundscapes, sound synthesis, modeling, smart city environment

[34] Dr. Anurag Kushwaha (Dev Bhoomi Uttarakhand University) and Dr. Rajeev Gupta (Dev Bhoomi Uttarakhand University). *To measure the Level of Resonant Leadership in Automotive manufacturing Organizations among Managers.*

Abstract. This study is basically emphasized upon the managers and measure there resonant leadership in automotive manufacturing organizations. Leaders who are emotionally intelligent tend to have higher levels of influence and productivity rather than their less emotional ones. The main purpose of the study is to allow introspection and understanding to communicate emotions appropriately, emotional intelligence has been defined as the capacity to recognize one's own feelings as well as those of others. Because of this quality, relationships are strengthened and one's ability to influence people is increased. Earlier the study was conducted in the medical field among the nursing environment. The descriptive study and least square method were used to measure the resonance of managers in the automotive organizations. The study was conducted in the various parts of the country like Pune, Pantnagar, Haridwar and Delhi. Standard 5-point likert scale of Dr. Greeta Cummings was used in this paper and sample size of 100 was there.

Keywords: Resonant leadership, automotive organizations and, managers

[35] Pooja Sharma (IIMT UNIVERSITY MEERUT) and Himanshi Chaudhary (IIMT UNIVERSITY MEERUT). *Integrating Technology and Infrastructure to Reduce Carbon Footprint.*

Abstract. Industrial biotechnology is the use of organic systems, such microorganisms and enzymes, to create products and services that are beneficial to civilization. Industrial biotechnology has the potential to reduce carbon footprint by reducing reliance on fossil fuels and using renewable resources as feedstocks. Recent years have seen a tremendous increase in innovation in industrial biotechnology, with improvements in genetic engineering, fermentation technology, and process optimization resulting in more effective and long-lasting manufacturing of bio-based products. The creation of bioplastics, which can replace conventional plastics made of petroleum and considerably lower carbon emissions, is one such example. There must be major infrastructure development if industrial biotechnology is to fully realize its potential to reduce carbon footprint. This involves financial commitments to supply chain logistics, manufacturing facilities, and research & development. Through regulations and financial efforts, governments can play a crucial part in fostering such progress. In order to find new opportunities and solve technical problems, industry and academia must also work together more closely. This could entail collaborations between universities and biotechnology firms as well as the formation of research consortiums to pool resources and knowledge. Overall, industrial biotechnology has the potential to significantly reduce carbon footprint, but in order to fully realize potential, infrastructural expansion and ongoing innovation are needed.

Keywords: Keywords, Industrial, genetic engineering

[36] Himanshi Chaudhary (IIMT University) and Pooja Sharma (IIMT University). LEVERAGING THE INTERNET OF THINGS FOR ENVIRONMENTAL MONITORING.

Abstract: The landscape of environmental monitoring and conservation has changed as a result of the Internet of Things (IoT), which has emerged as a disruptive technology paradigm. This abstract explores the tremendous effects of IoT on improving our knowledge of the natural world and enabling data-driven resource management techniques. IoT is a technology that seamlessly combines sensors, actuators, and communication networks in this age of networked devices to build a web of real-time environmental data collecting and analysis. IoT has wide-ranging and complex effects on environmental monitoring, with applications in waste management, air and water quality monitoring, climate observation, and more. Urban, industrial, and residential areas have installed IoT-enabled air quality monitoring systems that provide real-time information on pollutant levels such as particulate matter, gases, and volatile compounds. The information in this review supports legislative initiatives and enables people to make educated decisions for healthier living conditions. The impact of IoT on precision agriculture, noise pollution monitoring, energy efficiency in smart buildings, and disaster management is studied further in this paper.

Keywords: Internet of Things, Environmental Monitoring, Real-time, IoT Devices, Air Quality

[37] Dr. Sanjukta Vidyant (IIMT University), Himanshi Chaudhary (IIMT University) and Pooja Sharma (IIMT University). Utilization, Challenges, and prospects of emerging plant-based biofuels.

Abstract: The global pursuit of sustainable energy solutions has spurred significant interest in emerging plant-based biofuels as a viable alternative to fossil fuels. The need for the development of sustainable fuel alternatives have been boosted by the rapid rise in the depletion of fossils fuels, environment degradation, and industrialization. The global development patterns for biofuel technology have been developing in recent decades, Biofuels, which are created from renewable, organic (carbon containing) elements like plant matter and animal waste are possible replacements for fossils fuels. These substances together referred to as biomass, include agricultural products and trash, algae, special energy crops, and forestry byproducts. Sugar crops like sugarcane, starch crops like maize and sorghum, oilseed crops like soybean and canola and cellulose plants like corn stalks, grasses and leftover wood chips are typical agricultural plants that are utilized as biomass.

