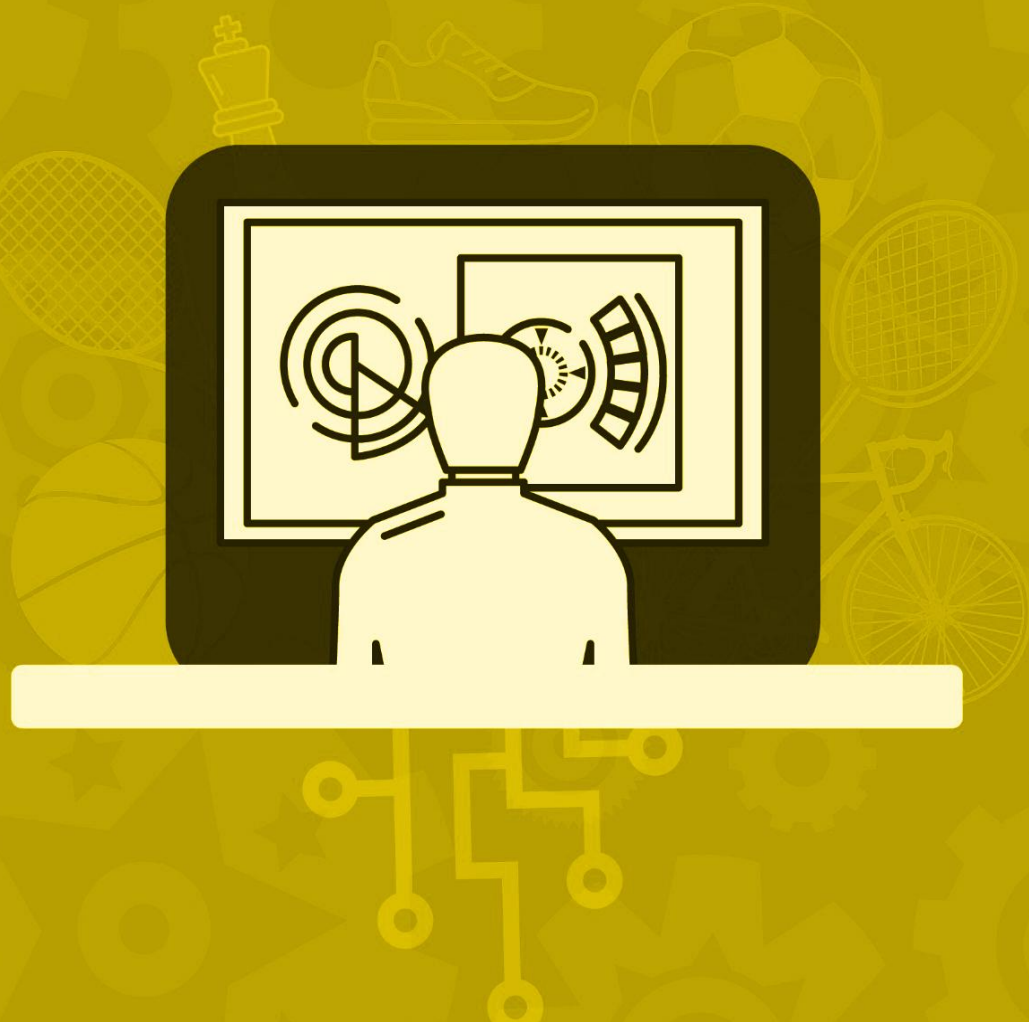


NEWSLETTER

Sports Engineering Association



SportE



Volume. 3

Issue. 2

February 2025

<http://sportsea.org/>

FROM THE DESK OF CHIEF EDITOR



**Dr. Suvanjan
Bhattacharyya**

Dear Readers,

Welcome to the March issue of *SportE* for 2025, proudly presented by the Sports Engineering Association (SEA). We extend our deepest gratitude to all contributors and the editorial team who made this newsletter possible.

In this edition, we are delighted to highlight the outstanding achievements of our members in the dynamic field of sports engineering. This issue features a special section showcasing remarkable accomplishments, including collaborations with leading international universities, preparations for the much-anticipated *4th International Conference on Sports Engineering (ICSE 2025)*, and a range of other SEA activities.

We are excited to welcome new SEA members, fostering growth and innovation within our community. Sports engineering holds immense significance in India, blending multiple disciplines such as mechanical engineering, biomechanics, materials science, and data analytics to address the evolving needs of sports technology. By working together, we can drive innovation and contribute to India's advancement in global sports.

