



UNIVERSITI
TEKNOLOGI
MARA

Kampus Cengalim Kuala

i-SPIKE2025
INTERNATIONAL SYMPOSIUM ON PRODUCTIVITY, INNOVATION, KNOWLEDGE & EDUCATION

INTERNATIONAL EXHIBITION & SYMPOSIUM ON PRODUCTIVITY, INNOVATION, KNOWLEDGE & EDUCATION

E-PROCEEDING

EXTENDED ABSTRACT

UiTM *di hatiku*

اوسها تقوى موليا

E-PROCEEDING

EXTENDED ABSTRACT



Copyright © 2025 by Universiti Teknologi MARA (UiTM) Cawangan Kedah

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher.

© i-SPIKE 2025 Extended Abstract Proceedings is jointly published by Universiti Teknologi MARA (UiTM) Cawangan Kedah.

The views, opinions, and technical recommendations expressed by the contributors and authors are entirely their own and do not necessarily reflect the views of the editors, the faculty, or the University.

Editors

- Prof. Madya Dr. Azlyn Ahmad Zawawi
- Dr. Anis Farawahida Mohd Karim
- Dr. Nursyazwanie Mansor
- Dr. Roshidah Safeei
- Azni Syafena binti Andin Salamat
- Hasniza binti Hassim
- Dr. Nur Zharifah Che Adenan
- Mohd Rozman Mohd Nasir
- Nurfaznim binti Shuib
- Norsyazwani binti Ab Halim

e ISBN 978-967-2948-91-9



UiTM Cawangan Kedah

Published by:
Universiti Teknologi MARA (UiTM) Cawangan Kedah
Sungai Petani Campus
08400 Merbok
Kedah
Malaysia

Welcome Message RECTOR, UITM KEDAH BRANCH

Assalamualaikum warahmatullahi wabarakatuh,

First and foremost, I would like to extend my deepest appreciation to the organising committee of i-SPIKE 2025 for their steadfast dedication and commitment in making this prestigious event a reality. My heartfelt congratulations to the committee for their tireless efforts in ensuring that i-SPIKE continues to grow as a meaningful and impactful platform for academics, researchers, students, and industry players worldwide.

The theme for this year, “Empowering Minds: Bridging Innovation, Knowledge and Education for a Sustainable Future,” is both timely and significant. It reflects our shared responsibility to not only embrace creativity and technological advancement, but also to ensure that innovation directly contributes to sustainable development, equitable education, and the well-being of future generations.

i-SPIKE 2025 provides a dynamic platform for showcasing innovations that address real-world challenges while opening new avenues for collaboration, engagement, and inclusivity. By bridging knowledge, innovation, and education, this symposium strengthens our collective capacity to design solutions that empower communities and inspire positive change.

I am truly impressed by the diversity and calibre of participants in this year’s event. The projects and ideas presented highlight the extraordinary creativity and determination of our innovators. I am confident that the insights and solutions shared here will pave the way for continuous advancement in teaching, learning, and innovation.

It is my sincere hope that you will find i-SPIKE 2025 an enriching experience, one that sparks new ideas, builds lasting collaborations, and strengthens our shared vision for a sustainable future. To all participants, I wish you every success, and to the winners, my warmest congratulations.

Once again, I thank the organising committee, partners, and contributors for their invaluable support. May i-SPIKE 2025 continue to inspire and empower minds for many years to come.

Professor Dr. Roshima Haji Said
Acting Rector
Universiti Teknologi MARA (UiTM) Kedah Branch

Welcome Message (i-SPIKE 2025 CHAIR)

It is my great pleasure to welcome you to the 4th International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2025 (i-SPIKE 2025). This year's theme, "Empowering Minds: Bridging Innovation, Knowledge, and Education for a Sustainable Future," reflects our collective commitment to advancing innovation and fostering meaningful collaboration across academia, industry, and communities.

i-SPIKE 2025 provides a platform for scholars, researchers, students, and practitioners from diverse fields to showcase their ideas, share knowledge, and inspire new solutions to global challenges. We extend our sincere appreciation to all participants and contributors whose efforts and dedication have made this symposium possible.

We hope that this e-proceedings serves not only as a record of the innovations presented but also as a valuable resource that continues to inspire long after the event.

Thank you.