This abstract delves into the utilization, challenges, and prospects surrounding these innovative biofuels. Plant-based biofuels, such as cellulosic ethanol, algae-based biodiesel, and biohydrogen, offer promising advantages, including reduced greenhouse gas emissions and decreased dependence on finite resources. However, several challenges hinder their widespread adoption, including feedstock availability, technological limitations, and competition with food production. Despite these obstacles, ongoing research and development efforts are addressing these issues, aiming to enhance the efficiency and economic viability of plant-based biofuel production. Furthermore, the prospects of these biofuels are bright, with advancements in genetic engineering, bioprocessing techniques, and integrated supply chains offering potential solutions.

Keywords: Sustainable energy, fossil fuels, plant-based biofuels

[38] Gunjan Awal (Graphic Era University), Yudhveer Singh Moudgil (Dev Bhoomi Uttarakhand University, Dehradun), Sumit Bumbak (Dev Bhoomi Uttarakhand University, Dehradun) and Jaishree Agrawal (Dev Bhoomi Uttarakhand University, Dehradun). Future of E-Commerce via Augmented Reality and Virtual Reality: An Application of AI.

Abstract: Augmented Reality (AR) and Virtual Reality (VR), according to specialists, are the probable future of the online shopping industry. Conventional online stores, while economically viable, provide shoppers with more options in terms of product representation and shopping experience when compared with AR/VR-based platforms for online shopping. These advancements can alter the way companies sell online by giving buyers a more absorbing, enhancing, fulfilling, enjoyable, and participatory experience, resulting in bigger sales. Customers will shop from these platforms and stick with their desired brands because of the simplicity, convenience, and overall experience provided by these technologies on their e-commerce site. The present research tends to explore various applications of AR and VR in E-commerce, and how these applications are beneficial for both e-commerce companies and their customers. Lastly, the present study discusses the future scope of AR and VR in the times to come.

Keywords: Augmented Reality, Virtual Reality, E-Commerce

[39] Dhajvir Rai, Ritika Mehra and Sachin Sharma (Dev Bhoomi Uttarakhand university, Dehradun). Prototype of Autonomous Vehicle by using Machine Learning Techniques.

Abstract: This In the modern world, automation is already at its peak but there is still lot more to explore. Self-Driving Cars are already in trend, which not only saves human effort but also drives at better efficiency. It adjusts to the changing environment at an effective rate and at a very low feedback error, which allow the car to adapt according to the road at a better rate. This ability of the self-driving Car leads to better performance as it can follow traffic and motor rules strictly. It also reduces accidents at road and eliminates poor driving abilities of the driver. In general, Raspberry Pi can follow a path using simple lane detection or any edge detector. The camera detects path, then in order to achieve our final goal commands are send to the motors based on the curve value present in the road. Curve values ranges from -1 to 1 and handles the code for the motor driver and other factors are also included to stop or start the motors of the car. These additional factors are based on the machine learning algorithms and other algorithm, which is coded to make the car work accordingly.

Keywords: Self-Driving, Computer Vision, Machine Learning, Embedded, Lane Detection, Autonomous, Automatic Car with Sensors, Automated Destination

[40] Suneel Kumar Singh Bonal (Dev Bhoomi Uttarakhand University), Rahul Panwar (Dev Bhoomi Uttarakhand University), Rohit Kumar (DBUU) and Abhishek Chakravorty (Tulas Institute Dehradun). Plumes and Fibrin Spectroscopy Sensors model: a Solution for Renal Dialysis.

Abstract: Renal failure is a disorder in which the kidneys gradually lose their ability to filter and clean the blood. Renal dialysis is a therapy option in which a machine performs the activities of the kidneys. This gadget contains ultrasonic and visual sensors to detect air bubbles, blood leaks, and clots. Unfortunately, the ultrasonic sensor can occasionally detect false0positives, causing the operation halt. These interruptions might impair the patient's blood circulation and result in blood clots. Moreover, abruptly resuming blood circulation might result in the formation of air bubbles, which can lead to air embolisms. Employing more effective sensors can decrease difficulties during renal dialysis and increase patient quality of life. The creation of an optical sensor. prototype capable of detecting air bubbles and clots is presented in this work This sensor model can be used to enhance patient outcomes in the blood circuit of Renal dialysis machines.

Keywords: blood circuit, renal dialysis, fibrin sensor

[41] Sharanappa Godiganur (Dhole Patil College of Engineering), Srikanth H V (Nitte Meenakshi Institute of Technology) and Veerbhadrappa Telgane (REVA University). Effects of Nano Additives on Performance and Emission Characteristics of CI engine with Mahua Biodiesel and Diesel Blends as Fuel.