We hope you enjoy this edition of *SportE*. Your feedback and suggestions are instrumental as we continue to promote excellence in applying engineering to sports. Let's build a brighter, more innovative future together.

Thank you for your continued support.

Sincerely,

Prof. Suvanjan Bhattacharyya

MESSAGE FROM THE FOUNDER DIRECTOR, SEA INDIA**Dr. Pintu Modak****Birla Institute of Technology & Science, Pilani (Rajasthan) India**

Engineering plays a significant role in sports. The engineering principles such as lever, force, friction, energy transfer (kinetic & kinematic), stress in materials, aerodynamics etc. can be applied in designing sports equipment, infrastructures and facilities. The primary purpose of using engineering principles in sports is to provide conducive environments for athletes and make the sports safer by having lighter and stronger equipment. The engineers in India are well capable of carrying out research on improving sports and an athlete's performance to win medals. But what they need is to know the way in applying their subject knowledge in sports. Aeronautics and Astronautics for example, have a lot in common with tennis racquets, skis, and other sporting goods as the same engineering principles are applied. The similarities between sporting goods and aerospace technology are also quite striking. The both need strong, lightweight materials as they must have good aerodynamics. There is no lack of effort from the athletes in India. If we can apply engineering principles to help athletes and coaches we can convert their efforts into medals in international sports events. Hence, this has been the reason for the genesis of India's first avowed Sports Engineering Association, India (SEA). The SEA is a common platform for people from Engineering/Science and Sports Science/Physical Education to address the issues concerning the sports community in technology. But merely having sports engineering and technology will only lead to nowhere, unless the sports administrators will sense its application in practice. What we need is to synergize with each other remaining in our own domain and sincerely accepting the other domain and connect with the sports will help us to achieve our goal.

I, therefore urge engineers in India to join us in our endeavors and let us help in developing sports indigenously. The newsletter "SportE" Volume 3, Issue 2 is being released which highlights the activities undertaken by the SEA members. I express my sincere appreciation for the dedication and hard work of the Editorial Board. I also acknowledge the authors who contributed in the newsletter and people who directly and indirectly helping us in our endeavors to connect engineering with sports in India.

With Best Wishes.

TECHNICAL ARTICLE

Importance of sports engineering in hockey in India



Dr. Suvanjan Bhattacharyya



Mr. Devendra Kumar Vishwakarma

Hockey is one of India's most popular and historically successful sports, deeply rooted in the country's culture. Over the years, the sport has evolved significantly, owing much of its progress to advancements in technology, materials, and design. Sports engineering, a field that combines technology, innovation, and sports science, has become an integral component of this evolution. In India, where hockey is a source of national pride, the role of sports engineering in enhancing performance, safety, and development is more crucial than ever.

Enhancing Performance through Technology

The pace and intensity of modern hockey demand that players perform at their highest potential, often pushing their physical and mental limits. To meet these demands, sports engineering has played a significant role in developing specialized equipment. For instance, the design of hockey sticks has undergone revolutionary changes. Today, they are crafted from lightweight composite materials, which provide better control and power without sacrificing durability. This has not only enhanced a player's ability to pass, shoot, and dribble with precision but also minimized the risk of injury due to poorly designed or fragile equipment.

The use of advanced materials such as carbon fibre and fiberglass allows players to handle sticks that are both strong and lightweight. The customization of these sticks based on players' preferences—whether it's for balance, flexibility, or grip—has made a world of difference in performance. With improved stick designs, Indian hockey players can compete on par with global standards, increasing the likelihood of success on the international stage.

Beyond equipment, technology plays an essential role in analysing player performance. Sports engineers utilize motion sensors and advanced software to analyse a player's movement and biomechanics. This data helps in refining techniques and strategies, identifying strengths and weaknesses, and designing specific training programs. For Indian players, who often face challenges due to a lack of world-class training facilities, these advancements offer a crucial competitive edge.

Improving Safety and Reducing Injuries

In a contact sport like hockey, safety is crucial. Indian players have faced challenges with inconsistent protective gear, increasing injury risks. Sports engineering has improved helmets, pads, and mouthguards, enhancing shock absorption and durability. Lighter, more protective equipment now ensures safety without compromising mobility. Advanced cleats provide better grip and support, reducing injuries like sprains and fractures. These innovations allow players to focus on performance, benefiting both domestic and international competition.

Optimizing Facilities and Infrastructure

Sports engineering goes beyond equipment and gear, influencing hockey field design and player safety. Many Indian stadiums now feature advanced synthetic turf, ensuring consistent bounce, ball speed, and reliable gameplay. Artificial turf is especially valuable in India's humid climate, offering durability, water resistance, and low maintenance. Improved drainage systems keep fields playable during heavy rain, while advanced stadium lighting enables night matches, boosting the sport's visibility. These innovations have been crucial in enhancing hockey infrastructure and player performance.

