BABU BANARASI DAS
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
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BBDITM

INDUSTRIAL VISIT

to

Research Designs and Standards Organization (RDSO), Lucknow

Date: 25 April 2025

Department: Information Technology

Submitted by:

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Date of Submission:

25-04-2025

1. INTRODUCTION

1.1 PURPOSE

An industrial visit to the Research Designs and Standards Organization (RDSO), Lucknow was scheduled for several key educational and professional reasons. Here are some likely motivations behind scheduling such a visit:

1. ***Understanding Infrastructure and Facilities:*** RDSO provides a range of infrastructure support, including high-speed data communication facilities, incubation centers, and business development services. The objective of the visit was to deepen our understanding of real-world railway safety systems, with a specific focus on obstacle detection and automatic train protection technologies.

2. **To understand the existing railway safety mechanisms.**

3. **To explore advanced technologies used in train protection.**

4. **To study the Kavach system and its role in preventing train accidents.**

5. **To observe the practical implementation of safety systems.**

6. **To gather insights for incorporating features into our project.**

1.2 TARGET AUDIENCE

Students of Project Group 7 - 4th year were mainly the target audience for whom this industrial visit was planned. They can gain firsthand knowledge about the existing Kavach system, learn about real-time applications of their coursework, and understand emerging technologies**.**

1.3 OVERVIEW

During our visit to RDSO, we had the opportunity to:

- View Kavach System Models: We observed scaled models and layouts demonstrating the functioning of the Kavach system, an Automatic Train Protection (ATP) system developed by Indian Railways. This system is designed to prevent train collisions by automatically controlling train operations based on signals and track conditions.
- Inspect Equipment: We examined various components used in the Kavach system such as RFID tags, on-board control units, and track-side equipment. These components work together to maintain communication between the train and the control centre to ensure safe movement.



Fig 1: Model of Kavach System Displayed at RDSO.

- Watch Demonstration Videos: The videos showcased real-time scenarios of how the Kavach System operates during emergencies, including automatic braking in case of red signal Violations or potential collisions.

- Interact with Experts: We interacted with engineers and technical staff who explained the working principles, technologies used, and future prospects of railway safety systems.



Fig 2: Demonstration Video of Kavach System in RDSO.

2. OBJECTIVES

The main objectives of visiting RDSO Lucknow are centered around the following key goals:

1. To understand the existing railway safety mechanisms.
2. To explore advanced technologies used in train protection.
3. To study the Kavach system and its role in preventing train accidents.
4. To observe the practical implementation of safety systems.
5. To gather insights for incorporating features into our project.

3. Details of the program

a) Program Schedule

- **Dates and Duration:**
  - Date: 25th April 2025 (Friday)
  - Duration: One day (10:00 AM - 2:00 PM)
- **Venue:**
  - RDSO Lucknow
- **Agenda:**

Session 1: Tour of RDSO Facilities
- Guided tour of RDSO centre, data centre, and other facilities
- Interaction with RDSO officials and entrepreneurs
- Opportunity to ask questions and clarify doubts

Session 2: Overview of RDSO
- Presentation on RDSO's mission, vision, and objectives
- Introduction to RDSO's infrastructure and facilities

Session 3: Valedictory Session
- Vote of thanks
- Closing remarks by RDSO officials

-Group photographs

b) Participants

- Number of participants: 03 participants
- Selection Process: Based on Project Requirement.

4. Key Highlights

- **Major Activities:**
  1. Presentation on RDSO's Mission and Vision: An overview of RDSO's objectives, infrastructure, and facilities.
  2. Tour of the Centre and Data Centre: Guided tour of RDSO's state-of-the-art centre and data centre.
  3. Q&A Session with RDSO Officials: Opportunity to ask questions and clarify doubts with RDSO officials.

- **Innovative Practices:**
  They used PowerPoint presentation to elaborate the session.

5. Outcomes

Achievements:.

- Enhanced Knowledge and Skills: Students acquired knowledge on emerging technologies, innovation, and about the existing system, enhancing their skills.
- Inspiration and Motivation: The visit inspired and motivated students to pursue their project in a more advanced way.
- The use of RFID and GPS technologies can be adapted for real-time obstacle detection.
- Automated response mechanisms such as automatic braking and alerts can be
- implemented in our project prototype.
- Emphasis on fail-safe designs and redundancy to ensure safety in case of system failure.
- Importance of system integration with existing railway infrastructure for effective implementation.

Feedback:

- Valuable insights into the existing system.
- Informative and inspiring interactive sessions
- Great learning experience.

Impact:

- Increased Interest in such kindof projects: The visit sparked interest in the IT students with many considering it in future.
- Improved Accuracy and Presentation: The visit enhanced students' knowledge, skills, and practices, making them more capable in doing the project.
- Future Collaborations: The visit paved the way for future collaborations between the college and RDSO, including internship opportunities, project collaborations, and joint research initiatives.