Abstract: Due to increasing environmental concerns and the impending depletion of fossil fuels, the development of eco-friendly alternative fuels such as biodiesel is imperative. To enhance the performance and emission properties of diesel engines using biodiesel blends, the introduction of metallic and non-metallic nano-additives has proven effective. This research focused on investigating the blending ratios of biodiesel (B0, B10, B20, and B40) in a compression ignition engine. Additionally, the impact of graphene nanoparticles on the engine's performance and emissions was assessed and compared to pure diesel fuel. The addition of graphene as a nano-additive to B20 with a concentration of 150 ppm demonstrated a significant enhancement in both performance and emission characteristics. B20G150 exhibited a notable decrease of 6% in brake specific fuel consumption (BSFC), a 25% reduction in carbon monoxide (CO) emissions, and a 6.5% increase in brake thermal efficiency (BTE)

Keywords: Bio-diesel, nano additive, graphene, CI engine, emission

[42] Ritika Mehra (Dev Bhoomi Uttarakhand University) and Govind S Panwar (Dev Bhoomi Uttarakhand University). Title: 3D Mapping using Visual Odometry and AI Brain Automated Robot.

Abstract: Advancement in robotics and Artificial Intelligence has revolutionized various fields, ranging from manufacturing to healthcare. Artificial Intelligence is just a theory and Robotics is a practical approach but with a combination of these two powerful tools we can boom the world with the most powerful weapons. In this research paper, we explore the concept of a moving robot equipped with 3D mapping capabilities and an AI-based brain. The integration of these technologies allows the robot to navigate and interact with its environment effectively. This research paper proposes a moving robot based on 3D mapping and having an AI-based brain. Instead of an expensive and bulky 3D laser scanner, we use an Arducam, Time of Flight device for 3d mapping. These types of robots easily move here and there without any interference from the third person. We also include an AI-based brain that makes him smart and addon various types of recognition techniques and reinforcement learning that help him to think, behave, and be like a human.

Keywords: Artificial Intelligence, robotics, 3D mapping, reinforcement learning

[43] Laxmi Sagar (G.L.Bajaj Institute of Technology & Management, Greater Noida) and Dbhagwan Das (Department of Electrical Engineering, Dayalbagh Educational Institute, Agra, India). Fault Diagnosis System for SPV Power Plant.

Abstract: To guarantee maximum performance and reliability of solar plants, the probability of occurrence of improper operations should be very low. For that, a fault diagnosis expert system can be one of the solutions that can figure out the improper operations very precisely and suggest corrective actions. In this study, we will use a hybrid approach for fault detection, i.e., a knowledge-based and data-driven approach, i.e., fuzzy logic and machine learning. A fuzzy model will sense the real-time data and classify it into good or faulty.

Keywords: fuzzy logic, machine learning, classification.

[44] Dr. Pinky Bahuguna (Dev Bhoomi Uttarakhand University, Dehradun), Dr. Kamal Joshi (Medhavi Skills University, Sikkim) and Prof. R C Dangwal (H.N.B Garhwal University, Srinagar Garhwal, Uttarakhand). Exploring Obstacles Encountered by Start-ups in Leveraging 'Start-up India' Initiative.

Abstract: In recent times, there has been a growing global focus on start-ups. This trend is particularly pronounced in India, where the start-up landscape has expanded rapidly, accompanied by a surge in available support across various facets. This study focuses on uncovering the challenges encountered by start-up entrepreneurs within the framework of the government's 'Start-up India' initiative, which aims to foster innovation and entrepreneurship. Start-ups, characterized by their innovative solutions to societal problems, grapple with diverse obstacles including financial management, revenue generation, and competitive marketing. Seeking to support these ventures throughout their growth journey, the 'Start-up India' initiative addresses these challenges. Employing qualitative research, this study analyses data from 26 start-ups to identify constraints hindering entrepreneurs from accessing the benefits offered by the initiative. The research highlights significant constraints related to policy implementation, financial matters, and regulatory compliance, particularly pronounced among start-ups in Uttarakhand. Furthermore, an examination of pertinent literature enhances the solidity of the results.

Keywords: Constraints, start-ups, finance related problems, compliance related problem, start-up India initiative

[45] Arunesh Kumar Singh (Jamia Millia Islamia, New Delhi), Rohit Kumar (Jamia Millia Islamia, New Delhi), D. K. Chaturvedi (Dayalbagh Educational Institute, Agra) and Ibraheem Naseerudin (Jamia Millia Islamia, New Delhi). Electric Vehicle Charging Scheduling: A Review and Optimization Framework.

Abstract: With the increasing adoption of electric vehicles (EVs) worldwide, the efficient management of electric vehicle charging infrastructure has become imperative. The EV adoption is primarily hindered by large waiting period of charging. Electric vehicle charging scheduling plays a vital role in minimizing charging costs, reducing average waiting time, optimizing energy utilization, and ensuring grid stability. This research paper provides a comprehensive review of existing literature on EV charging scheduling and proposes an optimization framework to enhance the performance of charging infrastructure. The proposed framework incorporates various factors, such as user preferences, grid constraints, and renewable energy (RE) integration, to develop efficient and sustainable charging schedules.

Keywords: Electric Vehicle, Charging scheduling, Grid Constraints, Optimization, EV Charging system, EV charging algorithm

[46] Deepa R (VTU University). Feature Extraction and Classification Using Ensemble Method to Enhance Parkinson's Disease Prediction.

