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SUSTAINABLE TECHNOLOGY

NATIONAL BOARD OF ACCREDITATION
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YANTRAM

BI-ANNUAL E-MAGAZINE OF
MECHANICAL ENGINEERING DEPARTMENT

Tech Meets Tradition: The Role of AI in Preserving Order at Mahakumbha

www.upluniversity.ac.in

CONTENT

Vision & mission

MECHANICAL ENGINEERING DEPARTMENT

VISION:

To play an active role in producing globally competent mechanical engineers to make technologically proficient, innovative, enthusiastic, future leaders and responsible citizen possessing human values to contribute significantly to wards meeting global challenges.

MISSION:

To provide sound basic knowledge of basic principles of engineering by imparting theoretical and practical understanding of various aspects of Mechanical Engineering.

1. To explore Institute Industry linkage for fostering professional skill of students enabling them to become industry ready.

2. To bring in good governance ,transparent evaluation system and professional standards for ethical and human values in students.

3.To design and organise training programme to offer wide choice to industry and academia for their skills enhancement.

4.To design and organise training programme to offer wide choice to industry and academia for their skills enhancement.

5.To promote faculty and staff members to become resourceful, innovative and through various development programmes.

6. To serve society through innovation and excellence.

YANTRAM

VISION:

To be a preeminent Instrument that depicts technical and nontechnical matters among the department.

MISSION:

To be the great resource for the quality reporting and analysis of departmental stuffs.

HOD'S MESSAGE

In this edition of our departmental magazine, I am excited to address two intriguing themes: Artificial Intelligence (AI) and the Mahakumbh Mela. This unique combination underscores the intersection of technological advancement and cultural heritage, highlighting the significant role of engineering in shaping both the present and future.

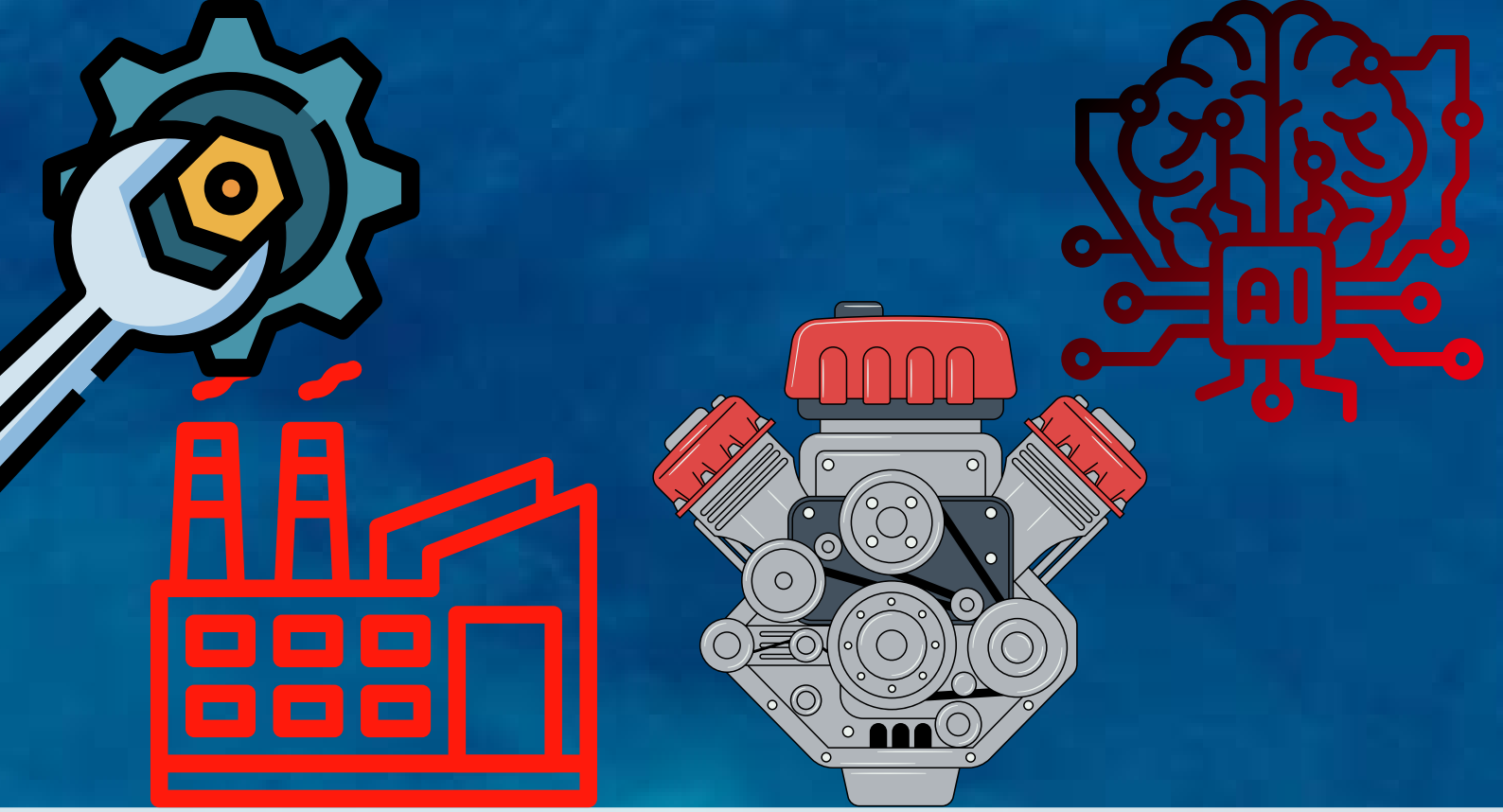
AI has evolved from science fiction to a transformative force in various industries, and for us as mechanical engineers.This theme aligns with our department's mission to prepare students not only with core engineering skills but also with interdisciplinary knowledge to thrive in the age of intelligent automation. Our goal is to equip students to contribute to both industries and large-scale societal events, such as the Mahakumbh Mela, ensuring efficiency, sustainability, and safety.

The Mahakumbh Mela serves as a remarkable example of large-scale organization and logistics, where engineering principles play a key role in infrastructure, crowd management, sanitation, and safety. AI's potential in data analytics and real-time monitoring could revolutionize event management on this scale.

