



# KAKATIYA INSTITUTE OF TECHNOLOGY AND SCIENCE

## SEMINAR PRESENTATION

### TITLE : AI YOGA INSTRUCTOR

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PRESENTED BY: BATCH-6 : K. SRIHITHA(B24IT135L)

J. VISHWA TEJ (B23IT056)

J. KALYAN RAM (B23IT038)

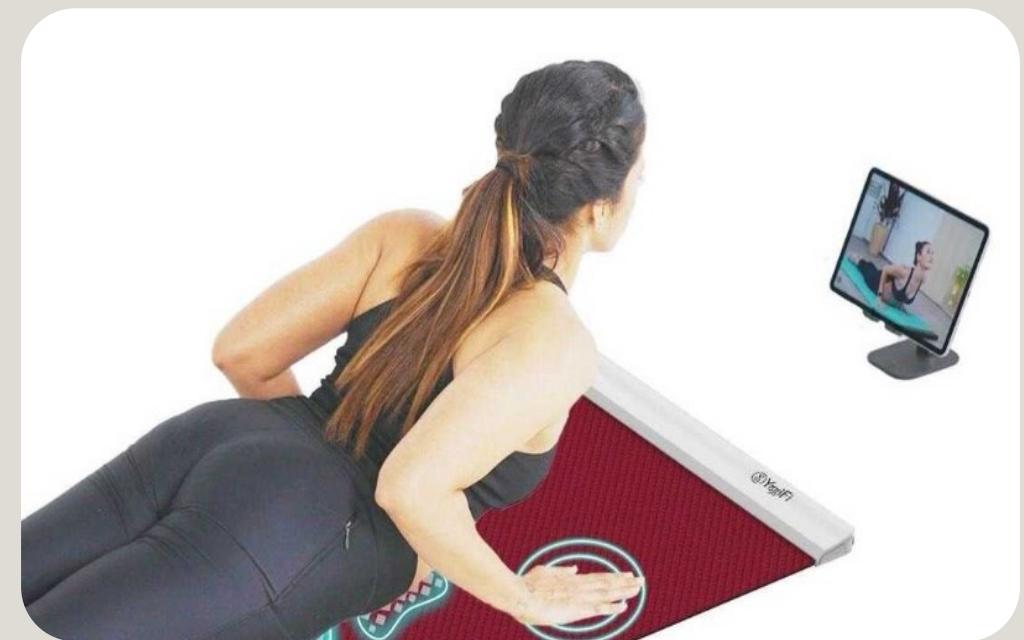
SUPERVISOR: SMT S.B. SWATHI

N. SAHASRAANJALI (B23IT033)

# PROBLEM STATEMENT:

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- Many yoga practitioners struggle with incorrect postures and lack of real-time guidance, leading to ineffective practice and risk of injury. The AI Yoga Mat solves this by using sensors and AI to provide instant feedback, ensuring safe, accurate, and personalized yoga sessions without compromising privacy.



# ABSTRACT

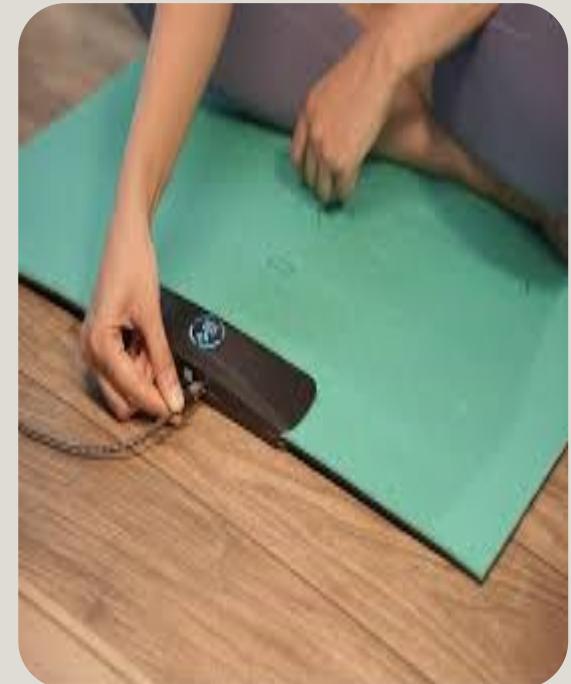
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The AI Yoga Mat is an innovative solution that integrates sensor technology and artificial intelligence to enhance personal yoga practice. It is embedded with pressure and motion sensors to detect body posture and alignment during asanas. The mat connects with a mobile application to provide real-time feedback and corrective guidance. Using AI algorithms, it analyses user movements and suggests improvements for accuracy and safety. This reduces the risk of injury and ensures proper technique without needing a physical trainer. The system also tracks performance over time, offering progress reports and personalized recommendations. Programs for flexibility, stress relief, and breathing exercises are integrated to support holistic wellness. Unlike camera-based systems, the mat preserves user privacy while still offering smart feedback. Lightweight and portable, it encourages users to practice yoga consistently at home or anywhere. Thus, the AI Yoga Mat bridges traditional wellness with modern technology for smarter, safer, and more effective yoga practice.