Abstract: Parkinson's disease (PD), which is more prevalent in persons over 50, has affected millions of people worldwide. The two most common neurodegenerative illnesses are Alzheimer's and Parkinson's, in which PD is a prevalent central nervous system disorder that usually affects the elderly. The Clinical diagnosis of the ailment is difficult due to the difficult signs of the sickness. Additionally, it is anticipated to rise over the next ten years, driving up treatment costs. The significance of medical outcomes on patients' financial investments leads to bias, errors, and high clinical expenditures. Precise planning of a treatment is necessary to lower the possibility of a consequence that cannot be retrieved. In this work, the ensemble classifiers are utilized to back up the specialists' diagnosis of PD. Using boosting and bagging algorithm, a collection of classifiers is created, and the classifiers' predictions are then used to categorize new data. The dataset for this study consists of a range of biological speech signals from 31 individuals, including 23 persons with Parkinson's disease and 8 healthy individuals. A Parkinson's disease data set was used for this, which was collected from the UCI machine learning database. Accuracy, recall, specificity, precision, and f-measure are performance indicators used to assess the effectiveness of the device. A very high accuracy rate of about 90.3% is indicated by the Parkinson's data.

Keywords: Parkinson's Disease, Boosting Tree, Bagging Tree, Decision Tree, Machine Learning, Ensembled Classifier

[47] Puttaswamy B S (P E S College of Engineering Mandya) and Dr. N Thillaiarasu (REVA University Bengaluru). ALABerT: Automated Recognition of English Hand Written Images for Human Personality Prediction Using Hybrid Deep Learning Models.

Abstract: The true personality of a person can be projected, including their behavior, emotional outpouring, self-esteem, frustration, imagination, anxieties, truthfulness, and many other personality traits using handwriting analysis. Graphology, also known as handwriting analysis, is the study and analysis of handwriting from a scientific perspective. It is a technique for recognizing, assessing, and interpreting a person's behavior. A better recognition technique for predicting the personality based on handwritten is introduced in this research. Initially, personality prediction datasets are collected to pre-process the data using improved median filter (IMF) to reduce the noise and enhancement of contrast. Extracting the features are done using the hybrid wavelet and hadamard feature extraction approach. The features are provided to the deep learning method based on Attention LSTM based Amended Bidirectional Encoder Representation from Transformers (ALABerT) to classify the selected features. If there are losses in the model, it can be optimized using improved chimp optimization algorithm (IpoA). The proposed model can accurately predict the personality of humans according to their handwriting as openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. To demonstrate the proposed work's superior performance, the outcomes are compared to current state-of-the-art methods using a variety of performance metrics. The performance outcomes are obtained as 98.9% of accuracy, 95.8% of sensitivity, 95.0% of precision, 95.4% of f1-score, 99.4% of specificity, 94.7% of MCC, 96.4% of kappa, 0.37% of RMSE and 0.05% of MAE.

Keywords: Improved median filter, Hybrid wavelet and hadamard, Attention LSTM

[48] Akhilesh Pandey (Sunrise University). A Corelative Study of Brain Tumor Detection Using Segmentation Techniques.

Abstract. One of the major causes of death among people is abnormal growth of cells within brain called as tumor. If the tumor is detected in early stage the chances of survival are high thus a brain tumor detection method is required that is accurate and fast. MRI and CT scan images are used for detection of brain tumor. Because of the location, intensities and shapes Magnetic resonance image is a hard job for the research. MRI or CT scan is used for scanning the image. For confirming the tumor and its location the scanning of brain is done, for brain tumor detection segmentation is required. Segmentation is a crucial part of brain tumor detection. An image is subdivided into regions or objects. To make image easier and meaningful is the main goal of segmentation. The paper provides a review of comparative research on segmentation techniques for segmenting brain tumors from magnetic resonance images and using machine learning and deep learning techniques to effective result.

Keywords: Image Segmentation Techniques, Machine Learning, Deep Learning Brain Tumor, MRI

[49] Lovepreet Singh (Dev Bhoomi Uttarakhand University), Simran Kaur (Dev Bhoomi Uttarakhand University), Divyansh Chauhan (Dev Bhoomi Uttarakhand University), Ganga Negi (Dev Bhoomi Uttarakhand University) and Ritika Mehra (Dev Bhoomi Uttarakhand University). REVIEW CONTRIBUTIONS IN SPEECH RECOGNITION FOR HCI.

Abstract. The possibility of human computer interaction comes due to the progression in the advancement of computer innovation. The new age of individuals (youthful age bunch individuals), who's informed and in fact learned includes research tests in human computer interaction. HCI (human-computer interaction) covers both specialized and human social concerns.

Speech being the essential correspondence medium, understanding the emotional condition of humans from speech and answering appropriately have given the speech emotion recognition framework a fundamental piece of the human-computer interaction (HCI) field. This paper centers around certain examinations completed for the improvement of an automatic Speech emotion recognition (SER) framework. The principal motivation behind research in human-computer interaction is to reveal dark acumen about direct of people and its relationship to advancement. This paper likewise centers around the emotional intelligence of a client to turn out to be more client like, devotion prototyping.