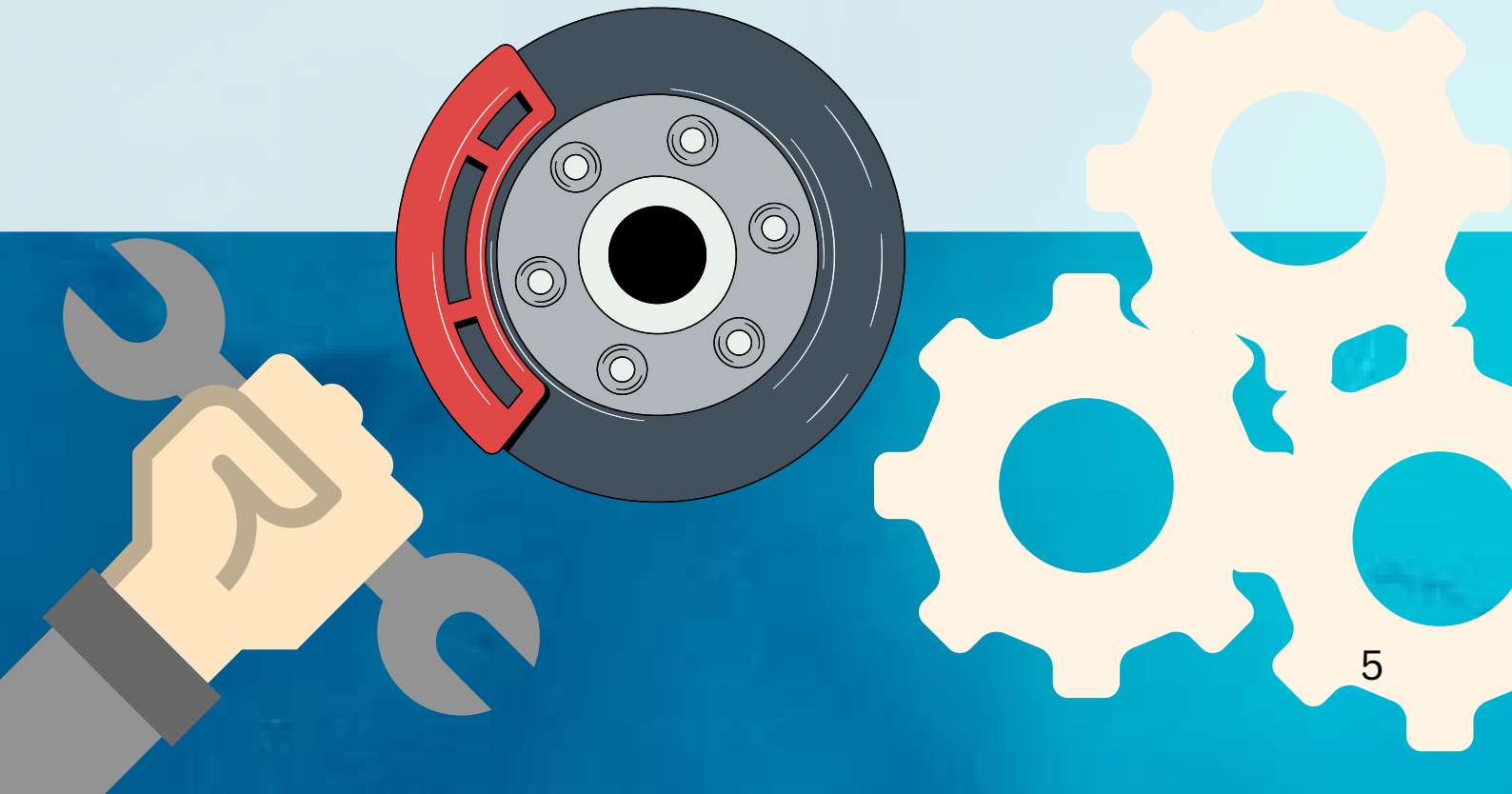
Our faculty and students are engaged in innovative projects that integrate AI with mechanical engineering, advancing intelligent systems, energy optimization, and manufacturing efficiency. These initiatives not only enhance technical expertise but also foster creativity, problem-solving, and a forward-thinking approach.

As you explore this edition, I encourage you to consider how AI and engineering can work together to preserve traditions and shape the future, inspiring innovation and celebrating our heritage.

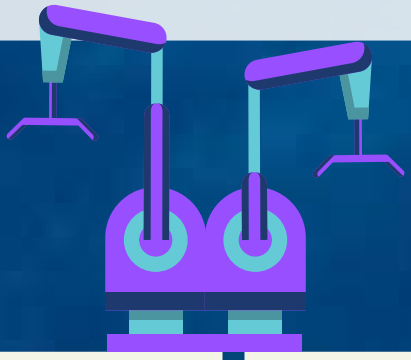
Mr. Samir D. Jariwala,
Head, Department of Mechanical Engineering,
Shroff S. R. Rotary Institute of Chemical Technology,
UPL University of Sustainable Technology.



DEPARTMENTAL Activities



INDUSTRIAL VISIT

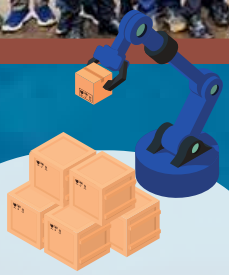


Sr no.	Industry name	Date	Semester
1	Devikrupa Engineering, Ankleshwar	29/08/24	All BE & DE students
2	Rangam Industries	06/09/24	All DE students.
3	Sterlite Organics, Panoli	14/10/24	All BE & DE students.

INDUSTRY VISIT

On 29/08/2024 at Devikrupa Engineering, Ankleshwar.

On 06/09/2024 at Rangam Industries, Ankleshwar.

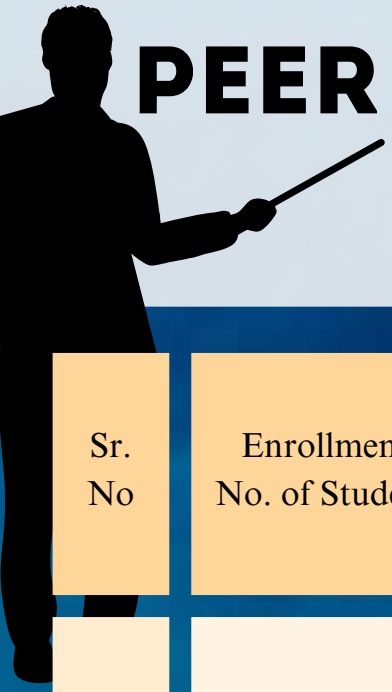


On 14/10/2024, At Sterlite Organics,Panoli.

EXPERT LECTURES

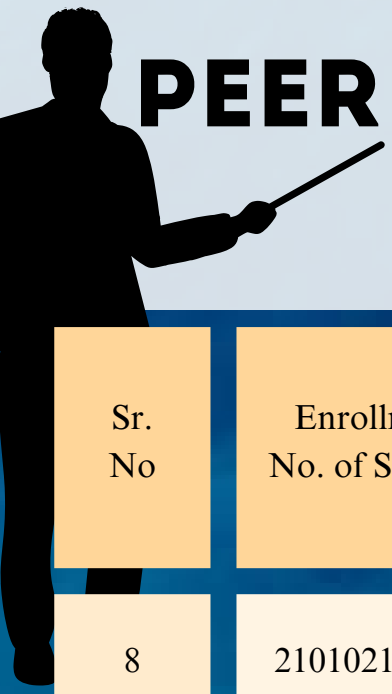
SR NO	INDUSTRY NAME	NAME OF EXPERT	ADDRESS	SUBJECT
1	A.K Transmission Industries, Vadodara	Mr. Abhishek Rana	Vadodara	Mechanical Power Transmission
2	Gujarat Water Supply & Sewerage Board	Mr. Dhaval Shah	Vadodara	Design of water supply scheme
3	Hem Marketing Services	Mr. Jaimeen Shah	Vadodara	Industrial Engineering & Maintenance
4	Enviro Technology Ltd	Mr. Nimesh Patel	Ankleshwar	Effluent Treatment Plant and Maintenance
5	Sardar Patel Institute of Public Administration	Mr. Sonil Thakkar	Vadodara	Widen your career horizon with public service
6	BEIL Research and Consultancy Pvt Ltd	Mr. Tejas Chauhan	Ankleshwar	Bio-gas generation and its need

