

Lok Nayak Jai Prakash Institute of Technology NEWSLETTER

Jan-March 2024



Startup Mahakumbh 2024

Students of LNJPIT participated in Startup Mahakumbh 2024, a invaluable experience to witness the convergence of India's Startup ecosystem.

FINISH READING ON PG. 3



Umang: State Level Competition

A state level sports competition, Umang-24, for the winners of the divisional level was conducted at Patliputra Sports Complex, Patna

FINISH READING ON PG. 7



Webinar on Startup Leagalities

A one-day webinar on Startup Legalities' was conducted by HealthCRAD. Department of Industries, Government of Bihar for the students and faculties of Loknayak Jai Prakash Institute of Technology, Chapra on 25 January, 2024.

FINISH READING ON PG. 4



AAGAAZ 2024: A sports & Cultural Meet

LNJPIT students shine in sports literary and cultural activities at the divisional level competition.

FINISH READING IN PG. 6



National Science day 28.02.2024.

LNJPIT celebrated
National Science Day,
with its primary aim to
derive scientific outlook
in life of future
generations of our nation.

FINISH READING ON PG. 8

Message from the Principal's Desk

Dear all, it is an instance of immense pleasure for me to address you on behalf of Lok Nayak Jai Prakash Institute of Technology, Chapra, on the occasion of the release of this newsletter. As we persist our combined academic journey, I have unshakeable conviction that each small step that we take in our journey would ultimately lead us to a bright future and contribute to the process of nation building.

In the changing face of the economy of our nation in general, and Bihar in particular, the institute posits itself in its attempts to understand the growth in manufacturing and service sectors. Therefore, we perceive it as our primary responsibility to promote technically inquisitive minds and provide ample exposure and skills to serve the society, thereby strengthening the spine of our nation for a better future.



Our vision is not simply restricted to the technical enhancement of the future generation, but based on the broader idea that a comprehensive development of individual is possible only through the promotion of various co-curricular and extra-curricular activities alongside curricular activities. To assure such a multifaceted development of our students, the institute itself takes upper hand to conduct various workshops, seminars and promote the students in their own initiatives such as establishment of various clubs, sports and literary activities, individual projects etc. serving their own exclusive purposes. This newsletter reflects the activities that took place in the institute during the time from January to March, 2024.

I extend my sincere gratitude to all those who have supported and contributed in the academic journey of LNJPIT.

Wishing you all the best!



Ideate, Build, Pitch and Win!

Honorable Prime Minister of India, Sri. Narendra Modi inaugurated the program. In his address, the Prime Minister asserted the significance of such initiatives as Startup Mahakumbh and reiterated its role in the country's trajectory towards becoming Viksit Bharat by 2047.

LNJPIT is pleased to announce that 12

students from the institute have participated in the Startup Mahakumbh 2024, held from 18 to 20 March, 2024 at Bharat Mandapam, New Delhi. The event served as an occasion for the coming together of the entire startup ecosystem of the country, including startups, investors, incubators, accelerators and industry leaders from various sectors.

The program was also blessed with the presence of eminent personalities such as Sri. Piyush Goyal, the Union Minister of Commerce and Industry; Sri. Sanjiv, Joint Secretary, DPIIT; Sri. Prashant Kumar Singh and CEO, Government e-Marketplace.

Dr. Umesh Chaudhary, Faculty-in-charge, Startup Cell, LNJPIT and Miss. Surbhi Singh, Coordinator, Startup Cell, LNJPIT escorted and guided the students through the program.





It is a moment of great pride for us to share the occasion of organizing the webinar, Startup Legalities, for the students and facultiy members of the institute.

The webinar was conducted by HealthCRAD, Department of Industries, Government of Bihar, with the motive of enhancing the consciousness of students about the opportunities of entrepreneurship and explained them the Bihar Startup Policy-2022, in lieu of the rapidly growing awareness about the entrepreneurial ecosystem across the industrial world.