Keywords: HMM, Feature extraction, Cepstral-Analysis, Acoustic-modeling

[50] Ankur Painyuli (Dev Bhoomi Uttarakhand University), Ganga Negi (Dev Bhoomi Uttarakhand University), Ritika Mehra (Dev Bhoomi Uttarakhand University) and Jaishree Agarwal (Dev Bhoomi Uttarakhand University). A Reassessment on Image Perceiving Equipment's.

Abstract. The image-sensing devices use a simple concept of converting an optical image into a digital image which is further analyzed by the computer vision system. Image processing depends upon two factors: the quality of pixels and the technologies behind image processing like CMOS (complementary metal oxide semiconductor) or CDD (charge-coupled copies). Nowadays, artificial intelligence and neuromorphic computing are merged with image sensing devices to enhance their imaging capabilities and moreover, it is widely used in all consumer and commercial devices like mobile phones, digital cameras, etc. This paper focuses on the studies carried out on different applications of image sensing devices in different fields like medical, agricultural, security, and surveillance, etc. we will also give an overview of the types of image processing technologies.

Keywords: CMOS, CCD, Bayer's Pattern, Remote sensing, Artificial Retina, DVS, Wireless Capsule Endoscopy.

[51] Mahak Joshi (Dev Bhoomi Uttarakhand University), Ganga Negi (Dev Bhoomi Uttarakhand University) and Ritika Mehra (Dev Bhoomi Uttarakhand University). Blockchain Technology & Its Scope in Various Fields: A Comprehensive Review.

Abstract. In recent years, blockchain technology has become a powerful force for change, upending established markets and altering how data is shared and kept. This review discusses the underlying characteristics and features of blockchain technology and looks at some of the potential fields in which it might be used. We highlight the versatility of blockchain by analysing its decentralized structure, immutability, transparency, and security features, as well as its applications in finance, supply chains, healthcare, voting systems, and other fields. The assessment comes to a close with some reflections on the blockchain technology's bright future and the issues that still need to be solved before it can be widely used.

Keywords: Blockchain technology, Bitcoin technology, Ethereum, Immutability, Scalability, Decentralization, Sharding, Scopes of blockchain technology, Ledgers in blockchain, PoW, PoS, Lightning network, Decentraland

[52] Akhilesh Pandey (Uttaranchal University) and Monisha Awasthi (Uttaranchal University). Applying Design Thinking to Improve Customer Experience in Online Shopping.

Abstract. With the rise of e-commerce, online shopping has become a popular option for many consumers. However, it can be challenging for businesses to create a user-friendly and satisfying online shopping experience for their customers. This research paper aims to explore how design thinking can be applied to enhance customer experience in online shopping. Using a case study approach, we will analyze how design thinking principles, such as empathy, ideation, prototyping, and testing, can be used to identify pain points in the online shopping process and develop innovative solutions that improve customer satisfaction and loyalty. By examining the impact of design thinking on customer experience in online shopping, this research paper aims to provide insights for businesses on how to create a more engaging and successful online shopping experience.

Keywords: design thinking, customer experience, online shopping, e-commerce, user centered design

[53] Saqib Masood Salaria (Dev Bhoomi Uttarakhand University) and Swati Gupta (Dev Bhoomi Uttarakhand University). CIRCULAR ECONOMY AND WASTE MANAGEMENT: A PARADIGM SHIFT TOWARDS SUSTAINABLE RESOURCE MANAGEMENT.

Abstract. The circular economy and waste minimization are concepts and strategies aimed at creating a more sustainable and resource-efficient approach to production, consumption, and waste management. These concepts address the growing environmental challenges posed by our linear "take-make-dispose" economic model. In a circular economy, the goal is to keep resources in use for as long as possible, extract maximum value from them during their use, and then recover and regenerate products and materials at the end of their life cycles. Waste minimization is a key component of the circular economy, focusing on reducing the generation of waste in the first place. The present research paper explores the concept of the circular economy and its integral connection to effective waste management practices. As societies continue to grapple with the challenges of resource scarcity and environmental degradation, the circular economy offers a promising framework to transition from the linear "take-make-dispose" model to a regenerative and sustainable system. This paper delves into the principles of the circular economy, its benefits, and its intersection with waste management strategies. It examines various case studies and policy initiatives to illustrate successful implementations of circular economy principles in waste management. The findings suggest that adopting a circular economy approach not only minimizes waste generation but also fosters economic growth, environmental conservation, and social well-being. However, challenges such as systemic barriers and behavioral shifts are discussed, emphasizing the need for comprehensive stakeholder collaboration and policy support. This paper contributes to the growing discourse on sustainable resource utilization by highlighting the transformative potential of the circular economy in reshaping waste management practices.