The Future of Hockey Engineering in India

The role of sports engineering in Indian hockey is set to grow, driven by rising interest and success in global tournaments like the FIH Hockey World Cup and the Olympics. Advancements in equipment, safety gear, and training systems will enhance performance standards. Integrating AI and ML into player analysis will enable personalized insights, helping coaches design targeted drills and strategies. These technologies will elevate Indian hockey to global standards. At the grassroots level, accessible technology, better equipment, and improved training methods can nurture young talent. Investing in sports engineering will be key to shaping the next generation of world-class players.

Conclusion

Sports engineering in hockey is not just about equipment and technology—it is about shaping the future of the sport. In India, a country with a rich hockey history, sports engineering is playing a pivotal role in enhancing player performance, ensuring safety, and improving infrastructure. The continuous innovation and development in this field will undoubtedly contribute to India's future successes in the sport, helping Indian hockey players stay competitive on the global stage and inspiring future generations to excel in the game frequency, types, and contributing factors of injuries in sports like badminton, hockey, wrestling, weightlifting, and sprinting that are popular among athletes from rural India.

The main objective of our study was to assess the effectiveness of five athletic footwears specifically intended for the sport of badminton. The five athletic footwear selected were from five different Indian brands and each of them having a different outsole tread patterns. The evaluation of these footwear was done by supplying each type of footwear to ten athletes. The athletes performed their regular training session activities while wearing these footwears and their responses were recorded. The variation in performance among the five athletic footwear in the badminton court were also recorded. On the basis of that the most optimum athletic footwear tread parameters for the sports activity of badminton was shortlisted.

TECHNICAL ARTICLE

Self-Assistance System for Psychological Skills Training (PST)

Dr. Lalit Sharma

Shweta Singh

Think of psychological skill training as a mental workout for athletes - just like they train their bodies, they need to train their minds too! It helps players stay calm under pressure, bounce back from mistakes, and perform their best when it matters most. Just like learning game techniques, players learn mental techniques like goal-setting, visualization, positive self-talk, and relaxation to manage stress, stay motivated. PST is important because physical ability alone isn't enough—strong mental skills give players an edge, helping them perform consistently under pressure and reach their full potential.

Indian players are unable to access PST due to several reasons. Firstly, PST experts and resources may not be easily available. Additionally, many Indian players and coaches are not aware of the importance of PST, which further limits its adoption. Furthermore, PST training can be expensive, and many Indian players may not have the financial means to afford it, especially those from smaller towns or rural areas.

The PST Self-Assistance System offers several advantages over visiting a sports psychologist, making mental training more accessible, cost-effective, and personalized for athletes. Self-guided PST fosters self-reliance, empowering players to manage stress, anxiety, and performance pressures independently. Unlike traditional psychologist consultations, which can be expensive, the PST Self-Assistance System provides a more affordable and immediate approach to mental skill development. By applying these techniques in real-time situations, athletes can enhance their focus, confidence, and resilience, leading to sustained performance improvements in sports and beyond. The Self-Assistance System can be developed by adopting following steps in a phase manner:

Initial Assessment: The user will first encounter a series of general questions to understand their background and needs. This will be followed by targeted questionnaires designed to assess their current standing in each of the psychological skill variables listed above. These questionnaires will provide quantifiable data for personalized feedback and recommendations.

Results and Feedback: After completing the questionnaires, the system will analyze the responses and present the results to the user in a clear and understandable format. This will include a summary of their strengths and weaknesses related to the psychological skills being assessed.

Personalized Recommendations: Based on the assessment results, the system will then recommend specific techniques and exercises related to the variables where the user needs improvement or would like to focus. For example, if the user scores low in "Relaxation," the system might suggest relaxation techniques/videos. If the user demonstrates a need for improved "Goal Setting," the system will guide them through techniques/Videos.

Technique Delivery: The system will then provide detailed instructions and guidance on how to implement the recommended techniques. This may include text descriptions, audio guidance, and/or video demonstrations. This phased approach ensures that it should provide personalized recommendations, and offers practical tools for improving psychological skills. Each variable is carefully considered and integrated into the system to provide a comprehensive PST experience.