Dr Junaida Ismail
Chair

4th International Exhibition & Symposium on Productivity, Innovation,
Knowledge, and Education 2025 (i-SPIKE 2025)

PREFACE

The 4th International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education (i-SPIKE 2025) marks yet another milestone in our ongoing commitment to fostering innovation, creativity, and collaboration across disciplines. Guided by this year's theme, "Empowering Minds: Bridging Innovation, Knowledge and Education for a Sustainable Future," the event provides a dynamic platform for students, educators, researchers, and professionals to share their ideas, showcase their innovations, and engage in meaningful knowledge exchange.

This year, we are pleased to report that i-SPIKE 2025 received approximately 50 initial submissions, with more than 35 projects successfully advancing to final presentation and exhibition. These projects reflect a rich diversity of innovation, ranging from educational technologies, digital applications, and gamified learning tools to sustainable materials, cultural heritage preservation, and community-focused solutions. Collectively, they embody the spirit of bridging innovation and education to address pressing societal and global challenges.

We sincerely thank all participants, reviewers, and committee members for their invaluable contributions in making i-SPIKE 2025 a success. It is our hope that this e-proceedings will not only serve as a record of the ideas and innovations presented, but also as an inspiration for future collaborations and advancements in the pursuit of sustainable knowledge and innovation.

Assoc. Prof. Dr. Azlyn Ahmad Zawawi
Editor-in-Chief, i-SPIKE 2025 Proceedings

TABLE OF CONTENTS

2.	BIZMATH-FAST (BUSINESS MATHEMATICS – FORMULA ACCURACY & SPEED TRAINER)	84
3.	COLLABORATIVE INNOVATION LAB: RATE & REFLECT SIMULATION	89
4.	ECONOSPHERE 1.0 – THE ECONOMICS E-FLASHCARDS	93
5.	ACC-TILE CHALLENGE 1.0: PERMAINAN INOVATIF UNTUK MAHIR DEBIT & KREDIT	96
6.	PRESERVING CULTURAL HERITAGE THROUGH AR-INFUSED STORYTELLING: PROMOTING KASUT MANIK VIA INTERACTIVE STORYBOOK FOR THE YOUNGER GENERATION	99
7.	FROM CLASSROOM TO COLLOQUIUM: STRENGTHENING SKILLS OF CTU271 (ISLAM AND COMMUNICATION) STUDENTS IN UiTM	103
8.	RABIES VACCINATION IN SARAWAK: VAXPAW	109
9.	ChanteQ: AN INNOVATIVE MOBILE APP FOR ENHANCING HAIR SALON APPOINTMENT MANAGEMENT	114
10.	REBER LINE 2.0	120
11.	THE APPLICATION OF DESIGN THINKING: CASE STUDY I-ROOM BHEA	124
12.	KICKRESEARCH V2 MODULE V2: THE FAST TRACK TO RESEARCH WRITING	131
CATEGORY 2 - SS (YOUNG)		
1.	CULTURE-LENS EDUCATIONAL KIT: A MODULE FOR CULTURALLY RESPONSIVE ANTI-CORRUPTION EDUCATION	139
2.	"MyJourney": A GEN-Z-CENTRIC DIGITAL INNOVATION TO IMPROVE JOB ENGAGEMENT AND DECREASE TURNOVER INTENTION IN THE HOSPITALITY SECTOR	144
3.	SPIRITUAL WELL-BEING MODULE BASED ON AL-DIHLAWI AND HAMKA SPIRITUAL (SWBDH)	148
CATEGORY 3 – PRODUCT RESEARCH DESIGN (ACADEMIC)		
1.	THE SWICI BOARD: A GAMIFIED APPROACH TO CAREER EXPLORATION AND DECISION-MAKING AMONG AT-RISK ADOLESCENTS	158
2.	EMPOWERING ABILITIES: THE 7 STEPS OF LIFE TRANSFORMATION MODULE FOR PERSONS WITH DISABILITIES	166
CATEGORY 3 – PRODUCT RESEARCH DESIGN (YOUNG)		
1.	SENSME SMART GLASSES (ASSISTIVE WEARABLE TECHNOLOGY FOR VISUAL IMPAIRMENT)	173

CATEGORY 2
SS (ACADEMIC)

