

# **SEED MONEY PROJECT PROPOSAL**

**Academic Year 2025 - 2026**

## **MONITORING SYSTEM FOR CLASSROOM SESSION IN SKILL TRAINING PROGRAMME(1719)**

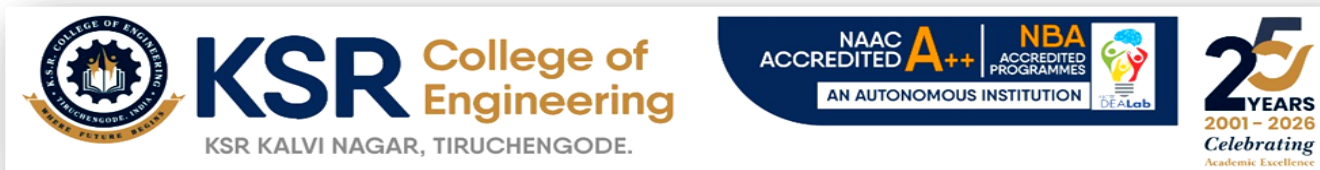
Under the Guidance of  
Mrs.P.VASUKI,M.E., (Ph.D)  
Assistant Professor / Department of CSE



**Submitted by**

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**FINAL YEAR / Department of CSE  
AUGUST 2025**



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5. Percentage of Marks Scored upto 8.3/ 10  
Previous semester (CGPA)/ Ph.D. : 7.45 / 10  
7.8/ 10

6. Duration of the Project : 7 Months

7. Name of the guide with Designation : Mrs.P.VASUKI, M.E., (Ph.D)  
& Mobile No. Assistant Professor  
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8. Title of the proposed work : MONITORING SYSTEM FOR  
CLASSROOM SESSION IN SKILL TRAINING PROGRAMME

9. Broad subject area : REACT USING OPEN CV  
SOFTWARE TOOL

10. Is this a SIH submitted concept  
(Yes / No) : YES

11. If yes when and where did you  
presented this concept? : K.S.R.College of Engineering,  
Tiruchengode.

12. Expected Outcome of the Project :

It aims to track and assess the progress of both trainees and trainers during classroom-based skill development programs. Using a combination of Io(Internet of Things) devices, sensors, and software tools, the system enables the collection of data on attendance, participation, engagement, and learning outcomes.

13. Total Cost of the project : ₹ 10,000(approx.)

14. Details of the work

i. **Abstract :**

The "Monitoring System for Classroom Session in Skill TrainingProgramme" is designed to improve the effectiveness and quality of skill trainingsessions by providing a real-time monitoring platform. This system aims to trackand assess the progress of both trainees and trainers during classroom-based skilldevelopment programs. Using a combination of IoT (Internet of Things) devices,sensors, and software tools, the system enables the collection of data on attendance, participation, engagement, and learning outcomes. The collecteddata is processed and presented in an easily interpretable format, allowing trainers and administrators to make informed decisions about course content,teaching methods, and learner progress. Additionally, it provides a feedback mechanism that helps trainers adjust their approach for maximum learner engagement and performance. This monitoring system aims to ensure that skill training programmes are conducted efficiently, fostering a more interactive and productive learning environment that enhances the quality of vocational education and training. The system is equipped with a dashboard that presents the data in a user-friendly format, helping trainers identify areas where learners may be struggling or where the content may need to be adjusted for better understanding.

## **ii. Problem Statement:**

In skill training programmes, especially those involving large numbers of trainees and sessions, maintaining consistent quality and ensuring active participation is a significant challenge.

There is a critical need for an automated and intelligent classroom monitoring system that can accurately track attendance, evaluate engagement, and provide actionable feedback to instructors and administrators. Such a system would improve transparency, enhance the learning experience, and ensure the delivery of high-quality skill training aligned with desired outcomes.

## **iii. Objectives :**

The primary objective of this project, "Monitoring System for Classroom Session in Skill Training Programme," is to design and implement a digital solution that enhances the efficiency and transparency of classroom monitoring processes. The system aims to automate the tracking of trainee attendance using technologies such as biometric verification, RFID, or facial recognition, thereby reducing manual errors and ensuring accuracy. Additionally, it seeks to evaluate trainee engagement and monitor instructor performance by capturing relevant data during each session. The system will generate real-time alerts and reports for absenteeism, low participation, or deviations from the training plan, helping administrators take timely corrective actions.