6. Challenges and Solutions

Challenges Faced

- Coordination with RDSO: Coordinating with RDSO officials to ensure a smooth and informative visit.
- Student Discipline and Safety: Ensuring student discipline and safety during the visit.

Resolution Strategies

- Coordination with RDSO
  Regular Communication: Maintain regular communication with RDSO officials to ensure a smooth visit.
  Clear Objectives: Clearly communicate the objectives and expectations of the visit to RDSO officials.
- Student Discipline and Safety
  Clear Instructions: Provide clear instructions and guidelines to students on discipline and safety during the visit.
  Student Supervision: Ensure adequate student supervision during the visit.
  Emergency Protocols: Establish emergency protocols and procedures in case of any unexpected events.

7. Conclusion

Program Success

- The industrial visit to RDSO Lucknow was a resounding success, achieving its objectives and exceeding expectations. The program received overwhelmingly positive feedback from the students.

Alignment with Objectives

- The program successfully aligned with its objectives, which were:
  - Exposure to Industry Best Practices
  - Networking Opportunities
  - Knowledge Enhancement
  - Inspiration and Motivation

Recommendations for Future Programs

- More Interactive Sessions: Incorporate more interactive sessions, such as workshops, hackathons, and group discussions, to enhance student engagement and participation.
- Industry Expert Talks: Invite more industry experts to share their experiences, insights, and expertise with students.
- Hands-on Experience: Provide more hands-on experience and practical exposure to emerging technologies, such as AI, Blockchain, and IoT.

- Startup Interactions: Arrange more interactions with startups and entrepreneurs to provide students with insights into the startup ecosystem.

8. Appendices

Photographs





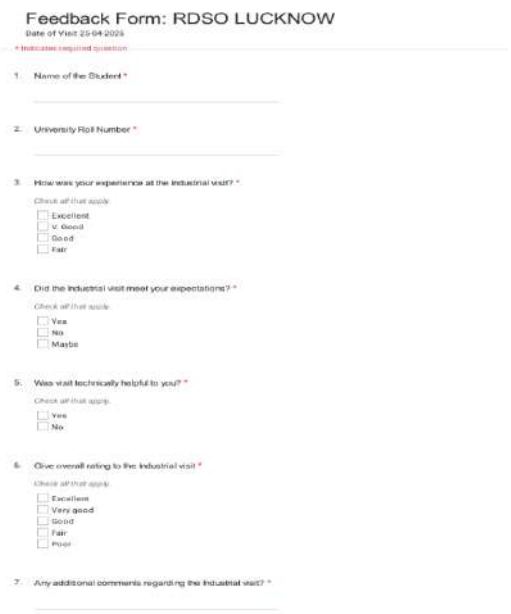








Feedback Forms/Analysis



Feedback Form: RDSO LUCKNOW

Date of Visit 25-04-2025

* Indicates required question

1. Name of the Student *

2. University Roll Number *

3. How was your experience at the Industrial visit? *

Check all that apply.

- Excellent
- V. Good
- Good
- Fair

4. Did the Industrial visit meet your expectations? *

Check all that apply.

- Yes
- No
- Maybe

5. Was visit technically helpful to you? *

Check all that apply.

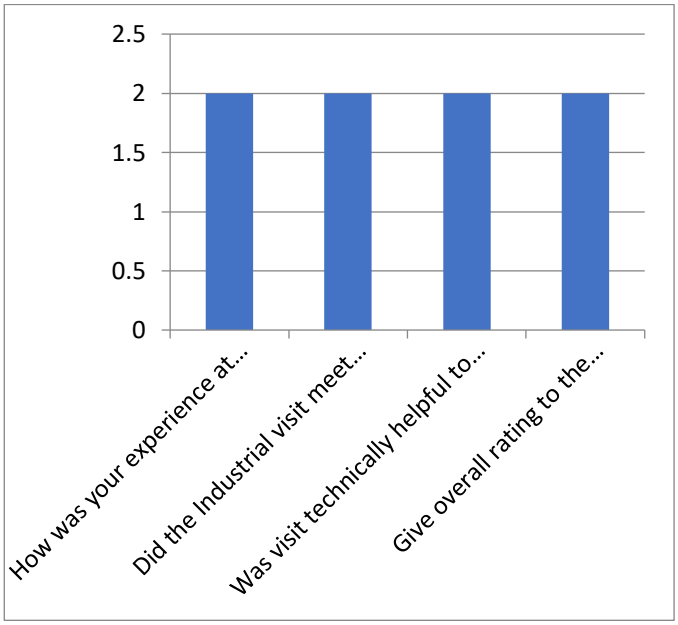
- Yes
- No

6. Give overall rating to the Industrial visit *

Check all that apply.

- Excellent
- Very good
- Good
- Fair
- Poor

7. Any additional comments regarding the Industrial visit? *



Program Brochure/Invitation

It was requested on call through personal contacts.

Acknowledgements

NA