ChanteQ: AN INNOVATIVE MOBILE APP FOR ENHANCING HAIR SALON APPOINTMENT MANAGEMENT

Lai Tze Wee

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Sarawak Branch

laitzewee@uitm.edu.my

Adeline Anak Engkamat*

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Sarawak Branch

adeline@uitm.edu.my

Juliza binti Salleh

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Sarawak Branch

juliza3379@uitm.edu.my

Lee Siaw Li

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Sarawak Branch

siawli@uitm.edu.my

Rumaizah binti Haji Che Md Nor

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Sarawak Branch

rumaizah@uitm.edu.my

Shirley Sinatra Anak Gran

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Sarawak Branch

shirley@uitm.edu.my

Syah Runniza binti Ahmad Bakri

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Sarawak Branch

runniza@uitm.edu.my

ABSTRACT

Traditionally, customers schedule hair salon appointments through phone calls, messaging apps, or walk-ins. However, this process is often tedious and inefficient, which causes various challenges, such as difficulty in finding common time slots, unclear information about available hairstylists and their expertise, limited information about services provided, uncertainty about pricing, lack of guidance for first-time customers, miscommunication due to different languages, and difficulty in finding hijab-friendly salons. These challenges illustrate the importance of a comprehensive and customer-friendly digital solution. This study has developed ChanteQ, an innovative mobile application, to offer a comprehensive platform for

managing hair salon appointments. The primary objectives of the study are to simplify the booking process, enhance customers' experience, and increase service transparency between hair salons and customers. ChanteQ is unique, as it combines multiple features in one app, such as real-time scheduling, hairstylist profiles, and service lists with price ranges. It also provides dual language support to make it more accessible for different customer groups. Moreover, it includes a search filter that helps customers find hijab-friendly salons that respect cultural and religious preferences. ChanteQ also adopts a customer-centred design approach to ensure usability and convenience for both first-timers and returning customers. Its technical features include a real-time appointment system that aligns with hairstylists' availability, automated booking reminders, an interactive interface for customer feedback, and a personalised hairstylist selection function. Internal tests have shown that the prototype operates well, with the booking process and data synchronisation working correctly. Overall, ChanteQ offers a practical mobile solution that connects hair salons with their customers. By simplifying the booking process and offering transparent service details, it boosts operational efficiency for hair salons while increasing customer satisfaction. This innovation shows that digital technology can transform traditional services into more efficient, accessible, and customer-centred systems.

Keywords: Customer-Centred Design, Mobile App Reservation, Service Transparency, Real-Time Scheduling.

INTRODUCTION

In this fast-changing digital world, Malaysia's beauty and wellness sector is rapidly evolving. However, many local hair salons still depend on traditional appointment methods such as phone calls, messaging apps, or walk-ins. Although these methods are familiar, they are inefficient and can lead to scheduling mistakes, miscommunication, double booking, and missed appointments, especially during peak seasons or promotional events. Various digital solutions have appeared in today's market, such as salon management software and point-of-sale (POS) systems (Chai & Chuah, 2017; Uriawan et al., 2024). However, these tools mainly focus on internal tasks like inventory management, billing, and employee monitoring rather than customer-centred features like easy appointment scheduling or service exploration. Most of the platforms do not provide localisation support, only offering interfaces in English, and they do not cater to the different language needs of Malaysian customers, who are more comfortable in Bahasa Melayu. Moreover, there is a lack of culturally sensitive features, such as a filter to identify hijab-friendly salons, which is a key consideration in Malaysia's Muslim majority population. These gaps create significant obstacles for customers seeking easy access to services and for hair salon owners trying to remain competitive in the digital market. To address these challenges, ChanteQ, an innovative mobile application, has been developed in this study, tailored to the Malaysian context.

METHODOLOGY/ DEVELOPMENT APPROACH

The ChanteQ Hair Salon Booking system was developed using the Mobile Application Development Life Cycle framework (in Figure 1) combined with User-Centred Design (UCD) principles to ensure it is practical, inclusive, and culturally relevant. The process was guided by 6 phases, starting with planning, where surveys and interviews with hair salon owners and customers were conducted to identify issues in the current booking methods. The insights gained from this phase shaped the design phase, during which a User Interface (UI) Flow Diagram (in Figure 2) was created to outline the application's structure. Early prototypes were shared with potential customers, and their feedback was used to enhance usability. In the development stage, the design was turned into a working prototype using Adalo and a real-time PostgreSQL database. Testing included alpha trials to assess functionality, followed by planned beta testing with hair salons and customers in Sarawak to confirm usability and cultural relevance. Deployment will start with a pilot launch in Sarawak through the Google Play Store, with plans to target the Apple App Store later. The maintenance phase will focus on gathering customer feedback to improve features and ensure ongoing enhancement.