Corporate Legal Expert, CS Pradeep Singh explained the students about Bihar Startup Policy- 2022. The chief guest of the event, Miss. Lovely Singh, Startup Support Unit (SSU), Department of Industries, Government of Bihar, delivered the keynote speech regarding the startup policy. Principal of Government Polytechnic, Chapra, Dr. Anil Kumar welcomed all the dignitaries, faculty members and students.

The session witnessed its initiation through Dr. Umesh Chaudhary, Faculty In-charge, Startup Cell, LNJPIT. Dr. Chaudhary highlighted the importance of startups and innovation. Miss. Surbhi Singh, Coordinator, Startup Cell, LNJPIT, shed light into cardinal concepts related to the idea of startup and how it is important in the contemporary global and local professional scenario as a career option.

The session also included an 'On-spot Ideation Challenge', a challenge with problem statements related to the present day's social challenges, conducted by Miss Lovely Singh. Around 150 students appeared in the challenge. Certificate of merit and gift hampers were given to selected students.

Dr. Basim Akhatar delivered the concluding speech, reflecting on the initiatives undertaken by the Startup Cell and outlining its future endeavors.





Startup Cell: Outreach Program

Among the commendable activities of the Startup Cell of LNJPIT stands the consistent organization of outreach programs. The startup cell of LNJPIT, Chapra, has been persistently conducting monthly outreach programs for various educational institutions in the vicinity of the institute, with the aim of inculcating awareness among the students to instill interest and confidence to be productive entrepreneurs. The startup cell of the institute has conducted outreach programs in Government Polytechnic, Chapra on 31 January, 2024, Suraj Sawariya ITI on 7 February, 2024, Chapra and Jagdam College, Chapra on 28 March, 2024.

The dignitaries present include the members of the respective institutions and resource persons. Dr. Anil Kumar (Principal, Government Polytechnic, Chapra), Miss. Anjali Gupta (Lecturer, Department of Electronics, Government Polytechnic, Chapra), Mrs. Lovely Singh (Startup Support Unit (SSU)), Suraj Sawariya (Industrial Training Institute (ITI), Chapra), Dr. Krishan Kumar Baitha (Principal Jagdam College, Chapra), Dr. Waseem (Assistant Professor, Jagdam College, Chapra) who shared their insights, knowledge and experience in the respective fields with the students. Miss. Surbhi Singh, Coordinator, Startup Cell, LNJPIT Chapra, explained the meaning of startup and the difference between a startup and a traditional businesses.



The program also facilitated student beneficiaries of startup cell, Mr. Aryan Chauhan, Miss Saheba Azmi and Mr. Alok Ranjan, to share the experience of their entrepreneurial journey.

AAGAAZ 2024

An event that broughtforth the hidden talents to glow.

In this visionary initiative, the students of LNJPIT, Chapra, GEC Siwan and GEC Gopalgunj participated to showcase their talents and emerged winners.

It is a great honor for LNJPIT, Chapra, to be the host for AGAAZ, 2024, the divisional level sports, literary and cultural competitions for involving LNJPIT, Chapra, GEC Siwan and GEC Gopalgunj. The event served as an invaluable opportunity for the students to sharpen their extra-curricular abilities in the process of their all-round personal development. Dr. Mithilesh Kumar Singh, principal, LNJPIT, Chapra inaugurated the event. On the occasion Dr. M K Singh shed insight into the significance of extra-curricular activities in the comprehensive development of individuals that could impart qualities that are beyond the bounds of any designed curriculum.

The budding talents of LNJPIT showcased impressive performance in various categories. Saket Kumar (winner-100 M, boys), Pintu Kumar (winner-200 M, boys), Suruchi Kumari (winner-200 M, girls), Adarsh (winner-Badminton, Singles, boys), Lekh & Ritesh (winner-Badminton, Doubles, boys), Vanshika Kumari (winner-Badminton, Singles, girls), Vanshika & Tannu Kumari (winner-Badminton, Doubles, girls), LNJPIT, Chapra (winner-Cricket), Mankush Sharma (winner-Discuss throw, boys), Anjali Upadhaya (winner-Discuss throw, girls), Pintu Kumar (winner-Shot put, boys), Sneha Kumari (winner-Shot put, girls), LNJPIT, Chapra (winner-Football), LNJPIT, Chapra (winner-Kho-Kho, girls), LNJPIT, Chapra (winner-Volley ball, boys), Ankit Kumar Raj (winner-Table tennis, singles, boys), Ankit Kumar Raj and winner-Quiz), Raushan Kumar (winner-Crossword).

