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E-PROCEEDINGS

INTERNATIONAL TINKER INNOVATION & ENTREPRENEURSHIP CHALLENGE (i-TIEC 2025)

"Fostering a Culture of Innovation and Entrepreneurial Excellence"



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23 January 2025
PTDI, UiTM Cawangan Johor
Kampus Pasir Gudang

ORGANIZED BY:

Electrical Engineering Studies, College of Engineering
Universiti Teknologi MARA (UiTM) Cawangan Johor
Kampus Pasir Gudang

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PREFACE

It is with great pleasure that we present the e-proceedings of International Tinker Innovation & Entrepreneurship Challenge (i-TIEC 2025), which compiles the extended abstracts submitted to the International Tinker Innovation & Entrepreneurship Challenge (i-TIEC 2025), held on 23 January 2025 at **PTDI, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang**. This publication serves as a valuable resource, showcasing the intellectual contributions on the invention and innovation among students, academics, researchers, and professionals.

The International Tinker Innovation & Entrepreneurship Challenge (i-TIEC 2025), organized under the theme "Fostering a Culture of Innovation and Entrepreneurial Excellence," is designed to inspire participants at various academic levels, from secondary students to higher education students and professionals. The competition emphasizes both innovation and entrepreneurship, encouraging the development of product prototypes that address real-world problems and have clear commercialization potential. By focusing on technological and social innovations, i-TIEC 2025 highlights the importance of turning creative ideas into viable, market-ready solutions that can benefit users and society. The extended abstracts in this e-proceedings book showcase the diverse perspectives and depth of research presented during the event, reflecting the strong entrepreneurial element at its core.

We extend our sincere gratitude to the contributors for their dedication in sharing their innovation and the organizing committee for their hard work in ensuring the success of the event and this publication. We also appreciate the support of our collaborators; Mass Rapid Transit Corporation Sdn. Bhd. (MRT Corp), Universitas Labuhanbatu, Indonesia (ULB), Universitas Riau Kepulauan, Indonesia (UNRIKA) and IEEE Young Professionals Malaysia, whose contributions have been instrumental in making this event and publication possible.

We hope that this e-proceedings book will serve as a valuable reference for researchers, educators, and practitioners, inspiring further studies and collaborations in both innovation and entrepreneurship. May the knowledge shared here continue to spark new ideas and market-ready solutions, advancing our collective expertise and fostering the growth of entrepreneurial ventures.

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A-SS119: SOLV.IT

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ABSTRACT

Solv.It is a web-based application developed to enhance the university experience for students by addressing myriad of campus challenges in a single, integrated platform. It was designed to streamline campus life by combining voluntary job-seeking, birthday reward redemption, and university bus slot management into one app solution. Solv.It was conceptualized to fill gaps in campus life management by offering features that encourage skill-building, sustainability, and leisure. The voluntary job-seeking feature promotes community engagement and personal growth. The bus slot management tool optimizes campus transportation and promoting efficient commuting practices. Its unique integration of services fosters a more productive and enjoyable campus environment. The birthday reward redemption system simplifies the redemption process, ensuring a more convenient experience. By addressing logistical challenges and encouraging community participation, Solv.It creates socio-economic and environmental benefits make it as a potential solution for commercialization in our local higher education institutions.

Keywords: Students, volunteering, rewards, buses, campus

1. Product Description

Solv.It App focuses on three core areas: voluntary job-seeking, university bus slot management and birthday reward redemption. The voluntary job-seeking feature makes it easy for students to find volunteering opportunities by eliminating the need to search through multiple websites, social media pages, or bulletin boards for suitable roles. This saves time and effort, helping students quickly connect with organizations that match their interests. It also supports skill-building by making community engagement simple and accessible through a user-friendly platform. Meanwhile, the bus slot management tool allows students to reserve seats in advance, reducing overcrowding and long waits at bus stops, especially during peak hours and on rainy days. This feature ensures a more organized and efficient commute by distributing demand evenly across buses, improving punctuality, minimizing delays, and promoting a smoother, more sustainable campus transit system. The birthday reward redemption system makes it quick and easy for students to redeem their birthday rewards without the hassle of queuing or dealing with complicated steps. Students can view, select, and claim their rewards in just a few clicks. This convenience saves time, reduces frustration, and encourages students to take full advantage of campus related programs and promotions.