PEER LEARNING INITIATIVE

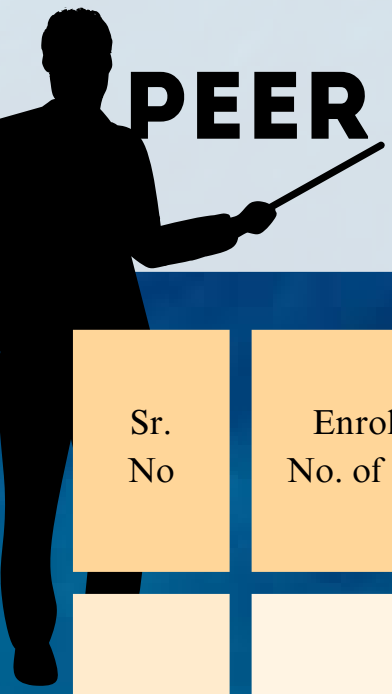


Sr. No	Enrollment No. of Student	Name of student	Date of PLI	PLI Subject Name	Name of Concerned Faculty
1	220102106003	Patel Devansh	23/08/24	EM	Mr. Chetan R. Patel
2	210102106001	Anjeet Kushwaha	30/08/24	EM	Mr. Chetan R. Patel
3	220101103013	Niral Desai	14/08/24	CSE	Ms. Foram Chauhan
4	210102106001	Anjeet Kushwaha	04/09/24	RARE	Mr. Hemant Gupta
5	220102106003	Patel Devansh	04/09/24	CSE	Dr. Vinitha Vakkayil
6	220102105001	Giracch Bhavika	18/09/24	CSE	Dr. Vinitha Vakkayil
7	210102106001	Anjeet Kushwaha	05/09/24	TOM	Mr. Girish B.

PEER LEARNING INITIATIVE



Sr. No	Enrollment No. of Student	Name of student	Date of PLI	PLI Subject Name	Name of Concerned Faculty
8	210102106005	Khurkutiya Vilash	05/09/24	IIE&M	Mr. Girish B.
9	210102106001	Anjeet Kushwaha	08/10/24	KTOM	Mr. Ankit Solanki
10	220102106003	Patel Devansh	11/11/24	KTOM	Mr. Ankit Solanki
11	210102106001	Anjeet Kushwaha	14/10/24	Industrial Equipments Maintenance	Mr. Girish B.
12	220102306001	Choksi Jay	14/10/24	TOM&M	Mr. Girish B.
13	210102106001	Anjeet Kushwaha	15/10/24	TOM&M	Mr. Girish B.
14	210102106005	Khurkutiya Vilash	15/10/24	TOM&M	Mr. Girish B.



PEER LEARNING INITIATIVE

Sr. No	Enrollment No. of Student	Name of student	Date of PLI	PLI Subject Name	Name of Concerned Faculty
15	210102106006	Patel Hiren	16/10/24	Heat Transfer	Mr. Gunjan Kumar
16	210102106005	Khurkutiya Vilash	05/09/24	ET	Mr. Himanshu Damor
17	220102306001	Choksi Jay	11/11/24	Material Science & Engineering	Mr. Samik Bhatt
18	210102106005	Khurkutiya Vilash	30/09/24	RARE	Mr. Hemant Gupta
19	220102306001	Choksi Jay	10/10/24	RARE	Mr. Hemant Gupta
20	220102306001	Choksi Jay	06/11/24	MD-1	Mr. Satish Verma
21	220102306001	Choksi Jay	11/11/24	MP	Ms. Sandhya Shetty

DISSERTATION REVIEW

The Dissertation Review 3 for ME Mechanical (Thermal) Engineering Semester-3 students was successfully conducted on 08/11/2024. The review session aimed to assess the progress of students' research work, provide constructive feedback, and guide them toward achieving their dissertation objectives. Faculty members evaluated the presentations, offering valuable insights to refine their methodologies and ensure alignment with academic standards.

PARENT TEACHER MEETING

The Parents-Teacher Meeting for BE 3rd, 5th, and 7th semester students was successfully conducted on October 5th, 2024. Teachers shared detailed reports on students' academic performance, highlighting strengths, weaknesses, and areas of improvement. Parents actively participated, discussing their child's progress and seeking guidance on supporting their academic growth. The meeting promoted collaborative efforts between parents and teachers.

PARENT TEACHER MEETING

The Parents-Teacher Meeting for Diploma Semester-3 students was successfully conducted on 05/09/2024. The session facilitated meaningful interactions between parents and faculty, focusing on students' academic progress, attendance, and overall performance. Parents appreciated the personalized feedback and guidance provided by the teachers, fostering a collaborative approach to support the students' educational and personal development.

ONE TO ONE MEETING

"On October 4, 2024, B.E Sem-3, Sem-5, and Sem-7 students had an interactive session with Dr. Alok Gautam. Students discussed their academic and research interests, seeking guidance and gaining insights from Dr. Gautam's expertise. The meeting fostered a positive learning experience, encouraging students to explore new ideas and perspectives."

SCI-TECHNOVATION 2024

"Sci-Technovation 2024 witnessed a thrilling showcase of innovation and technical expertise. On September 27, a captivating Workshop Man event challenged participants to think creatively and develop novel solutions. The following day, September 28, the Junkyard Wars competition pushed students to design and build innovative machines from discarded materials, demonstrating their technical prowess and environmental consciousness."

2ND CONVOCATION 2024

2ND CONVOCATION 2024

Teachwr's day celebration

""On September 5, 2024, college students enthusiastically celebrated Teachers' Day, paying tribute to their professors' tireless efforts. The festivities began with a formal ceremony, where students presented heartfelt speeches, songs, and skits. They also gifted personalized tokens of appreciation to their mentors. The college campus was filled with joy and gratitude, acknowledging the profound impact teachers have on shaping young minds."

Engineer's Day

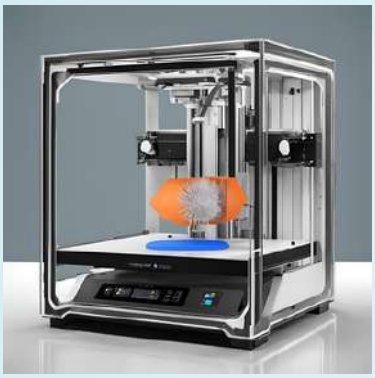
The Vishwakarma Pooja, dedicated to Lord Vishwakarma, the divine architect and craftsman, was celebrated on 18th September 2024 at the Mechanical Workshop. This auspicious occasion honored the skills and hard work of artisans, engineers, and craftsmen. The workshop was decorated with flowers and offerings, and prayers were offered to seek blessings for safety, prosperity, and success in all mechanical endeavors. The event highlighted the importance of craftsmanship and innovation in the field of engineering.