The impeccable spirit of competitiveness, persistence and sportsmanship exhibited by the participants and coordination exhibited by the student community of LNJPIT, at large, will remain to be a proud moment to be cherished and continue to replicate in the future towards building a healthy student community. Mr. Vaibhav Mishra, Assistant Professor, Civil Engineering, spearheaded the entire event with the help of different faculty and student committees to its successful completion. The event served as a successful example of coordinated efforts from both the faculty and student community of LNJPIT, Chapra.



The meet came to a memorable conclusion with the presence of Prof. Suresh Kant Verma, honorable Vice Chancellor of Bihar Engineering University, as the chief guest. Prof. Verma inspired the students with his enlightening speech on the importance of character and knowledge in professional life, prior to the distribution of prizes to the winners of competitions.











UMANG-24

A state level sports competition, **Umang-24**, was conducted at Patliputra Sports Complex, Patna, for the winners of the divisional level event. The students of LNJPIT participated in various competitions and emerged winners.

The competition consisted of 17 sport events in which the winners of different divisional level competitions participated. The motto of the competition was the comprehensive development, both psychological and psychological, of the students of the Government Engineering Colleges and the Polytechnic Colleges governed by Department of Science, Technology and Technical Education, Bihar.

The event witnessed immense participation of students from both the engineering colleges and polytechnics with more than 1200 participants. The participants exhibited their talent in competitions such as cricket, volleyball, kabaddi, badminton, carrom, chess, table tennis, running, long jump, shot put, javelin throw, Discus throw and so on. The event also proved to be a venue to sharpen the skills and values of the students such as leadership quality, ethics, team work and sportsmanship.

In the competition, the students of LNJPIT showcased their talent and emerged winners. They include: LNJPIT cricket team (Winner), Saket Anand (100 M, winner), Saket Anand, Kundan Kumar, Kundan Sharma and Ajay (4X100 M Relay, winner), Mankush Sharma (Discuss throw, winner), Ankit Kumar Raj (Table Tennis, runner up) and Pintu Kumar (Shot put, runner up).





National Science Day: A day to remember the importance of scientific temperament

28 February, the day that commemorates the discovery of Raman Effect became an occasion for LNJPIT to impart awareness and knowledge among students the importance of scientific inquiry. It also served as an occasion to appreciate the school students that achieved victory in various competitions conducted at the district level, Saran.

The occasion was enlivened by the presence of Shri. Aman Samir, the District Magistrate, Saran, as the chief guest and keynote speaker, Dr. Mithilesh Kumar Singh, the Principal, LNJPIT, Chapra Dr. Abhishek Sharma, Dean Academics, LNJPIT, Dr. Ghanashyam Kumar Prajapati, Assistant Professor, Dept. of Applied Science, Dr. Atul kumar Tiwari, Assistant Professor, Dept. of Applied Science, LNJPIT, and various faculty members and students of the institute.

Shri. Aman Samir shared his inspiring experience of academic journey with the audience and reiterated the importance of upholding scientific temperament in the distractive present day socio-economic and cultural scenario. Dr. Mithilesh Kumar Singh demonstrated the necessity of science and scientific practice in the development of our society and nation and the vital role of the students in it. Dr. Rupam Yaday, Assistant Professor, LNJPIT, Chapra, also gave a presentation on the scholarly journey of Dr. C.V Raman. The program also included a visit by the school students to the laboratories of LNJPIT, Chapra, in which faculty members explained the working mechanisms of equipment in the labs.