Keywords: Circular Economy, Waste, Environment, Sustainable, Policy, Management

[54] Pratibha Verma (Himgiri Zee University), Mukesh Verma (Himgiri Zee University), Rohit Goyal (Himgiri Zee University) and Abha Sharma (Himgiri Zee University). DISCOM Based Business Model for Solar Rooftop with Zero Investment Cost by Prosumers of Uttarakhand State of India.

Abstract. Uttarakhand is a small hilly northern state of India. Major problem of the state is energy demand supply gap management and sustainable energy production. Initially, the state was energy surplus but slowly it became energy scarce state. At present, state is procuring approx. 50% energy from outside sate periphery. Another major challenge is compliance of sustainable energy procurement specified by authorities which is called Renewable Purchase Obligation (RPO). This RPO compliance targets have been increasing each year and at present it is 22%. Due to availability of 300 sunshine days, state has potential for producing sustainable energy by solar panels. Apart from green energy production, major benefit of Roof Top Solar (RTS) is full utilization of hilly land as well as unused rooftop area of electricity consumers. Therefore, power shortage problem and RPO compliance can be fulfilled by Distributed Generation (DG) by inclusive role of individual, industrial and commercial buildings or any other type of building can be used to fulfil the energy requirement of the building occupants and surplus energy, if any, can be injected into the grid. Such electricity Producers and Consumers are also called Prosumers. Due to slow growth of solar power activities, it has been observed that cash crunch is the main problem for participation of more public. To understand such need, this paper analyses existing business models and suggests a model with zero investment by Prosumers (electricity consumers who are producing and selling electricity). A case study of an institute has been analyzed where employees were supported financially by giving interest free 100% loan to have solar rooftop plant and cost benefit perspective has checked. Similarly, power distribution company (DISCOM) may opt zero investment model to enhance Prosumers for solar projects to play major role for enhancing sustainable energy in the state.

Keywords: Renewable Energy, PROSUMERS, Roof Top Solar, Renewable Purchase Obligation, DISCOM, Distributed Generation, Energy Investment Business Models
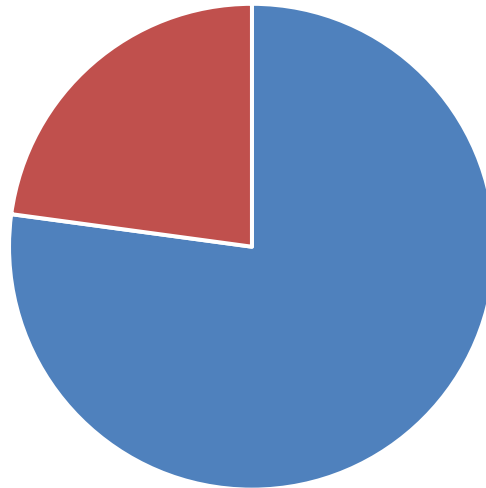
Analysis Report SITGSD-2023

Total number of papers received: **70**

Total number of papers accepted for presentation: **54**

Paper Submitted @SITGSD-2023

■ Rejected ■ Accepted

International Conference
on
Smart Innovative Technologies for Green and Sustainable Development (SITGSD-2023)

Program Schedule, Day 1 (31.08.2023) Thursday

Time	Event	Venue
9:00 – 11:00	**Registration**	**Ayurveda Ground Floor**
9:30 – 9:50	**Inauguration Ceremony; Lamp Lightning, Saraswati Vandana** **Souvenir-cum-Abstract Book Launch** **Felicitation:** **Chief Guest -Dhan Singh Rawat**, Hon'ble Minister of Higher Education of Uttarakhand **Guest of Honour:** **Prof. Durgesh Pant**, Director General, UCOST, Dehradun **Prof. (Dr.) Anita Rawat**, Director, USERC, Dehradun **Er Narendra Singh**, Past President, IEI, Kolkata **Er R R Tanwar**, Past Chairman, ELDB, IEI, Kolkata **Er S C Goyal**, Chairman, BOG, DAMF **Er Dharm Chandra,** Chairman, UKSC, IEI **Er S C Chauhan,** Honorary Secretary, UKSC, IEI	**Ayurveda Seminar Hall**
9:50 – 10:00	**Opening remarks by Dr. Ritika Mehra, Dean-SoEC, DBUU, Convener, SITGSD-2023**	**Ayurveda Seminar Hall**
10:00 – 10:15	**Welcome Address by Dr. Preeti Kothiyal, Vice Chancellor, Dev Bhoomi Uttarakhand University, Dehradun**	**Ayurveda Seminar Hall**
10:15 – 10:30	**Invited Talk: Prof. Durgesh Pant, Director General, UCOST**	**Ayurveda Seminar Hall**
10:30 – 10:45	**Invited Talk: Prof. (Dr.) Anita Rawat, Director, USERC**	**Ayurveda Seminar Hall**
10:45 – 11:00	**Invited Talk: Chief Guest- Shri Dhan Singh Rawat, Hon'ble Minister of Higher Education of Uttarakhand**	**Ayurveda Seminar Hall**
11:00 – 11:30	**HIGH TEA**	**HM Building**
11:30 – 12:00	**Plenary Session 1: Dr. Bhim Singh, SERB National Science Chair & Emeritus Professor, IIT Delhi**	**Ayurveda Seminar Hall**
12:00 – 12:30	**Plenary Session 2: Dr. Gleb Rogozinsky, Leading Researcher, Institute of Transport Problems of Russian Academy of Sciences, St. Petersburg, Russia**	**Ayurveda Seminar Hall**