2. Solv.It App

University students often face challenges such as finding volunteering opportunities, booking campus bus slots, and redeeming birthday rewards, as shown in **Figure 1**, **Figure 2** and **Figure 3**. To better understand these issues, we conducted a survey among respondent which are mostly students, who identified these as common problems. Additionally, the survey asked whether they would be interested in an app that integrates these services to simplify campus life. The results, illustrated in **Figure 4**, showed that a majority of respondents supported the idea, emphasizing the need for a centralized solution. This valuable feedback inspired the development of Solv.It, a web-based application tailored to address these challenges effectively.

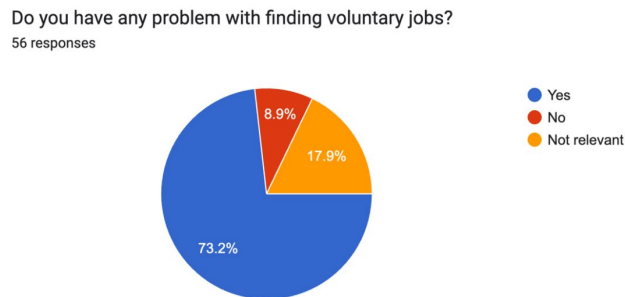


Figure 1 illustrates a pie chart showing the percentage of students having difficulty in findings voluntary jobs.

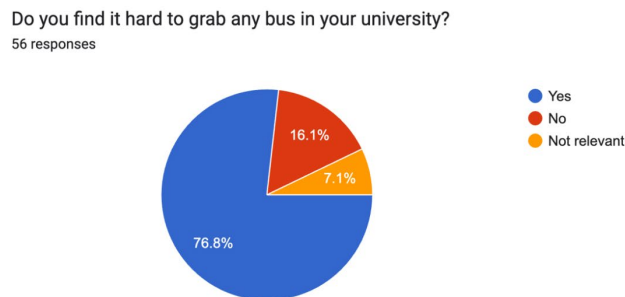


Figure 2 illustrates a pie chart showing the percentage of students having difficulty in securing a bus at the university.

Do you find it difficult to redeem your rewards on any attraction places?
56 responses

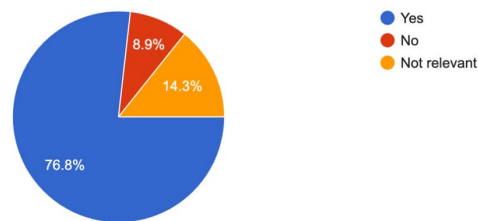


Figure 3 illustrates a pie chart showing the percentage of students having difficulty in redeeming rewards at attraction places.

Would you be interested in an app that integrates multiple services for students, such as a voluntary job-seeking feature, reward redemption, and transportation management?
56 responses

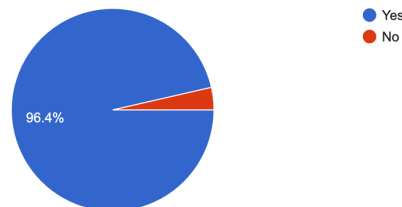


Figure 4 illustrates a pie chart showing the percentage of students interested in having an integrated app for campus-related services.

The Solv.It App, as shown in **Figure 5** was to address gaps in centralized systems for volunteer management, transportation booking, and birthday reward redemption. Its intuitive design and user-focused features aim to enhance accessibility and engagement among users, addressing existing challenges of scattered and inefficient systems.

As shown in **Figure 6**, the app is designed with three primary modules: Voluntary Job, University Bus Slot, and Birthday Reward Redemption.

Key Features of the Solv.It App:

- i) With reference to **Figure 7**, the Voluntary Job Module allows users to browse for voluntary job opportunities across multiple categories, such as “Sports”, “Workshops”, “Corporate Social Responsibility” (CSR), “Concerts” and “Others”.
- ii) As shown in **Figure 8**, the University Bus Slot allow students to reserve bus slots in advance, reducing overcrowding and improving efficiency in campus transit systems through real-time updates, allowing them to plan their commutes effectively.

- iii) **Figure 9** illustrates the Birthday Reward, a personalized feature that offers birthday rewards redemption under three main categories: “Tourist Attractions,” “Entertainment,” and “Others.” Each category represents a different type of reward provided by various providers and available for redemption.”