The event came to its fruitful culmination with the prize distribution by Shri. Aman Samir and Dr. Mithilesh Kumar Singh to the winners of various competitions.







Pahal

An unparalleled initiative in education

Pahal, a thoughtful venture to guide, inspire and educate the students of classes 9, 10, 11 and 12 in the field of Science, Maths, English and Computer.

LNJPIT, Chapra is proud to play its humble role in the wide network of institutions providing free education to the school students from rural background in the disciplines of Science, Mathematics, English and logical reasoning: Pahal. This initiative with its objective to inspire and educate the students has the far-reaching potential to contribute towards healthy nation building.

The faculty members of LNJPIT are regularly conducting classes consistently for the school students and providing hand holding for those in necessity in the evening sessions, thereby motivating them and creating aptitude and interest in the subjects. This initiative has the potential to shape the higher educational journey of the students, including those aiming to prepare for JEE and other competitive examinations.

LNJPIT, Chapra deems this initiative to have the capability to uniform the quality of school education by providing a strong academic foundation to the students from rural areas.





Students' Canvas

Article: Agriculture and Food in Bihar

Bihar, the third largest state in India has a rich and ling history in agriculture and food. The land of Bihar is fulfilling the agricultural needs of the country for the past several years. But it also has a wide list of problems and irregularities, which are ignored and have never been in the mainstream media. The farmers in Bihar majorly cultivate rice and wheet grains. The government, from past few years, has announced several new policies for the agriculture, but all those are never seen on ground.

As a result, the farmers keep struggling, and they never get an appropriate price for their crops. While other states like Punjab and Rajastan are advancing with new agricultural machines and techniques, Bihar has lacked not only in terms of pricing but in techniques for agricultural management. Looking at the future, the agricultural sectors of Bihar needs modern farming techniques.

The farmers in Bihar have faced numerous amount of challenges and some of the farmers have ended their lifedue to hunger. The state has a variety of food production, but the shortage of food is still a challenge. As the food grains need space to preserve it from getting wasted, the government needs to work on it. Also modern farming should be promoted by the government to increase the awareness among the farmers. This will help the agriculture and food sector to get a boost.

To conclude, agriculture and food are the pillers of economy in Bihar. There should not be any compromise in the growth of the sector. Literate people should also join hands with the government to help the farmers in modernizing their farm and boosting the production, so that they can produce grains in a large scale. This will not only help the state but also the country to be the second largest economy in the world.

Yash Kriti CSE, Ist Semester LNJPIT, Chapra

Students' Canvas

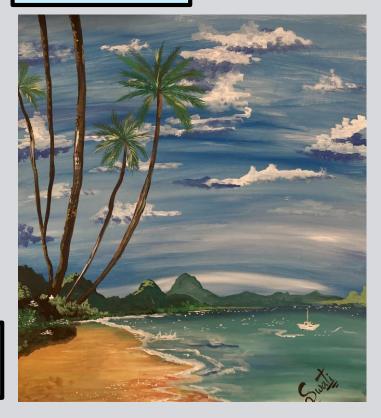
Paintings & Sketches



Srishti Shwadha Dept, of CSE LNJPIT, Chapra



Ritanshu Dept, of CSE LNJPIT, Chapra



Swati Kumari Dept, of CSE LNJPIT, Chapra

Publications

Physica Scripta



Improved power quality based PVDG system using different optimised MPPT controllers

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Keywords: power quality, THD, renewable energy, PV, MPPT

The characteristic curve of photovoltaic (PV) modules is nonlinear due to environmental influences The maximum quantity of energy can only be taken from the nonlinear angle of the solar system at one exact moment. The primary function of an MPPT (maximum power point tracking) controller a PV system is to extract maximum power point (MPP) from solar panels. In this paper, an enhanced MPPT approach using different optimization techniques is suggested for PV systems. The Fuzzy log controller (FLC), Whale Optimization Algorithm(WOA), and Modified Grey Wolf Optimization algorithm (MGWO) are presented for the MPPT controller. Among all methods, the MGWO technique is one of the best at determining the MPP in solar systems because of its quick response an low fluctuations. Accurate training data is one of the biggest challenges in developing an effective MGWO. The irradiance and temperature are taken into consideration as input variables, and the optimal voltages are optimized as an output variable using the MGWO algorithm. Matlab/Simulink simulations are run to verify the suggested model's suggested tracking effectiveness. To ensure accurate results, simulations are run under various climatic conditions. The simulation result shows that the proposed method operates correctly in a variety of climatic conditions efficiently.