Conclusion

A Psychological Skill Training (PST) self-assistance system can be efficiently implemented through a technologically advanced, user-centric. Possible approaches for developing this software include AI-based cloud-based data storage for tracking progress, and other elements to keep athletes engaged. This platform would integrate artificial intelligence (AI)-driven evaluations, interactive educational modules, and a variety of multimedia resources such as videos, audio guides, and text-based exercises. A progressive web app (PWA) or native app with offline access could also be beneficial for athletes in remote areas. Developing the software in phases—starting with assessment modules, followed by personalized training and interactive learning—ensures scalability and continuous improvement.

By adopting this structured approach, the PST self-assistance system can effectively leverage technology to deliver a comprehensive, engaging, and personalized training experience, ultimately enhancing the psychological skills of athletes.

TECHNICAL ARTICLE

The Development of Cycling Technology in India Through the Lens of Sports Engineering



Mr. Soumya Ghosh



Mr. Samrat Biswas

Department of Mechanical Engineering, Swami Vivekanand University, Barrackpore, Kolkata, West Bengal, India.

Introduction

Sports engineering plays a vital role in enhancing athletic performance, equipment design, and training methods. Cycling, particularly in India, has seen significant technological advancements in response to the growing interest in competitive cycling and sustainable urban transportation. Innovations in bicycle design, materials, and performance-enhancing technologies are shaping the future of cycling in India. This article explores these developments, key breakthroughs, and the role of various stakeholders in driving innovation.

Evolution of Cycling Technology in India

Cycling in India has evolved from a primary mode of transport to a recognized competitive sport. Initially, steel-framed bicycles dominated the market, but advancements have led to lighter, aerodynamic designs. The entry of global brands and technological collaborations have driven further innovations. The increasing number of professional cycling events has encouraged manufacturers to invest in R&D, leading to high-performance bicycles suited for road cycling, mountain biking, and urban commuting. Government initiatives like the Fit India Movement and cycling infrastructure projects have further supported this growth. Today, bicycles range from single-speed models to high-tech carbon-fiber versions designed for India's diverse terrain.

Innovations in Bicycle Design & Materials

Modern bicycles feature lightweight aluminum, carbon fiber, and titanium frames for speed and durability. Aerodynamic designs, ergonomic handlebars, and precision gearing boost efficiency. Tubeless tires and advanced suspension improve adaptability. Technologies like electronic shifting, disc brakes, and smart sensors enable real-time performance tracking. CFRP frames enhance strength while CFD and wind tunnel testing optimize aerodynamics. Electronically controlled derailleurs and CVT improve drivetrains. Enhanced saddle ergonomics and adjustable handlebars increase rider comfort and endurance.

Performance Enhancement Technologies

Power meters, heart rate monitors, and GPS cycling computers revolutionize performance tracking. AI coaching and VR training refine techniques and prevent injuries. CFD models, wind tunnels, and aerodynamic testing optimize bicycle design. E-bikes with energy recovery and self-charging batteries enhance sustainability. AI-driven coaching provides real-time feedback on posture, pedaling, and breathing. IoT-enabled smart bikes offer live analytics for precise training. High-performance nutrition and altitude chambers improve endurance, boosting India's global competitiveness.



Figure 1: Innovation in bicycle design

Infrastructure and smart training facilities

Specialized infrastructure and training centers boost India's cycling advancements. Smart tracks with real-time monitoring, AI coaching, and virtual training enhance performance. High-altitude camps, simulations, and indoor studios provide structured training. Urban bike lanes expand cycling access, while academies use biomechanics and motion capture for technique optimization. National camps focus on strength and endurance for high-performance cycling.

Role of Government and Private sector

Government and private initiatives drive cycling advancements in India. Programs like Smart Cities Mission enhance infrastructure, while sports research funding fuels innovation. Manufacturers invest in R&D, and partnerships with academia accelerate progress. Public-private collaborations support training, eco-friendly mobility, and bike-sharing. Subsidies for e-bikes and research investments strengthen India's role in cycling technology and sustainability.

Challenges and future prospects

High costs, limited training facilities, and poor infrastructure hinder cycling adoption in India. Safety concerns and road conditions add to the challenges. However, investments in technology and infrastructure, along with government support, promise growth. Innovations in e-bikes, AI training, and sustainable manufacturing will enhance performance. Smart sensors, real-time tracking, and blockchain maintenance will boost efficiency and safety, positioning India as a rising force in global cycling.

Conclusion

Advancements in Indian cycling blend sports engineering, innovation, and performance enhancement. Improved materials, training, and infrastructure support growth, while government-private collaboration drives progress. Emerging technologies like AI coaching, blockchain maintenance, and energy-efficient e-bikes shape the future. Promoting cycling through education, green transport incentives, and global participation will strengthen India's presence in the sport. Embracing innovation ensures a healthier, more sustainable cycling future.