Designing MechVision Systems: Challenges and Best Practices

3D printing, also known as additive manufacturing, has become a cornerstone of modern manufacturing, enabling rapid prototyping and custom production. By integrating mechatronics—a multidisciplinary field combining mechanical engineering, electronics, and computing—3D printing is entering a new era of precision, efficiency, and versatility.

Advanced Mechatronic Design in 3D Printers

Modern 3D printers rely on mechatronic systems for high-speed motion control, precision positioning, and real-time feedback. Advanced stepper motors, servo systems, and high-resolution sensors ensure accurate layer deposition, critical for applications requiring micron-level precision, such as medical implants or aerospace components.



Adaptive Control Systems

Mechatronics enables adaptive control in 3D printing, where sensors monitor temperature, material flow, and build quality during printing. These systems make real-time adjustments to parameters like extrusion speed or cooling rates, reducing errors and material wastage.

Innovations in Multi-Material Printing

With the integration of mechatronic principles, multi-material and hybrid 3D printing systems are becoming more feasible. These systems can seamlessly switch between materials, such as metals, polymers, and ceramics, enabling complex and functional parts to be produced in a single process.

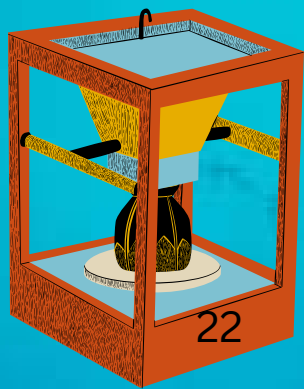
Scalability and Automation

Mechatronics also plays a crucial role in scaling 3D printing for industrial applications. Automated processes, such as robotic arms for part handling or integrated conveyor systems, streamline production workflows, making 3D printing viable for mass production.

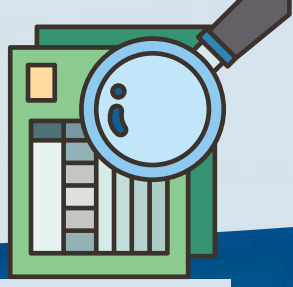
Future Possibilities

The synergy between mechatronics and 3D printing continues to expand possibilities, from bio-printing human tissues to fabricating structures in space. By addressing challenges like speed, scalability, and material diversity, mechatronics-driven 3D printing is poised to revolutionize how we design and manufacture products, pushing the boundaries of innovation.

Tailor Om
B.E sem 5



TECHNICAL ARTICLE



Dual Axis Solar Tracking System: Enhancing Solar Efficiency

Solar energy has emerged as a cornerstone of sustainable energy solutions. Among the various innovations in this field, the dual-axis solar tracking system stands out as a significant advancement. This technology optimizes the harnessing of solar energy by ensuring that solar panels remain perfectly aligned with the sun's position throughout the day and year.

What is a Dual Axis Solar Tracking System?

A dual-axis solar tracking system is a mechanism that allows solar panels to move along two axes: horizontal and vertical. This system enables the panels to track the sun's movement across the sky more precisely compared to single-axis trackers. By following both the azimuth (east-west) and elevation (up-down) angles of the sun, dual-axis trackers ensure optimal solar exposure.

Working Principle

The system uses sensors and motors to adjust the orientation of solar panels in real-time. Light sensors detect the sun's position, and control systems send signals to actuators that move the panels to the optimal angle. Advanced models incorporate GPS-based algorithms for even greater accuracy, especially in regions with fluctuating weather conditions.

Advantages

Dual-axis trackers offer numerous advantages, making them a valuable asset in solar energy systems. They enhance energy output by increasing energy capture by 25-40% compared to fixed-tilt systems, ensuring maximum efficiency. Their adaptability allows them to perform effectively in areas with diverse geographical and climatic conditions. Additionally, by maintaining optimal angles throughout the day, they optimize space utilization and reduce the footprint required to achieve a given energy output.

Applications

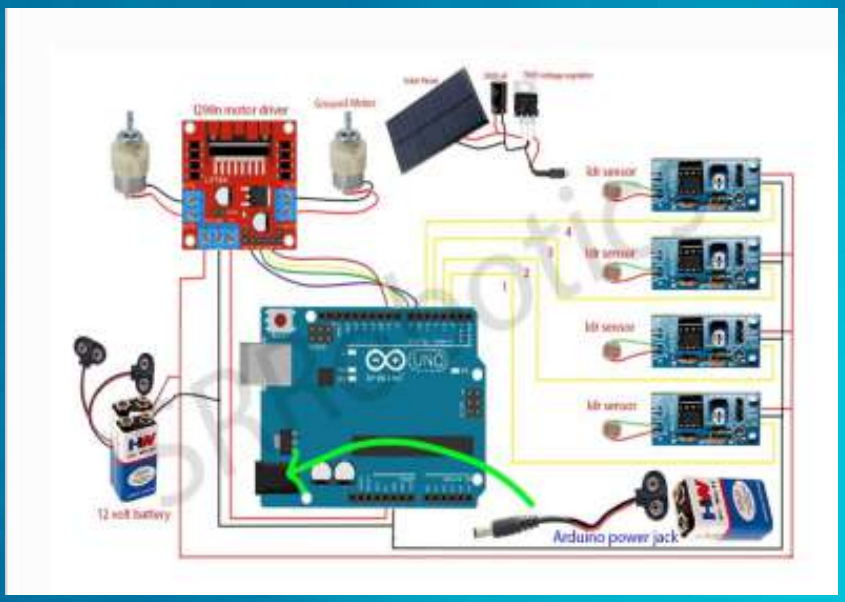
Dual-axis systems are widely utilized in utility-scale solar farms to maximize returns on investment, as their precision tracking ensures higher energy yields. In agrivoltaics, they support integrated farming and energy production by minimizing shading over crops. Additionally, their high efficiency makes them particularly valuable in remote and off-grid areas, where space and energy demands are critical.

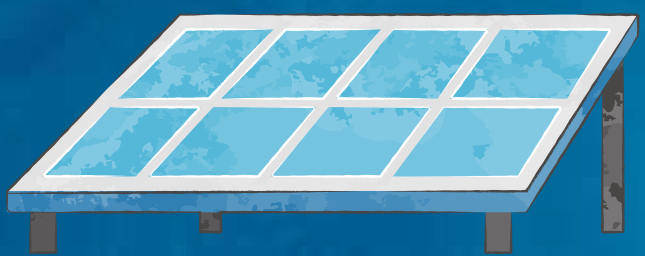
Challenges and Future Prospects

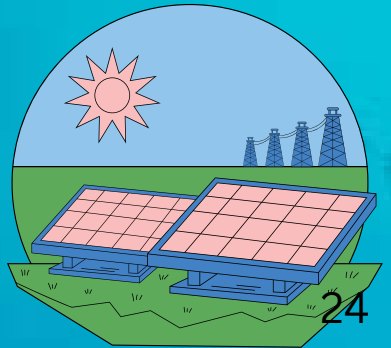
Despite their benefits, dual-axis trackers involve higher installation and maintenance costs. However, ongoing advancements in materials and automation are reducing these barriers. With increasing adoption, dual-axis systems are expected to play a pivotal role in achieving global renewable energy targets.