1. Introduction

Due to overexploitation, fossil fuels like hydrocarbons are disappearing quickly. Traditional fuels pollute huge amounts, producing global warming, ozone depletion, and climatic disruption. NASA reports that Arctic icebergs are melting at a pace of 9% per decade. The thickness of Artic Ice has decreased to 60% since the 196%The US CENTER FOR ATMOSPHERIC RESEARCH also predicts that the Artic will be ice-free by 2040 and levels would increase by 10 to 23 inches by 2100 if current trends continue. To address global warming and pollution, the world is turning to non-conventional energy sources like wind, solar, tidal, and goothermal ener to meet global energy needs of old energy solar energy is one of the finest non-conventional energy sources is since it is noise-free, clean, eco-friendly, long-lasting, and cost-effective. Renewable sources of energy can accommodate wisel the energy needs. According to OUR-WORLD IN DATA run by OXFORD-UNIVERSITY, the total capacity σ installed PV plants across the globe is about 843 GW at the end of 2021 and according to MERCOM, the expected capacity of PV is $3000~\mathrm{GW}$ by $2030~\mathrm{across}$ the whole globe. Generally, Solar energy technology can hathree categories:

- 1. PV technology
- 3. Concentrated solar power

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ORIGINAL PAPER



Single DC-link-based 5-level MLI topology for renewable and grid applications with fewer switches

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This article describes a 5-level single DC source multilevel inverter (SDS-MLI) with fewer components and optimum effi-This article describes a 5-level single DC source multilevel inverter (SDS-MLI) with fewer components and optimum efficiency, Multiple DC source MLI topologies are presently deemed unsuitable for a range of applications, such as renewable energy (RE) conversion systems and grid applications, while single DC source MLI topologies are more suitable. Existing MLI circuits have more active/passive components, but the SDS-MLI design employs a level-doubling network, requires fewer components, and reduces the DC-link voltage for grid applications. The SDS-MLI uses one capacitor visa wireless, and a DC supply. A primary control method enforces a well-known phase disposition carrier arrangement to actualize the presented configuration. Existing systems are evaluated based on the number of active and passive components, heir efficiency, capacitor voltage, and voltage stress. In comparison to existing topologies, SDS-MLI has fewer components, a lower capacitor voltage, and less TSVs to achieve an efficiency of 98.66%. MATLAB/Simulink and experimental setups are used to verify the SDS-MLI laveliteure. On the basis of experimental setup as insulation, the number of load voltage and load. to verify the SDS-MLI architecture. On the basis of experimental setup and simulation, the number of load voltage and load current waveforms under various situations such as variable load, varied input supply, different frequencies, and different modulation indexes are shown.

Keywords MLI · Multilevel converter · TSV · 5-level inverter · PD-PWM technique · Switched capacitor (SC)

1 Introduction

According to the most recent energy statistics, more power must be generated via the use of renewable energies (REs) in order to reduce the environmental harm caused by conventional energy production. Before it can be transmitted to the grid as high-quality AC power, the energy produced by REs must undergo buck/boost conversion phases. Therefore, efficient power converters are required. In single-stage grid-connected systems inverters play a major role; due to the