TECHNICAL ARTICLE

The Rise of Sports Technology in Indian Table Tennis



Sayan Paul

Department of Mechanical Engineering, Swami Vivekanand University, Barrackpore, Kolkata, West Bengal, India

Introduction

Indian table tennis has transformed significantly, shifting from traditional training to a tech-driven approach. The integration of sports technology has revolutionized athlete training, competition, and performance analysis. This chapter explores India's journey from conventional coaching to data-centric methods, enhancing player development and global competitiveness.

The Traditional Landscape of Indian Table Tennis

Historically, Indian table tennis relied on conventional coaching, with repetitive drills, personal insights, and intuition-based assessments. While these methods developed skilled players, they lacked precision in performance analysis and injury prevention. Infrastructure challenges further impacted progress. Unlike nations with advanced sports science, India had limited access to state-of-the-art facilities and data-driven strategies. Traditional equipment and outdated techniques made it difficult to match global standards.

The Advent of Sports Technology

With advancements in global sports technology, India adopted modern solutions. Investments in sports science, government initiatives like Khelo India, and partnerships with tech firms led to the integration of biomechanics, video analytics, smart rackets, and AI-driven platforms. Match analysis has evolved from manual breakdowns to automated tools that assess techniques, stroke execution, and opponent weaknesses. These insights allow Indian players to fine-tune gameplay and improve tactical decision-making.

Smart Equipment and Wearables

Smart table tennis rackets with sensors now track stroke speed, spin, and ball placement, helping players refine techniques with precision. Wearables like fitness trackers monitor endurance, agility, and conditioning, minimizing injuries and optimizing peak performance.

AI-powered training robots have also gained popularity, simulating various playing styles to improve reflexes and shot placement. These tools enhance reaction speed, a crucial factor in high-level competition.

AI and Data Analytics in Training

AI-powered video analysis tracks player movements, identifies patterns, and highlights areas for improvement. Coaches use AI simulations to create personalized training plans, preparing players for specific opponents by analyzing their strengths and weaknesses. At the team level, AI-driven predictive analytics help assess squad strengths, guiding team selection for major tournaments. This ensures India fields its most competitive lineup on the global stage.

Virtual Reality (VR) and Simulation-Based Training

VR-based training modules simulate real-match scenarios, enhancing reflexes and shot precision. Players can experience different playing conditions virtually, improving adaptability and focus. VR also enables practice against AI-simulated versions of world champions, offering valuable insights into international gameplay. This technology provides a competitive edge in tournament preparation.

Impact of Technology on Indian Players' Performance

The integration of sports technology has led to significant improvements in Indian table tennis. Enhanced training, real-time performance analysis, and scientific fitness regimes have contributed to better rankings and international success. Players like Sathiyar Gnanasekaran and Manika Batra have benefited from tech-driven training, demonstrating consistent improvements. Indian academies now use data-driven coaching, fostering a new generation of technically advanced players.

The Road Ahead: Challenges and Future Prospects

Despite advancements, challenges remain. High equipment costs limit access for grassroots players. Bridging this gap requires government support, increased funding, and wider tech adoption in training academies. Training programs must educate coaches on utilizing AI, analytics, and smart equipment effectively. Collaborations with international sports tech firms and continued innovation will further strengthen India's global position.

Conclusion

The shift from traditional coaching to technology-driven training marks a new era for Indian table tennis. The fusion of smart equipment, AI analytics, and VR training has redefined player development. As India continues embracing sports technology, the future looks promising, with young talents poised for international success.

TECHNICAL ARTICLE

Smart Shoe with Pressure Sensors: A Step Towards accessible sports technology



Arnav Dayal

Birla Institute of Technology and Science Pilani

Introduction

The Smart Shoe is an innovative, low-cost device designed to measure and log real-time pressure distribution at four pressure points on the shoe, with the purpose of helping athletes optimize performance, prevent injuries, aid during Athletic rehabilitation by interpreting the data, and also help in gait analysis. The sensors take 50 readings per second, which are then converted into meaningful data, to be analysed by players, coaches and physiotherapists.

Working Principle:

This system uses Load cell scale sensors and an ATmega328 microprocessor to collect raw data, during which it is logged in and afterwards the data analyzed using Python to gain meaningful insights into foot pressure distribution and movement patterns.