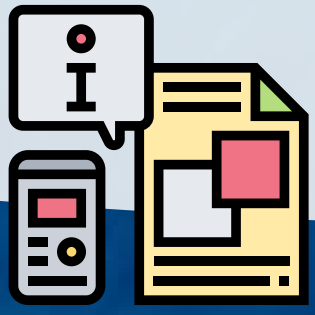
In conclusion, the dual-axis solar tracking system exemplifies how technology can drive efficiency and sustainability in renewable energy, paving the way for a greener future.

Choksi Jay
B.E Sem 8









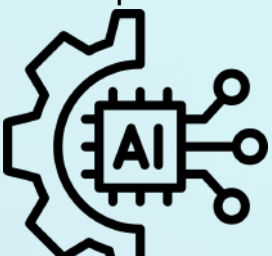
TECHNICAL ARTICLE

Introduction to MechVision: The Intersection of Mechanical Engineering and Computer Vision

MechVision is an emerging interdisciplinary field that combines mechanical engineering with computer vision technologies to create more efficient, intelligent, and adaptable systems. This convergence brings together the precision and control of mechanical systems with the power of image processing, pattern recognition, and decision-making capabilities from computer vision.

Mechanical engineering traditionally focuses on the design, analysis, and manufacturing of mechanical systems, such as robots, machinery, and vehicles. Meanwhile, computer vision involves the use of cameras, sensors, and algorithms to interpret and analyze visual information from the environment. By merging these two domains, MechVision enables machines to not only move with high precision but also perceive and react to their surroundings in real time.

One of the key applications of MechVision is in robotics. Robots equipped with vision systems can better understand their environment, leading to more effective interaction with objects and humans. For instance, in industrial automation, MechVision can guide robotic arms to pick and place items on an assembly line, adjusting for slight variations in object position, orientation, or defects. The integration of mechanical actuators with real-time visual feedback allows these robots to perform complex tasks with greater accuracy and speed than traditional methods.



In the automotive industry, MechVision is a critical component of autonomous vehicles. These vehicles rely on computer vision algorithms to process data from cameras, LiDAR, and other sensors to detect obstacles, read road signs, and make navigation decisions. The mechanical systems in the vehicle respond to this data, adjusting speed, direction, and braking to ensure safe operation. This synergy between vision and motion is essential for autonomous driving, enabling vehicles to navigate complex, dynamic environments without human intervention.

MechVision also has significant applications in healthcare, particularly in medical robotics. Surgeons use robotic systems equipped with vision capabilities to perform minimally invasive surgeries with unprecedented precision. The vision system provides real-time feedback, allowing for delicate operations that are not possible with traditional manual techniques.

The future of MechVision holds immense potential. As advancements in artificial intelligence and machine learning continue to evolve, MechVision systems will become even more adaptive and capable of performing increasingly complex tasks across a range of industries, from manufacturing to healthcare and beyond.

Piyush sharma
B.E Sem 5

REMEMBERING THE LEGACY

RATAN TATA

"TITAN'S LEGACY IN INDUSTRY AND HUMANITY"

Ratan Naval Tata, one of India's most revered industrialists, has left an indelible mark on the global business landscape. Born on December 28, 1937, in Bombay (now Mumbai), India, Ratan Tata is the scion of the illustrious Tata family, known for their contributions to India's industrial and economic development. As the chairman of Tata Sons, the holding company of the Tata Group, from 1991 to 2012 and again as interim chairman in 2016, Ratan Tata spearheaded initiatives that reshaped industries, particularly the automotive sector. Raised by his grandmother after his parents separated when he was just ten years old, Ratan Tata attended the Campion School in Mumbai, Bishop Cotton School in Shimla, and later, Cathedral and John Connon School in Mumbai. He graduated from Cornell University in 1962 with a degree in architecture and structural engineering. After completing the Advanced Management Program at Harvard Business School in 1975, he returned to India to join the Tata Group. Ratan Tata began his career with the Tata Group in 1961, working on the shop floor of Tata Steel in Jamshedpur. His early exposure to the operational challenges of the manufacturing industry laid the foundation for his pragmatic leadership style. In 1991, he succeeded J.R.D. Tata as chairman of Tata Sons. Under his stewardship, the Tata Group underwent a major transformation, becoming a global powerhouse.

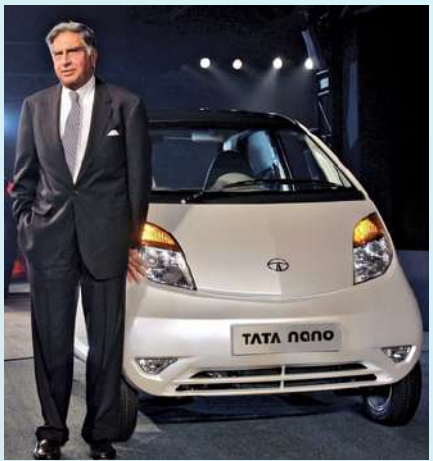
TATA

He recognized early on the potential of the Indian automotive market and set out to revolutionize it with innovative and affordable solutions. In 1998, he unveiled the Tata Indica, the first passenger car designed and manufactured entirely in India. Despite initial skepticism and criticism, the Indica became a symbol of India's engineering and manufacturing capabilities. It was a bold step that demonstrated Ratan Tata's commitment to self-reliance and his belief in Indian talent. Perhaps the most revolutionary project under his leadership was the Tata Nano. Introduced in 2008, the Nano was envisioned as a "people's car"—a safe, affordable, and fuel-efficient vehicle priced at just INR 1 lakh Though the Nano faced challenges in achieving widespread commercial success, its impact on the automotive world was profound. It showcased Ratan Tata's ability to dream big and redefine possibilities in engineering and design.

In 2008, under his leadership, Tata Motors acquired the iconic British luxury car brands Jaguar and Land Rover from Ford Motor Company. The acquisition, initially met with skepticism, turned out to be a masterstroke. Ratan Tata's strategic vision and focus on innovation helped turn around JLR, making it one of the most profitable divisions of Tata Motors. This move catapulted Tata Motors onto the global stage, showcasing Indian enterprise's capability to compete with international giants. Ratan Tata also emphasized the importance of sustainability in the automotive sector.

Ratan Tata's achievements have earned him numerous accolades, including the Padma Bhushan (2000) and Padma Vibhushan (2008), two of India's highest civilian honors. He has also been recognized internationally for his contributions to business and philanthropy. His journey is a testament to the power of vision, resilience, and leadership. His pioneering efforts in the car industry not only transformed Tata Motors but also positioned India as a significant player in the global automotive market. As an industrialist, philanthropist, and visionary, Ratan Tata's legacy continues to inspire and influence generations worldwide.

Hiren Patel
B.E Sem 8.



MAHAKUMBH

કુંભ મેળો: વિશ્વાસ, આધ્યાત્મિકતા અને પરંપરાનો દૈવી સંગમ

હિંદુઓ માને છે કે કુંભ મેળાની ઉત્પત્તિ અનાદિ કાળમાં થઈ હતી અને હિંદુ પુરાણોમાં સમુદ્ર મંથન (સમુદ્ર મંથન) વિશે પ્રમાણિત છે.