12:30 – 12:50	Plenary Session 3: Dr Shashi Kumar, IFS (Rtd), DG (ICFRE), Dehradun		Ayurveda Seminar Hall
12:50 – 13:10	Plenary Session 4: Er. Peeyush Rautela, Executive Director, Uttarakhand State Disaster Management Authority		Ayurveda Seminar Hall
13:10- 14:00	LUNCH		HM Building
14:00-16:30 (Parallel Sessions)	Parallel Session 1 (Hall 1) Chair: Dr. Gaurav Mittal, Scientist-E; DEAL, DRDO	Parallel Session 2 (Hall 2) Chair: Dr. Arunesh Kr. Singh, Prof, JMI, Delhi	Ayurveda First Floor
14:00 - 14:30	Keynote: Er S C Chauhan, Honorary Secretary, UKSC	Keynote: Er. Aman Joshi, Director Fidato Consultant	Ayurveda First Floor
14:30 – 14:40	SITGSD_29	SITGSD_35	Ayurveda First Floor
14:40 - 14:50	SITGSD_30	SITGSD_36	Ayurveda First Floor
14:50 – 15:00	SITGSD_31	SITGSD_37	Ayurveda First Floor
15:00 – 15:10	SITGSD_47	SITGSD_9	Ayurveda First Floor
15:10 – 15:20	SITGSD_28	SITGSD_49	Ayurveda First Floor
15:20 – 15:40	TEA BREAK		
15:40 – 15:50	SITGSD_2	SITGSD_25	Ayurveda First Floor
15:50 - 16:00	SITGSD_3	SITGSD_7	Ayurveda First Floor
16:00 – 16:10	SITGSD_4	SITGSD_8	Ayurveda First Floor
16:10 – 16:20	SITGSD_5	SITGSD_10	Ayurveda First Floor
16:20 – 16:30	SITGSD_6	SITGSD_13	Ayurveda First Floor

Schedule, Day 2 (1.09.2023) Friday

Time	Event		Venue
9:00 – 11:00	Registration		Ayurveda Ground Floor
9:30 – 9:40	Lamp Lightning, Saraswati Vandana Felicitation: Chief Guest: Prof.(Dr.) Anil Sahasrabudhe, Chairman NETF, Former Chairman AICTE		Ayurveda Seminar Hall
9:40 – 9:50	Opening remarks by Dr. Ritika Mehra, Dean-SoEC, DBUU, Convener, SITGSD-2023		Ayurveda Seminar Hall
9:50 – 10:00	Welcome Address: Dr. R.K. Tripathi, Pro-Vice Chancellor, Dev Bhoomi Uttarakhand University, Dehradun		Ayurveda Seminar Hall
10:00 – 10:30	Invited Talk: Prof.(Dr.) Anil Sahasrabudhe, Chairman NETF, Former Chairman AICTE		Ayurveda Seminar Hall
10:30 – 10:55	HIGH TEA		HM Building
10:55 – 11:10	Plenary Session 4: Dr. M.V. Reddy, Department of Materials Science and Engineering, Chemistry and Physics, National University of Singapore (NUS). Singapore. (Online)		Ayurveda Seminar Hall
11:10-11:25	Plenary Session 5: Dr. Bui Thanh Hung, Data Science Laboratory, Data Science Department, Faculty of Information Technology, Industrial University of Ho Chi Minh city. (Online)		Ayurveda Seminar Hall
11:25 – 11:40	Plenary Session 6: Er. Neha Sakka, AM(IEI), Jaipur Vidyut Vitran Nigam Ltd		Ayurveda Seminar Hall
11:45 - 13:20 (Parallel Sessions)	Parallel Session 3 (Hall 1) Chair: Er. S.P. Singh, Co-Opt Member UKSC	Parallel Session 4 (Hall 2) Chair: Er. M.P. Jain, Former VC, IMS Unison University & ECM UKSC	Ayurveda First Floor
11:45 -12:00	Keynote: Dr. N K Yadav, Chairman, (Designated) UKSC & Chief Engineer (Retd.) Irrigation Department UK	Keynote: Er. Anurag Kumar, Director NIELIT Haridwar	Ayurveda First Floor
12:00 – 12:10	SITGSD_14	SITGSD_43	Ayurveda First Floor
12:10 – 12:20	SITGSD_15	SITGSD_44	Ayurveda First Floor