SOLV.IT APPLICATION INTERFACES



Figure 5: The Solv.it main interface.

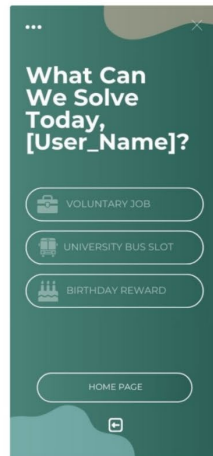


Figure 6: Home screen showcasing the main menu options.



Figure 7: Voluntary Job interface with type of voluntary job offers.

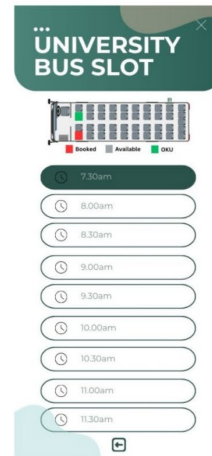


Figure 8: University Bus Slot availability and booking screen

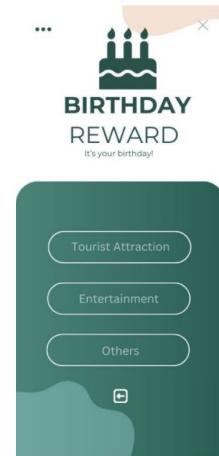


Figure 9: Birthday Reward Redemption page highlighting rewards category provider available for redemption.

3. Novelty and uniqueness

Solv.It is an innovative platform that uniquely integrates voluntary job-seeking, bus slot management and birthday reward redemption into one seamless solution for students. Unlike existing fragmented systems, Solv.It offers a centralized, user-friendly interface tailored to the needs of university life. Its voluntary job-seeking feature not only streamlines the search for opportunities but also allows students to build skills and foster community engagement effortlessly. The bus slot management tool is a solution to reduce overcrowding and inefficiencies in campus transit systems, leveraging real-time data to optimize bus schedules and seating availability. The birthday reward redemption system eliminates the complexities of traditional reward programs, offering students a quick hassle-free and a more enjoyable birthday experience. By addressing these challenges in a holistic manner, Solv.It stands out as a transformative application designed to enhance the student experience, improve sustainability, and foster an inclusive campus environment.

4. Benefit to mankind

Solv.It benefits mankind by enhancing the efficiency, sustainability, and accessibility of campus life. The voluntary job-seeking feature nurtures students' personal growth and skill development, fostering a culture of giving back to the community. By optimizing campus transportation, the app reduces commuting stress, carbon emissions, and time wastage, contributing to environmental sustainability. The birthday reward redemption system simplifies access to a variety of birthday rewards available, whether provided by the university or external organizations. Additionally, Solv.It encourages meaningful

interactions and community participation, creating a harmonious campus ecosystem that prioritizes productivity, well-being, and inclusivity.

5. Innovation and Entrepreneurial Impact

Solv.It exemplifies innovation by seamlessly integrating solutions to critical campus challenges into a single, user-friendly application. It fosters a culture of entrepreneurship by encouraging students and institutions to think creatively about addressing common problems with scalable, technology-driven solutions. The app demonstrates the potential for resource optimization, sustainability, and community engagement, inspiring similar projects within academic and industry settings. By supporting personal and professional growth, Solv.It builds an entrepreneurial mindset among students, equipping them with skills to identify gaps and create impactful solutions within their communities and beyond.

6. Potential commercialization

Solv.It holds significant potential for commercialization within higher education institutions, especially the local university due to its big size capacity in nature. Its modular and scalable design allows it to be easily customized and implemented across campuses of varying sizes and needs. Future subscription-based models or partnerships with universities and student organizations can generate revenue while delivering value to stakeholders. Additionally, the app's features can be expanded to include sponsorships, premium reward options, or third-party advertisements, creating additional revenue streams. With its emphasis on improving campus life and sustainability, Solv.It can become a sought-after solution for educational institutions aiming to enhance their students' overall experience and operational efficiency.

7. Acknowledgment

We would like to express our gratitude to our lecturer, Professor Madya Dr. Faiz Izwan Bin Anuar, for their invaluable guidance and support throughout the development of Solv.It. We also extend our heartfelt thanks to our peers for their encouragement and insights in helping shaping Solv.It into a tool that we hope will effectively meet the diverse needs of our local university communities in the future.

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