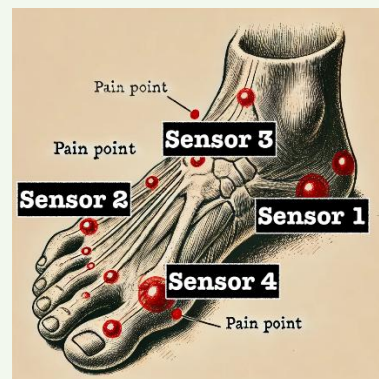


Fig1: Pain points and sensor locations (generated using DALL.E AI with given inputs)

Software & Data Processing:

The data collection process requires installing the Arduino IDE, where the appropriate board and port settings must be configured. The HX711 library is used to ensure accurate pressure readings. The system logs serial monitor data at 50 Hz, which is then converted into CSV format for analysis, and a python script averages out every 25 values, and then creates a graph.

Sensor 1	Sensor 2	Sensor 3	Sensor 4
8.36	2.08	7.28	2.36
8.16	0	7.24	0

Sensor 1	Sensor 2	Sensor 3	Sensor 4
8.36	2.08	7.28	2.36
8.6	0	7	0
8.4	2.04	7	2.52
8.36	2.08	7.28	2.36
8.16	1.96	7.24	2.48
12.12	3.04	9.88	3.56

Fig2 : Sample readings for all four sensors.

Data Analysis and Observations

A 90-second data collection session revealed key foot pressure patterns. The graph, plotted using Python, averages 25 readings per point for clarity.

- Rear sensors (1 & 3) show higher force spikes than front sensors (2 & 4), indicating weight concentration at the back.
- All sensors record zero force when the foot is lifted.
- Weight shifts forward when the foot lifts from the back.
- A spike at $t = 73s$ suggests a jump.

Limitations

- Wired Connection: Limits mobility during data collection.
- Durability: Sensors might wear out over time with heavy use.
- Basic sensors: sensors can be improved.
- Number of readings: have scope of an increase.

Conclusion

We find that the rear of the foot experiences higher force spikes, weight shifts forward during movement, and jumps can be detected through force spikes. The system also highlights left-right imbalances.

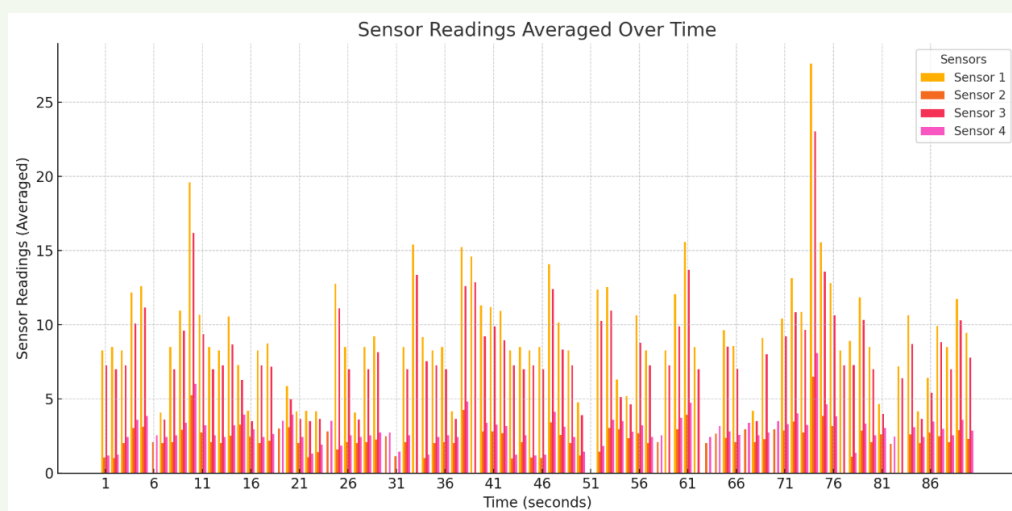


Fig 3: Graph depicting all 4 sensor readings over 90 seconds.

TECHNICAL EVENTS ORGANIZED

Peace through Sports



On February 12, 2025, at BITS Pilani, an interactive session titled "Peace through Sports" was organized in collaboration with the Department of Computer Science, the Department of Mechanical Engineering, and the Sports Engineering Association (SEA). The event welcomed delegates from the World Society for Peace Sports (WSPS) South Korea and was held in Room 5106 from 4:50 PM to 6:00 PM. The session featured distinguished speakers, including Prof. Lee, Jong-Young (President, WSPS), Prof. Oh, Sung-Hee, and Mr. Lee, Jang-Hyun (Secretary General, WSPS), who shared their insights on how sports can be a catalyst for peace. The event aimed to foster discussions on the intersection of sports, engineering, and global harmony, engaging students and faculty in a thought-provoking dialogue.