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high harmonic content present in the 2-level inverter's output, large filters are required to filter out harmonic in several appli-cations like PV, grid-linked applications, and electric vehicles [1]. These applications utilize MLI technology because it generates higher power quality and has less harmonics. Due to the wide range of medium-voltage applications, efficient power electronic devices are employed [1]. Under certain conditions, MLI has the capability of raising the output voltage from low-voltage DC sources. Because of these MLI capabilities, it is possible to attain higher power levels without having to make a commensurate increase in the switch rating. In the late 1960s, the concept of a multilevel step wave provided the impetus for the creation of MLI technology that uses both cascaded H-bridge (CHB) and flying capacitors (FC) [2–5]. Despite the fact that these topologies were proposed for low-power applications, in 1970 the diode clamped converter (DCC) was introduced. For medium-voltage applications, the neutral point clamped (NPC) and the CHB were proposed in the 1980s [6]. The FC inverter (FCI) was modified in 1990 to enable its use in industries demanding medium voltage and high power [7]. CHB is the only documented conventional MLI topology with excellent modularity and

Patents



Patentee: Anurag Tiwari

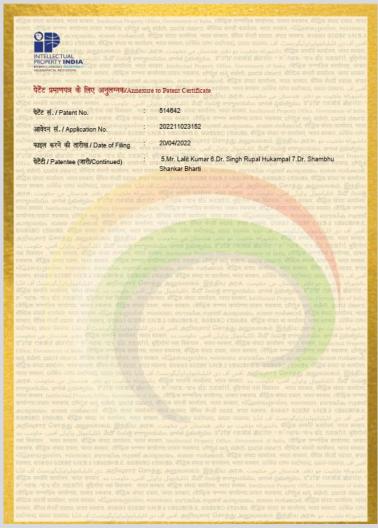
Patent Granted for: A Switched Capacitor Based Single SourceDouble Stage Multilevel Inverter

Assistant Professor, Dept. Electrical & Electronics Engineering

LNJPIT, Chapra

Patents





Patentee: Shambhu Shankar Bharti

Patent Granted for: Monitoring Shoplifting Activity in Megastores through AI Based

Surveillance System and Method

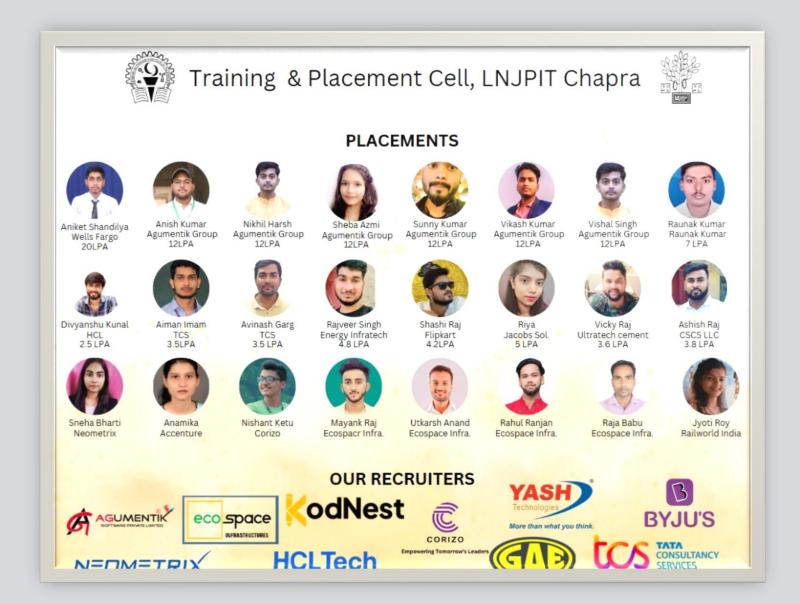
Assistant Professor, Dept. of Computer Science and Engineering

LNJPIT, Chapra

GATE Qualified Students, 2024



Placements, 2024



Sports Winners



LNJPIT is happy to inform that our students exhibited great performance, winning several prizes in the Umang 24, the state level sports event conducted at Patna.



LNJPIT cricket team receiving the winner's trophy from Sri. Udayan Mishra, Director, DSTTE, Bihar, at Umang 2024.

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LNJPIT in News





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