હિંદુ પૌરાણિક કથાઓ સારા અને અનિષ્ટની શક્તિઓ દ્વારા સૃષ્ટિના સમુદ્રને મંથન કર્યા પછી "અમૃતના પોટ (અમરત્વનું અમૃત)" ની રચનાનું વર્ણન કરે છે. અમરત્વ મેળવવા માટે દેવો અને દાનવો અમૃતના આ વાસણ, "કુંભા" પર લડે છે. દંતકથાના પછીના દિવસના વિસ્તરણમાં, વાસણ ચાર જગ્યાએ ઢોળાય છે, અને તે ચાર કુંભ મેળાઓનું મૂળ છે. વાર્તા બદલાય છે, જેમાં કેટલાક વિષ્ણુને મોહિની અવતાર કહે છે, તો કેટલાક ધનવંતરી અથવા ગરુડ અથવા ઇન્દ્રને વાસણ ફેલાવતા કહે છે.

કુંભ મેળો એ એક મહત્વપૂર્ણ હિંદુ યાત્રાધામ છે, જે લગભગ દર 6 અને 12 વર્ષે ઉજવવામાં આવે છે, જે ગુરુની આંશિક અથવા સંપૂર્ણ ક્રાંતિ સાથે સંકળાયેલ છે અને સૌથી મોટા માનવ સભાનું પ્રતિનિધિત્વ કરે છે, વિશ્વમાં.

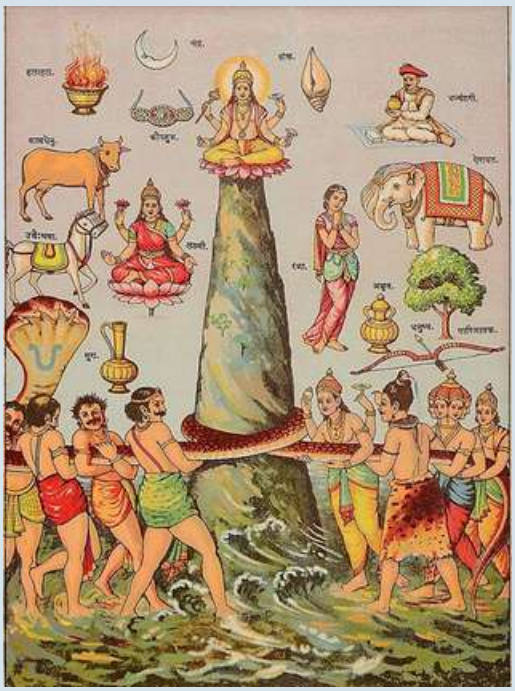
પરંપરાગત રીતે, ચાર મુખ્ય તીર્થસ્થળો પર નદી કિનારે મેળાઓ કુંભ મેળાઓ તરીકે ઓળખાય છે: પ્રયાગરાજ (ગંગા-યમુના-સરસ્વતી નદીઓનો સંગમ), હરિદ્વાર (ગંગા),નાસિક (ગોદાવરી), અને ઉજ્જૈન (શિપ્રા). ચારેય સ્થળો નદીઓના કિનારે સ્થિત છે - હરિદ્વારમાં ગંગા છે, પ્રયાગરાજ ગંગા, યમુના અને પૌરાણિક સરસ્વતીનો સંગમ અથવા મિલન સ્થળ છે, ઉજ્જૈનમાં ક્ષિપ્રા છે, અને નાસિક-ત્ર્યંબકેશ્વર ગોદાવરી છે.

જ્યારે હિંદુ ધર્મમાં ગંગાનું મહત્વ જાણીતું છે, ત્યારે માનવામાં આવે છે કે ક્ષિપ્રા વિષ્ણુના હૃદયમાંથી તેમના વરાહ (સૂવર) અવતારમાં ઉભરી આવી હતી. ગોદાવરીને ઘણીવાર દક્ષિણ (દક્ષિણ)ની ગંગા કહેવામાં આવે છે.

એવું માનવામાં આવે છે કે કુંભ દરમિયાન આ નદીઓમાં ડૂબકી મારવાથી, સ્વર્ગીય સંસ્થાઓના ચોક્કસ સંરેખણ વચ્ચે, વ્યક્તિના પાપો ધોવાઇ જાય છે અને પુણ્ય (આધ્યાત્મિક યોગ્યતા) પ્રાપ્ત થાય છે.

કુંભ મેળાઓ એ સ્થળ પણ છે જ્યાં સાધુઓ અને અન્ય પવિત્ર પુરુષો ભેગા થાય છે - સાધુ અખાડાઓ ખૂબ જ ઉત્સુકતાને આકર્ષે છે - અને નિયમિત લોકો તેમને મળી શકે છે અને તેમની પાસેથી શીખી શકે છે.

પ્રથમ કુંભ મેળાનું આયોજન બ્રિટિશ દેખરેખ હેઠળ 1870માં કરવામાં આવ્યું હતું. કેટલાક નિરીક્ષકોએ કુંભ મેળા અને અગાઉના સમયમાં બનતી અન્ય ઘટનાઓ વચ્ચે સમાનતા શોધી કાઢી છે. જ્યારે અંગ્રેજોએ કુંભ મેળો શરૂ કર્યો ન હતો, ત્યારે તેઓએ ભારતમાં તેમના શાસન દરમિયાન તેના સંગઠનને ઔપચારિક બનાવવામાં ભૂમિકા ભજવી હતી.



જ્યારે હિંદુ ધર્મમાં ગંગાનું મહત્વ જાણીતું છે, ત્યારે માનવામાં આવે છે કે ક્ષિપ્રા વિષ્ણુના હૃદયમાંથી તેમના વરાહ (સૂવર) અવતારમાં ઉભરી આવી હતી. ગોદાવરીને ઘણીવાર દક્ષિણ (દક્ષિણ)ની ગંગા કહેવામાં આવે છે.

એવું માનવામાં આવે છે કે કુંભ દરમિયાન આ નદીઓમાં ડૂબકી મારવાથી, સ્વર્ગીય સંસ્થાઓના ચોક્કસ સંરેખણ વચ્ચે, વ્યક્તિના પાપો ધોવાઇ જાય છે અને પુણ્ય (આધ્યાત્મિક યોગ્યતા) પ્રાપ્ત થાય છે.

કુંભ મેળાઓ એ સ્થળ પણ છે જ્યાં સાધુઓ અને અન્ય પવિત્ર પુરુષો ભેગા થાય છે - સાધુ અખાડાઓ ખૂબ જ ઉત્સુકતાને આકર્ષે છે - અને નિયમિત લોકો તેમને મળી શકે છે અને તેમની પાસેથી શીખી શકે છે.

પ્રથમ કુંભ મેળાનું આયોજન બ્રિટિશ દેખરેખ હેઠળ 1870માં કરવામાં આવ્યું હતું. કેટલાક નિરીક્ષકોએ કુંભ મેળા અને અગાઉના સમયમાં બનતી અન્ય ઘટનાઓ વચ્ચે સમાનતા શોધી કાઢી છે. જ્યારે અંગ્રેજોએ કુંભ મેળો શરૂ કર્યો ન હતો, ત્યારે તેઓએ ભારતમાં તેમના શાસન દરમિયાન તેના સંગઠનને ઔપચારિક બનાવવામાં ભૂમિકા ભજવી હતી.