#### **iv. Proposed Methodology :**

The development of the monitoring system will follow a structured methodology comprising several key phases. Initially, a detailed requirement analysis will be conducted to identify the needs of stakeholders, including trainers, trainees, and administrators, ensuring the system addresses current gaps in classroom monitoring. Based on the gathered requirements, the system architecture will be designed, including user interfaces, data flow, and database structures. Suitable technologies such as biometric devices, RFID systems, or facial recognition tools will be selected to automate attendance tracking and session monitoring. The development phase will involve building core modules for user management, attendance logging, session tracking, and reporting, using appropriate web technologies for both frontend and backend development. Once the system is developed, comprehensive testing will be carried out to ensure accuracy, reliability, and user-friendliness. Following successful testing, the system will be deployed in a real training environment, where users will be trained to operate it effectively. Finally, continuous monitoring and feedback collection will help evaluate system performance and guide future enhancements to ensure the solution meets its intended objectives.

#### **v. Innovation and Uniqueness :**

The innovation of this project lies in its integration of modern digital technologies to automate and enhance the monitoring of classroom sessions in skill training programmes—an area often managed manually and inefficiently. Unlike traditional systems that rely on paper-based attendance or periodic supervisor visits, this system provides real-time tracking of trainee attendance and engagement using technologies such as biometric

authentication, RFID, or facial recognition. Additionally, the system offers data-driven insights through visual dashboards and automated reporting, enabling administrators to quickly identify issues like absenteeism or low participation. By combining automation, real-time analytics, and ease of access in a centralized system, the project offers a comprehensive, scalable solution tailored specifically for vocational and skill development programmes—an area often underserved by conventional classroom management tools..

#### vi Budget Estimation:

S. No.	Particulars / Items	Expense	Quantity	Expenditure (Rs.)
1.	Processing Unit (Raspberry Pi / ESP32)	Hardware	1	3,000
2.	Attendance Module (RFID / Biometric)	Sensor Device	1	1,500
3.	Display & Peripherals (Monitor, Cables)	Accessories	1 set	2,000
4.	Hosting / Local Server Setup	Infrastructu -re	–	1,000
5.	Miscellaneous ( Testing, Reserve)	Miscellaneo us	–	1,500
6.	Other expenses		–	1,000
Total				<b>10,000</b>

**vi. Timeline of the Project:**

<b>Sl. No</b>	<b>Timeline (Quarterly)</b>	<b>Details of Activities / Progress of work</b>
1.	September 2025 to November 2025	Requirement gathering, system design, identification of monitoring metrics
2.	December 2025 to February 2026	Backend and frontend development, integration of monitoring tools/sensors
3.	March 2026 to May 2026	System testing, data validation, pilot testing in classroom environments
4.	June 2026	Final deployment, documentation, and submission/presentation of the project

**vii. Deliverables / Outcomes expected from the project:**

- Real-time transcription and session summarization
- Instructor and trainee activity dashboard with attendance and engagement metrics
- Centralized MongoDB database for storing structured session data
- Analytics module for evaluating training effectiveness over time
- Final technical report and live demonstration of the system
- Exportable reports for administrative and evaluation purposes (PDF, Excel)
- Live demonstration of the complete system functionality in a simulated or actual training environment.
- Comparison tool to assess effectiveness of different instructors, batches.



**viii. Product/Commercialization Potential:**

The product has strong potential for deployment in vocational training centers, industrial skill development institutes, and government-run training programs (e.g., PMKVY, ITIs). It automates monitoring, enhances transparency, and ensures accountability in classroom delivery. The system can significantly reduce manual oversight, enable data-driven evaluation of trainers, and improve the overall quality of skill-based education. With minor customization, the platform can scale to various sectors like healthcare training, technical education, and corporate L&D programs. There is scope for IP filing in AI-based classroom analytics and smart training infrastructure. The solution aligns with national initiatives such as Skill India and Digital India and has commercialization potential through partnerships with ed-tech startups, skilling agencies, and government skill development missions.

**ix. SIH Alignment (if applicable) : NA**

**x. Any Other details:**

- Designed to be scalable and modular, allowing deployment across multiple training centers.
- Integrated with Learning Management Systems (LMS) and government skill tracking platforms via APIs
- Supports automated report generation for trainers, administrators, and accreditation bodies

### **15. Declaration by Principal Investigator / Team Lead**

I hereby declare that the information provided in this proposal is true to the best of my knowledge. The proposed work is original and has not been submitted for funding elsewhere.

**Date:**

**Signature of PI / Team Lead**

### **16. Recommendation by HoD**

Certified that the proposal submitted by Dr./Mr./Ms. \_\_\_\_\_  
is forwarded for consideration under Seed Money Scheme.

**Date:**

**Signature of HoD with seal**