

# Activity Report



**Cross-cultural Engineering Project (CEP@SIT)**  
**Project Theme: Promoting the Activeness of Japanese Youth**  
**through Collaboration with LINTEC Adhesive Company**

Submitted by

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## Contents

1. Introduction.....	3
2. Background and Problem Definition .....	4
3. Team Formation and Methodology .....	4
4. Concept Development and Design Review .....	5
5. Prototyping and Field Activities .....	6
7. Learning Outcomes and Reflection .....	8
8. Conclusion .....	9
9. Acknowledgement .....	9

# 1. Introduction

The Cross-cultural Engineering Project (CEP@SIT) is an international project-based learning (PBL) program organized by Shibaura Institute of Technology, Japan. The program aims to cultivate problem-solving skills, systems thinking, and cross-cultural communication abilities among undergraduate and graduate students from diverse academic and cultural backgrounds. By collaborating with industry and local communities, participants are encouraged to address real-world social and industrial challenges through interdisciplinary and globally minded approaches.

I participated in CEP@SIT as a member of an international project team assigned to a theme proposed in collaboration with **LINTEC Adhesive Company**. The focus of our project was to explore methods to promote the activeness of Japanese youth, particularly in response to social trends such as reduced physical activity, increasing sedentary behavior, and declining motivation for participation in community and outdoor activities. The project sought to integrate LINTEC's adhesive technologies with innovative design concepts to create a feasible and socially impactful solution.



## 2. Background and Problem Definition

In recent years, Japanese society has faced challenges related to youth inactivity, influenced by factors such as academic pressure, digital dependency, urban lifestyles, and limited opportunities for spontaneous physical or social engagement. These trends not only affect physical health but also have long-term implications for mental well-being and social connectedness.

LINTEC Adhesive Company, a global manufacturer of adhesive materials and related products, provided the industrial context for this project. While LINTEC's technologies are primarily used in industrial, commercial, and technological applications, the CEP project challenged participants to reimagine adhesive products as tools for behavioral motivation and social engagement. The core problem addressed by our team was how adhesive-based systems could be redesigned to encourage active behavior among Japanese youth in an accessible, low-cost, and scalable manner.

## 3. Team Formation and Methodology

The project began with ice-breaking activities and team formation sessions designed to foster trust, communication, and mutual understanding among participants from different countries and academic disciplines. Our team consisted of members with engineering, management, and social science backgrounds, which enabled a multifaceted approach to problem analysis.