કુંભ મેળાની જગ્યા કેવી રીતે નક્કી કરવામાં આવે છે?

આ જ્યોતિષીય ગણતરીઓ પર આધાર રાખે છે. કુંભ મેળામાં 12-વર્ષના અંતરનું બીજું કારણ એ હકીકત દ્વારા સમજાવવામાં આવ્યું છે કે ગુરુ ગ્રહને સૂર્યની ફરતે પરિક્રમા પૂર્ણ કરવામાં 12 વર્ષનો સમય લાગે છે.

જ્યારે ગુરુ કુંભ અથવા કુંભ રાશિમાં હોય છે (જેનું પ્રતીક જળ વાહક છે), અને સૂર્ય અને ચંદ્ર અનુક્રમે મેષ અને ધનુ રાશિમાં હોય છે, ત્યારે કુંભ હરિદ્વારમાં યોજાય છે.

જ્યારે ગુરુ વૃષભ રાશિમાં હોય છે, અને સૂર્ય અને ચંદ્ર મકર અથવા મકરમાં હોય છે (આમ, મકર સંક્રાંતિ પણ આ સમયગાળામાં હોય છે) કુંભ પ્રયાગમાં યોજાય છે.

જ્યારે ગુરુ સિંહ અથવા સિંહમાં હોય છે, અને સૂર્ય અને ચંદ્ર કર્કમાં હોય છે, ત્યારે કુંભ નાસિક અને ત્ર્યંબકેશ્વરમાં યોજાય છે, તેથી તેને સિંહસ્થ કુંભ પણ કહેવામાં આવે છે.

કુંભ મેળાના પ્રકાર:

(i) મહા કુંભ:

દર 144 વર્ષે એકવાર થાય છે, જે તેને સૌથી મોટો અને સૌથી મહત્વપૂર્ણ કુંભ મેળો બનાવે છે.પ્રયાગરાજમાં મહા કુંભ 2025 એ આધ્યાત્મિક મહત્વથી ભરપૂર અપવાદરૂપે દુર્લભ ઘટના છે.

(ii) પૂર્ણ કુંભ:

દર 12 વર્ષે થાય છે. તે ચાર પવિત્ર સ્થાનોમાંથી એક પર યોજાય છે: પ્રયાગરાજ, હરિદ્વાર, નાસિક અથવા ઉજ્જૈન.

(iii) અર્ધ કુંભ:

તે દર 6 વર્ષે પ્રયાગરાજ અથવા હરિદ્વારમાં થાય છે.

(iv) માઘ મેળો:

"છોટા કુંભ" તરીકે ઓળખાય છે, આ નાના પાયે વાર્ષિક કાર્યક્રમ જાન્યુઆરી-ફેબ્રુઆરી દરમિયાન પ્રયાગરાજમાં થાય છે.

न कर्मणा न प्रजाया धनेन
त्यागेनैके अमृतत्वमानशुः।
परेण नाकं निहितं गुलायां
विभ्रजते तद्यतयो विश्न्ति ॥

MR. SAMIK BHATT
MED FACULTY

STUDENT ACHIEVEMENTS


NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

AYUSH DIPAKBHAI PATEL

for successfully completing the course

Automation in Manufacturing

with a consolidated score of 50 %

Online Assignments	15.31/25	Proctored Exam	34.5/75

Total number of candidates certified in this course: 1559

Jul-Oct 2024

(12 week course)

Prof. T. V. Bharat

Indian Institute of Technology Guwahati

Roll No: NPTEL24ME139S99300052 To verify the certificate

Mr. Ayushkumar has successfully completed the NPTEL course on "Automation in Manufacturing" with a commendable achievement of securing 50% in the final assessment. This accomplishment reflects his dedication to enhancing his knowledge in the field of manufacturing automation, a critical domain for modern industries.

Students from the Diploma Mechanical Engineering 3rd Semester of the Mechanical Engineering Department participated in the 12th Convention on Quality Concepts (ACCQC) 2024, organized by the QCFI Ankleshwar Chapter on 21st September 2024. The participants, Ankit Singh, Rai Yash, and Krishna Tiwari, showcased their talent and efforts, earning the prestigious Gold Award. Their achievement highlights the department's commitment to fostering excellence and quality-driven initiatives among its students.

FACULTY ACHIEVEMENTS


Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

KARAN S VASAVA

for successfully completing the course

Solar Energy Engineering and Technology

with a consolidated score of 60 %

Online Assignments	19.63/25	Proctored Exam	40/75

Total number of candidates certified in this course: 577

Jul-Oct 2024

(12 week course)

Prof. T. V. Bharat

Indian Institute of Technology Guwahati

swayam

Roll No: NPTEL24GE51S752700052 To verify the certificate

Mr. Karan Vasava has successfully secured 60 percent in the NPTEL course on Solar Energy Engineering and Technology. This achievement highlights his dedication and understanding of renewable energy concepts, particularly in solar energy systems. His accomplishment reflects his commitment to enhancing his knowledge in the field of sustainable energy solutions.

Hiren Mahida has successfully achieved an impressive 68% in the NPTEL certification course on Energy Conversion Technology and its Applications. This accomplishment reflects his dedication and understanding of the subject, showcasing his ability to grasp advanced concepts in energy technologies. His performance highlights a strong foundation in the field and a commitment to academic excellence.


Elite

NPTEL ONLINE CERTIFICATION

(Funded by the MoE, Govt. of India)

Skill India

This certificate is awarded to

MAHIDA HIRENKUMAR RANJITSINH

for successfully completing the course

Energy Conversion Technologies (Biomass and Coal)

with a consolidated score of 68 %

Online Assignments	22.5/25	Proctored Exam	45/75

Total number of candidates certified in this course: 235

Jul-Sep 2024

(8 week course)

Prof. T. V. Bharat

Indian Institute of Technology Guwahati

swayam

Roll No: NPTEL24CH48S147200052 To verify the certificate No. of credits recommended: 2 or 3

FACULTY ACHIEVEMENTS

Mr. Shivang Ahir, Assistant Professor in the Mechanical Engineering Department, has achieved a significant milestone by completing the prestigious 75-day NCC Precommissioning (PRCN) training at Officers Training Academy (OTA), Kamptee. This accomplishment earned him the rank of Lieutenant as an Associate NCC Officer (ANO). The rigorous program focused on discipline, resilience, and leadership, preparing him to mentor young cadets effectively.The training involved intensive activities, including drill, firing, map reading, field craft, and battle craft. The demanding regimen tested his physical and mental endurance, instilling a sense of responsibility and discipline. This achievement brings immense pride to Mr. Ahir, the University, and the department.

Mr. SHIVANG AHIR
Associate NCC OFFICER
MED faculty

MARATHON 2024

Mr. Girish B. and Mr. Hiren M. actively participated in the Bharuch Marathon held on 22nd September 2024, showcasing their enthusiasm for fitness and community events. While Mr. Girish completed the 5 km run, Mr. Hiren demonstrated remarkable endurance by successfully finishing the 10 km marathon, inspiring others with their dedication and spirit.