# INTRODUCTION

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The AI Yoga Instructor is an innovative system that combines sensor technology and artificial intelligence to enhance personal yoga practice. It features embedded pressure and motion sensors that detect body posture and alignment, providing real-time feedback through a connected mobile application. Acting as a virtual instructor, it guides users to correct their poses, improve accuracy, and avoid injuries. The system also tracks progress over time, offering personalized recommendations for flexibility, balance, and relaxation. Unlike camera-based systems, it ensures complete privacy while maintaining high accuracy in feedback. By merging traditional yoga principles with modern technology, the AI Yoga Instructor makes yoga practice safer, smarter, and more accessible for everyone.



# LITERATURE SURVEY

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- Earlier yoga systems used **cameras to detect body poses**, but they often **invaded privacy** and needed proper lighting and setup.
- Some projects used **wearable sensors** to track movement, but users found them **uncomfortable to wear** during yoga.
- Later, researchers developed **smart mats with pressure sensors** that can **sense body balance and posture** directly from the mat.
- These smart mats showed good results, with about **80–90% accuracy** in detecting different yoga poses.
- By using **Artificial Intelligence (AI)** and **Machine Learning (ML)**, these systems can now give **better posture feedback**.
- However, many of them still **don't give real-time corrections or personalized suggestions** to users.
- The **AI Yoga Instructor** solves this by acting as a **virtual trainer**, giving **instant feedback, tracking progress, and protecting user privacy**.

# EXISTING SYSTEM

VS

# PROPOSED SYSTEM

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Uses **camera-based systems** or **wearable devices** for posture detection.

Requires **continuous supervision** by a **human instructor**.

Camera systems cause **privacy concerns** and need proper setup.

Wearable devices can be **uncomfortable** and limit movement.

Gives **limited feedback** and does not track user progress.

Mostly focuses on **pose detection only**.

Uses **sensor-based smart mat** for posture and balance detection.

Acts as a **virtual instructor** using **AI and real-time feedback**.

Provides **privacy protection** — no camera needed.

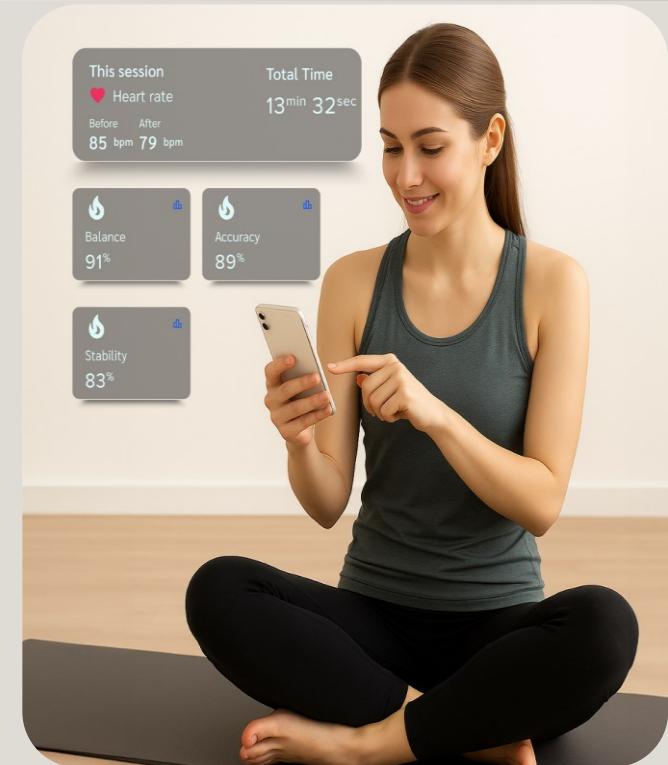
**Non-intrusive** — users just perform yoga on the mat.

Offers **instant correction, progress tracking**, and **personalized suggestions**.

Focuses on **pose correction, performance improvement**, and **holistic wellness**.

# ADVANTAGES

- Provides **real-time feedback** and **corrects postures** instantly without a human instructor.
- Ensures **user privacy**, as it does not rely on cameras for monitoring.
- **Reduces the risk of injury** by helping users maintain proper alignment during asanas.
- Tracks **progress over time** and gives **personalized recommendations** for improvement.
- **Portable and lightweight**, making it easy to use anywhere — at home, in a studio, or outdoors.
- Offers a **cost-effective** alternative to personal trainers or smart mirror systems.
- Supports **holistic wellness** through programs for flexibility, breathing, and stress relief.



# CONCLUSION

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In conclusion, the AI Yoga Mat combines advanced sensors and AI technology to provide real-time posture guidance, personalized feedback, and progress tracking, enhancing the safety, accuracy, and effectiveness of yoga practice. Its portable, privacy-friendly design allows users to practice anywhere, promoting consistent wellness while integrating traditional yoga with modern smart technology. By offering tailored programs for flexibility, stress relief, and breathing exercises, it supports holistic well-being. Overall, it transforms home yoga into a smarter, safer, and more engaging experience.



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**THANK YOU**