12:20 – 12:30	SITGSD_16	SITGSD_45	Ayurveda First Floor
12:30 – 12:40	SITGSD_18	SITGSD_46	Ayurveda First Floor
12:40 – 12:50	SITGSD_26	SITGSD_50	Ayurveda First Floor
12:50 – 13:00	SITGSD_32	SITGSD_55	Ayurveda First Floor
13:00 – 13:10	SITGSD_33	SITGSD_59	Ayurveda First Floor
13:10 – 13:20	SITGSD_34	SITGSD_60	Ayurveda First Floor

13:20- 14:15	LUNCH		HM Building
14:15-16:30 (Parallel Sessions)	Parallel Session 5 (Hall 1)Chair: Er H. K. Upreti, ECM UKSC	Parallel Session 6 (Hall 2) Chair: Er Prashant Aggarwal, ECM UKSC	Ayurveda First Floor
14:15 - 14:30	Keynote: Er. Himanshu Awasti, UJVNL Ltd.	Keynote: Er. Pankaj Kulshretha, ED UJVNL Ltd	Ayurveda First Floor
14:30 – 14:40	SITGSD_11	SITGSD_63	Ayurveda First Floor
14:40 -14:50	SITGSD_19	SITGSD_64	Ayurveda First Floor
14:50 – 15:00	SITGSD_24	SITGSD_65	Ayurveda First Floor
15:00 – 15:10	SITGSD_27	SITGSD_66	Ayurveda First Floor
15:10 – 15:40	TEA BREAK		
15:40 – 15:50	SITGSD_54	SITGSD_52	Ayurveda First Floor
15:50 – 16:00	SITGSD_39	SITGSD_61	Ayurveda First Floor
16:00 - 16:10	SITGSD_67	SITGSD_62	Ayurveda First Floor
16:10 – 16:20	SITGSD_68	SITGSD_69	Ayurveda First Floor
16:20 – 16:30	SITGSD_21	SITGSD_70	Ayurveda First Floor

Program Schedule, Day 3 (2.09.2023) Saturday
Venue: The Institutions of Engineers, Dehradun

## VALEDICTORY PROGRAM

09:30 – 09:50	Keynote Speaker Er S M Saxena, ECM, UKSC Dehradun
09:50 – 10:20	Keynote Speaker Er (Dr) Shantanu Sarkar, Director ULSMMC Dehradun
10:20 – 10:30	Prize Distribution by Chief Guest
10:30 – 10:40	Tea Break
10:30 - 11:00	Registration
11:00 - 11:10	Lighting of the Lamp & Saraswati Vandna
11:10 - 11:15	Welcome address by Er Dharm Chandra, Chairman IEI, UKSC Dehradun
11:15 - 11:30	Summary of International Conference on Smart Innovative Technologies for Green and Sustainable Development by Er (Dr) Ritika Mehra, Convenor
11:30 - 11:40	Address by Shri P C Dhyani, MD PTCUL Dehradun
11:40 – 11:50	Address by Er Anil Kumar, MD UPCL Dehradun
11:50 - 12:00	Address by Er Sandeep Singhal, MD UJVNL Dehradun
12:00 - 12:10	Address by Er D K Sharma, Chief Engineer MoRTH Dehradun
12:10 - 12:20	Address by Shri R R Tanwar Past Chairman ELDB IEI Kolkata
12:20 - 12:30	Address by Er Narendra Singh, Past President IEI Kolkata
12:30 - 12:40	Address by the Mata Mangla & Bhole Ji Maharaj, Hans Foundation Dehradun
12:40 - 12:50	Address by Shri Bhagat Singh Koshyari, Ex Governor Maharashtra
12:50 – 13:00	Release of Book, Written by Er Narendra Singh, Past President IEI Kolkata
13:00 - 13:10	Distribution of Mementoes to Chief Guest/ Guest of Honour
13:10 -13:30	Prize Distribution by Chief Guest
13:30 -14:00	Lunch
14:00 -17:00	Technical Visit

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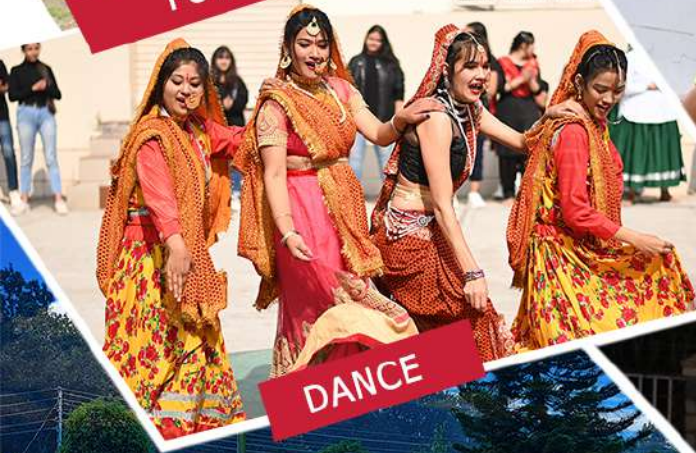
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