Upcoming Conference "ICSE 2025"

The 4th International Conference on Sports Engineering (ICSE 2025) is organized by Sports Engineering Association, India, BITS Pilani India and Birla Institute of Technology & Science, Pilani (Raj.) Indian in collaboration with INEFC, Barcelona University, Spain. With technical support from International Sports Engineering Association, England, under the aegis of Ministry of youth affairs and sports, New Delhi, India. The conference is schedule from 10th – 12th October 2025. For more details, please click on the link given below.

<http://icse.sportsea.org/icse2025/>

ICSE2025 Conference Theme

Transforming Sports Performance through Engineering and Innovation

Esteemed Panelists @ ICSE 2025

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Ramgopal
Rao**



VC BITS
Pilani

**Mr Ayon
Sengupta**



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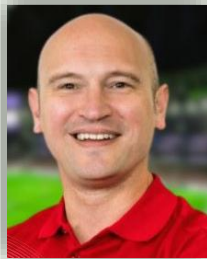


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Esteemed Keynote Speakers @ ICSE 2025

Dr. David James

Chief Executive Officer at
Labosport, Ex Prof. Sheffield
Hallam University



How athletic performance is affected
by the characteristics of sport surfaces

Dr. Sanand Salil Mitra

Managing Director
SporTech Innovation Lab Pvt
Ltd



Laying the Groundwork: Data for AI in
Indian Sports

Dr. Pere Lavega Burgués

Professor, Department of
Sports, National Institute of
Physical Education of
Catalonia (INEFC), Spain



Transforming Society through
Indigenous/Traditional Games and
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Roorkee Institute of
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Science Engineering
Roorkee Institute of
Technology, India



S/2024/10/15/1018
Mr. Kumar Dhananjay
B.Tech, Mechanical
Engineering
Roorkee Institute of
Technology, India

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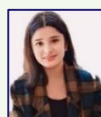


Dr. Suvanjan Bhattacharyya, Assistant Professor, Mechanical Engineering, BITS Pilani, India

Editors



Pragati Kumari
B.Tech Student
Roorkee Institute of Technology
Roorkee, India



Bhumika Kathet
B.Tech Student
Roorkee Institute of Technology
Roorkee, India



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STUDENT PROJECT SCHEME

Project financial support

We encourage students from engineering and science disciplines to actively participate in various activities such as product design, movement analysis, app development, and software development. To support their involvement, we are announcing a cash support program. All student members are eligible to apply, and the application process is open throughout the year. To apply, please submit a one-page summary of your project along with your student membership number to sportsengineeringindia@gmail.com.

Additionally, SEA (Sports Engineering Association) provides funding opportunities to student members for undertaking small projects in sports technology. We also strive to offer them a nationwide platform to showcase their development work through newsletters and conferences.

Student Project Scheme

The Student Project Scheme is a core element of our commitment to fostering innovation and research in sports technology. The scheme is aimed at encouraging individual student members or groups to delve into innovative technology applications within the sports domain.

Key Features of the Scheme:

Financial Support: Students can apply for funding of up to Rs. 10,000 to facilitate their research projects or the development of prototypes, models, or products.

1. **Duration:** Projects under this scheme should be completed within a six-month timeframe, allowing students to channel their efforts efficiently.
2. **Application Procedure:** The detailed application procedure, including eligibility criteria and submission guidelines, can be accessed on the SEA website: <http://sportsea.org>. We encourage all full-time undergraduate or postgraduate students in engineering, science, or sports science to consider joining SEA as student members to avail themselves of these exciting opportunities.

Showcasing Development Work

SEA recognizes the importance of providing a platform for students to showcase their projects and findings. We facilitate this through newsletters and conferences, ensuring that their efforts gain visibility at a national level.

Embrace this opportunity to turn your innovative ideas into reality with the support of SEA's Student Project Scheme. We are dedicated to nurturing the next generation of sports engineers and scientists, driving advancements that will shape the future of sports technology. Join us in this exciting journey of exploration and innovation!