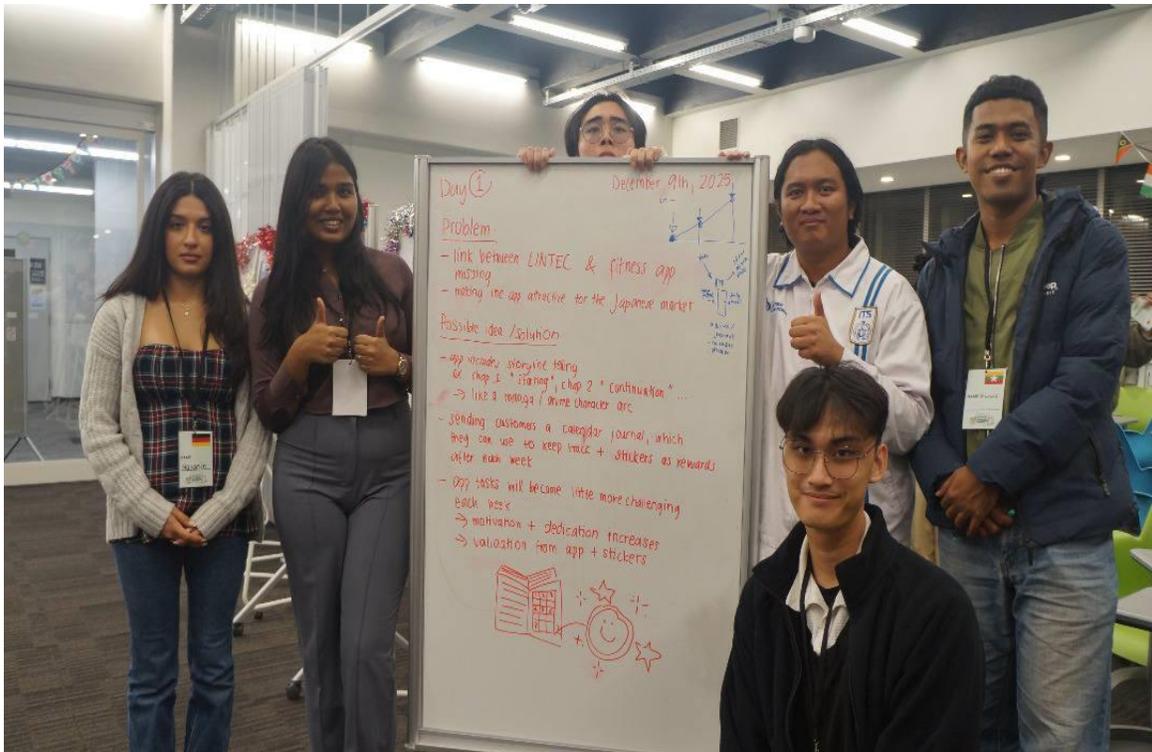




We adopted a **systems thinking methodology**, as emphasized by the CEP framework. This approach involved identifying stakeholders (youth users, schools, communities, and LINTEC), defining system boundaries, and analyzing interactions between technological solutions and human behavior. Requirement analysis was conducted to clarify functional, social, and economic constraints, followed by the establishment of clear project goals aligned with both social impact and industrial feasibility.

#### **4. Concept Development and Design Review**

Based on our analysis, the team proposed a concept that utilized LINTEC's adhesive technology to create **interactive motivational tools**, such as activity-tracking sticker systems, visual progress boards, and gamified participation prompts. These tools were designed to encourage daily movement, goal completion, and peer interaction through visual feedback and tangible rewards.



A business model was developed to demonstrate how the proposed system could be implemented in educational institutions, youth centers, or public spaces. Considerations included production cost, ease of installation, user engagement, and long-term sustainability. The concept was presented during the **Design Review (DR)** session, where feedback was provided by faculty members, teaching assistants, and project stakeholders. This feedback highlighted the importance of simplicity, cultural appropriateness, and measurable outcomes, leading to refinements in both design and implementation strategy.

## 5. Prototyping and Field Activities

Following the Design Review, the team developed a prototype reflecting the revised project plan. The prototype emphasized user-centered design principles, ensuring that the system was intuitive, visually appealing, and adaptable to different environments. Particular attention was given to how adhesive materials could be safely reused, repositioned, or customized, leveraging LINTEC's technological strengths.



During the field activities and workshops in **NASU Town**, the project was presented in a real community-oriented setting. This phase provided valuable insights into user behavior, environmental constraints, and cultural factors influencing youth participation. Direct interaction with local contexts allowed the team to evaluate the practicality of the proposed solution and to identify areas for improvement.

## **6. Evaluation and Final Presentation**

Based on prototype testing and stakeholder feedback, the team conducted an evaluation of the project outcomes. Criteria included user engagement potential, implementation feasibility, and social impact. Adjustments were made to enhance clarity, durability, and motivational effectiveness.

The final presentation summarized the entire project process, from problem definition and system design to prototype development and evaluation. Emphasis was placed on the interdisciplinary nature of the solution and the benefits of industry–academia–community collaboration. The presentation demonstrated how adhesive-based technologies could be repurposed to address social challenges beyond conventional industrial applications.



## 7. Learning Outcomes and Reflection

Participation in the CEP@SIT program significantly enhanced my understanding of cross-cultural teamwork, project management, and applied systems engineering. Working with international teammates improved my communication skills and

adaptability, while engagement with an industrial partner strengthened my appreciation for practical constraints and real-world applicability.

The project also highlighted the importance of considering human behavior and social context in engineering design. Rather than focusing solely on technical performance, the project required a holistic perspective that integrated social needs, cultural values, and stakeholder expectations.

## **8. Conclusion**

The Cross-cultural Engineering Project (CEP@SIT) provided a valuable opportunity to engage in global project-based learning while addressing a contemporary social issue in Japan. Through collaboration with LINTEC Adhesive Company, the project demonstrated how industrial technologies can be innovatively applied to promote youth activeness and social engagement. This experience reinforced the significance of interdisciplinary and cross-cultural approaches in developing sustainable and socially responsible engineering solutions.

## **9. Acknowledgement**

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