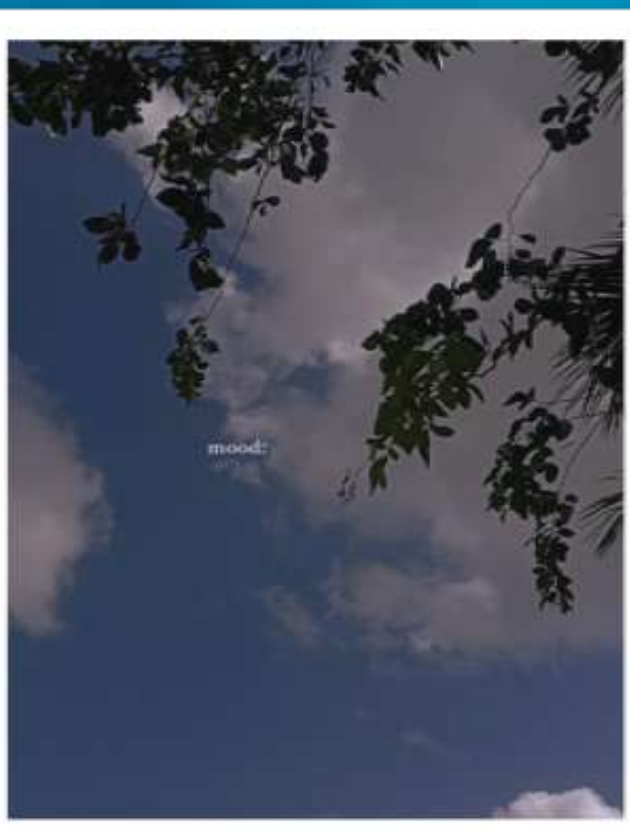
Mr. Girish B., Mr. Gunjan K., and Ms. Sandhya B.N. enthusiastically participated in a 5 km marathon, showcasing their commitment to health and fitness. Their active involvement in the event highlights a spirit of teamwork and determination, serving as an inspiring example of balancing professional responsibilities with personal well-being and physical activity.

EXPERT Session of SIEMENS Training Program: Enhancing Technical Expertise

A two-day SIEMENS training session was conducted from 21-10-2024 to 22-10-2024 by Mr. Atul Champanera, Application Engineer at SIEMENS India Limited. The trainees, Mr. Girish Bramhakshatriya, Mr. Ankit Solanki, and Ms. Sandhya B N from the MED department, participated actively, enhancing their technical knowledge and practical skills.

STUDENT'S CORNER

PHOTOGRAPHY



Piyush Sharma
BE Sem 5

STUDENT'S CORNER

SKETCH

Tailor Om
BE Sem 5

STUDENT SPEAKS

સાંજ સમે શામળિયો

સાંજ સમે શામળિયો વહાલો, વૃંદાવનથી આવે;
આગળ ગોધન, પાછળ સાજન, મનમાં મોહ
ઉપજાવે.

મોર મુગુટ શિર સુંદર ધરિયો, કાને કુંડળ લહેકે;
પહેર્યાં પીતાંબર, ફૂલની પછેડી, ચુઆ-ચંદન
મહેકે,

તારામંડળમાં જેમ શશિયર શોભે હેમે જડિંગ
હીરો; તેમ ગોવાળમાં ગિરધર શોભે, હરિ
હળધરનો વીરો.

વહાલાજીનું રૂપ રૂદેમાં વસિયું, મનડું તે ધસિયું
મારું; આળ કરી આલિંગન દીધું તન-મન મુખ
પર વારું.

વહાલાજીનું રૂપ મહાશુભકારી, રસિયા વિણ
કેમ રહીએ ? નરસૈંયાચા સ્વામીની શોભા
નિરખી નિરખી હરખીએ.

Vasava Akash
B.E Sem 5

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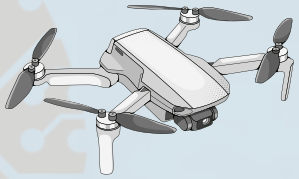
THEME ARTICLE

HARNESSING AI FOR TRANSFORMING THE MAHAKUMBH EXPERIENCE

The Mahakumbh, a colossal spiritual event attracting millions of pilgrims, embodies the confluence of faith, culture, and tradition. Managing such an unparalleled gathering comes with unique challenges in crowd control, resource management, security, and sanitation. Artificial Intelligence (AI) has emerged as a powerful tool to address these complexities and elevate the overall experience of this mega-event.



AI in Crowd Management

Efficient crowd management is pivotal to the success of Mahakumbh. AI-powered systems, including real-time surveillance, crowd density analysis, and predictive modeling, enable authorities to monitor and manage massive congregations effectively. High-resolution cameras equipped with AI algorithms can detect overcrowded areas and alert officials to mitigate risks of stampedes or other emergencies.

Enhancing Pilgrim Services

AI-driven chatbots and virtual assistants provide pilgrims with instant access to essential information, such as event schedules, routes to sacred locations, and accommodation details. Multilingual capabilities in these systems ensure accessibility to people from diverse regions.

Security and Surveillance

AI enhances security by enabling intelligent surveillance systems capable of facial recognition and anomaly detection. These systems identify suspicious activities or individuals, ensuring a safe environment for pilgrims. Integration with drones and other advanced technologies further bolsters real-time monitoring and response capabilities.

Waste Management and Sanitation

With millions of attendees, sanitation and waste management pose significant challenges. AI-powered solutions, such as smart bins and waste segregation robots, facilitate efficient disposal and recycling processes. Predictive models help authorities plan and deploy resources effectively to maintain cleanliness throughout the event.

Preserving Cultural Heritage

AI also contributes to preserving the cultural heritage of Mahakumbh by digitizing scriptures, documenting rituals, and creating immersive experiences through virtual and augmented reality. These innovations ensure the event's legacy is safeguarded for future generations.

In conclusion, the integration of AI into the Mahakumbh has revolutionized its management and enriched the experience for millions of attendees. By blending tradition with technology, AI not only addresses logistical challenges but also ensures the sustainability and success of this historic gathering.

MS SANDHYA SHETTY

FACULTY MED

FROM THE DESK OF THE EDITOR

As we wrap up this edition of the Mechanical Engineering Department magazine, we extend our heartfelt gratitude to everyone who contributed to making this issue a success. From thought-provoking technical articles to creative illustrations, every piece reflects the ingenuity and dedication of our department.

This magazine serves not only as a platform for showcasing talent but also as a means to inspire innovation, collaboration, and critical thinking among students and faculty alike. We are eager to hear your feedback, as it helps us grow and improve with every edition. Your thoughts, suggestions, and constructive reviews will be invaluable in shaping the future of this magazine.

A special thanks to the HOD, faculty and students who have worked tirelessly behind the scenes to ensure the quality and timely release of this publication. Together, let us continue to celebrate the spirit of mechanical engineering and push the boundaries of excellence. Stay curious, stay creative, and see you in the next issue!

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