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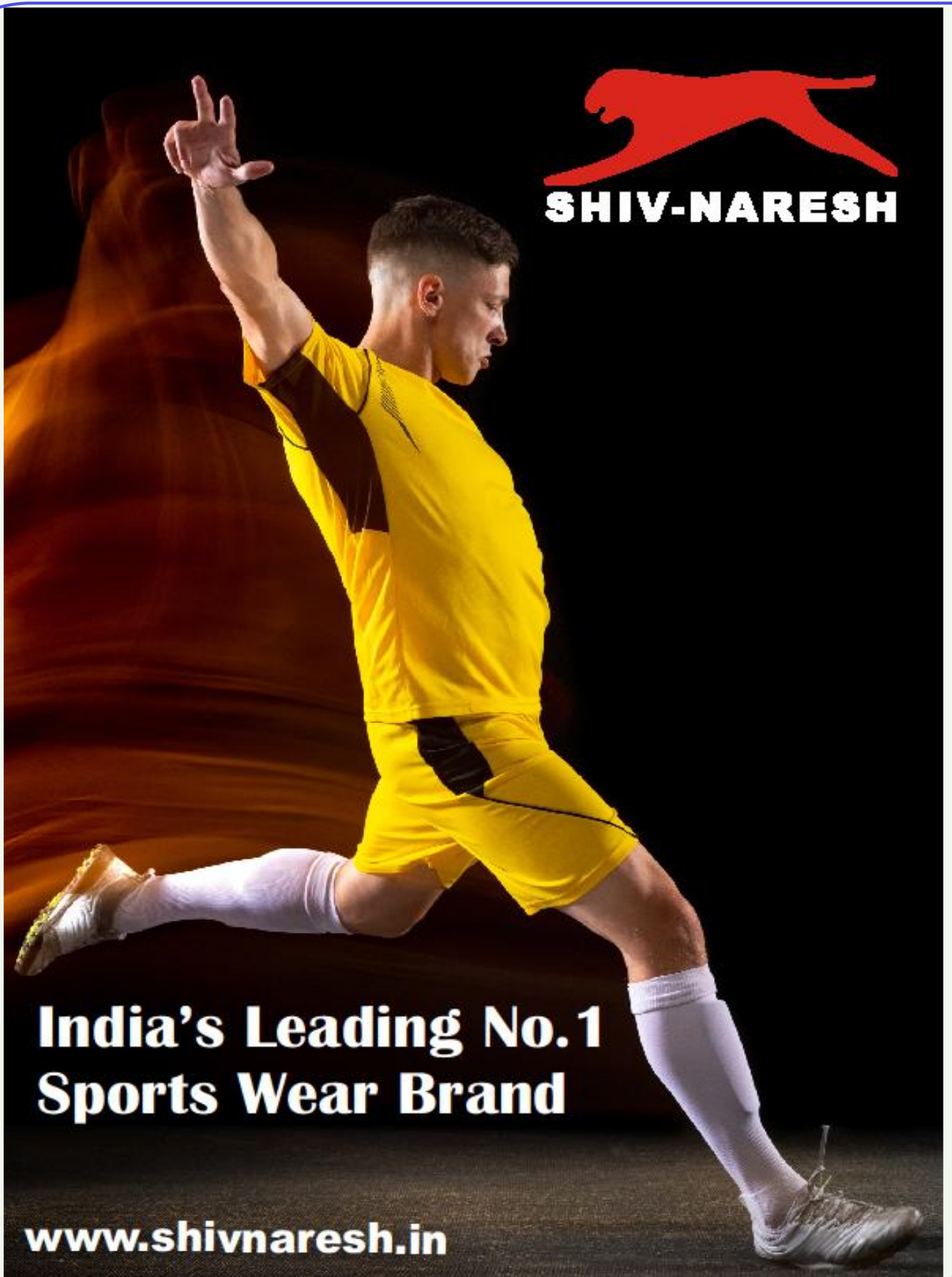
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Membership Link: <http://sportsea.org/joining-payment-process/>

Opportunities/ Benefits of joining the SEA as Member:

1. Receive a Membership Certificate, inclusion of profile in Membership Gallery, discount on Conference registration charges
2. Opportunity to utilize the collaborative platform to interact with Domain experts and other members of SEA
3. Discount on conferences, workshops and any other professional development events organized by SEA
4. Student members may get an opportunity to work in research projects
5. Receive periodicals / newsletter, publish articles in periodicals & newsletters
6. Receive award / recognition for innovative contribution to the technology development Attend board meetings (only for life members)
7. Opportunity to open State Chapter (only for life members)
8. * (A full-time student at any time during her/his period of study can join SEA as Student Member through a onetime payment of token membership fee. Student members are eligible to get Rs 10,000/- as grant for innovative project development. On completion of course, he/she will cease to be a Student Members but are encouraged to make fresh application for Life membership of SEA remitting the full life membership fee.)

Sports Engineering Association

Room no 2103, Faculty Division – II,
Birla Institute of Technology & Science, Pilani, Rajasthan– 333 031, INDIA

Homepage: <http://sportsea.org>

e-mail: sportsengineeringindia@gmail.com