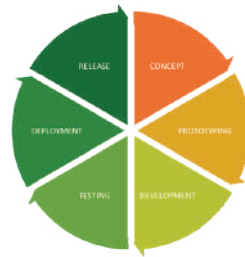


Figure 1. Mobile Application Development Life Cycle.

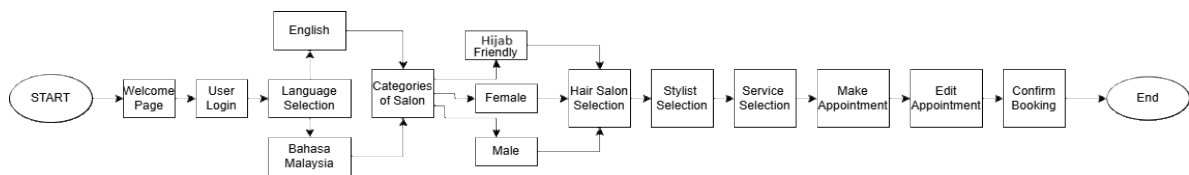


Figure 2. ChanteQ User Interface (UI) Flow Diagram.

RESULTS AND DISCUSSION

This study uses a prototype-based system development method, which includes interviews with 17 hair salon owners and surveys from 109 customers. Results from the hair salon owners indicate that WhatsApp is the most frequently used platform for managing bookings. 14 salon owners do not use any application or systematic booking system to handle customer bookings. In addition, some hair salon owners do not receive proper booking information from the current booking system, such as Facebook, which has limited efficient features to alert both parties. Hence, the scenario leads to difficulty for salon owners to trace and manage bookings and appointments. Many salon owners prefer to use WhatsApp because it is faster, more direct, and easier for them to keep track of bookings. Most of the hair salon owners handle it manually or depend on Facebook's booking features, which often fail to alert customers and hair salon owners about upcoming appointments. This situation poses a risk of missed bookings and appointments, hence leading to confusion and customer dissatisfaction. Apart from this, most salons do not have private areas for Muslim customers, which is a major gap in the service. This is important, as Muslim women customers need a private area to cover their aurah during hair treatment services.

Moreover, customer feedback highlights dissatisfaction with current booking methods. An analysis as shown in Figure 3 indicates low average satisfaction levels (37.61%) for response time, 29.36% for data privacy, 31.88% for flow of communication, and 33.49% for schedule visibility. The issue of system centralisation contributes to the lowest level of satisfaction, at 18.58%. Additionally, the feedback received indicates issues such as slow replies, problems with rescheduling, and missed bookings and appointments. These results underline the need for a centralised, customer-friendly booking application that addresses customer satisfaction and salon management systems' efficiency.

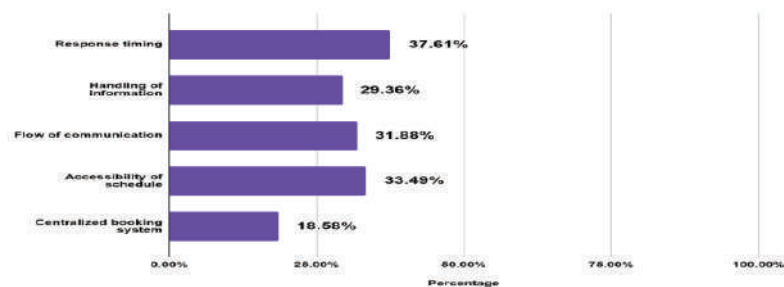


Figure 3. Average Satisfaction Level Towards Existing Booking System.

Prototype Development and Output

Based on the information collected from surveys and the User Interface (UI) Flow Diagram, a working prototype of the ChanteQ Hair Salon Booking app was created. The prototype features the following modules:

- Welcome Page and Login: Displays branding, tagline, and secure customer access.
- Language Selection: Offers dual language support; English and Bahasa Melayu.
- Categories Selection: Categories designed for hijab-friendly, male or female customers.
- Hair Stylists and Service Menu: Shows hair stylist profiles, services, and pricing details.
- Booking Slots: Displays real-time availability of appointment slots for easy selection.

Once the customers have completed the booking, the summarisation of the appointment information will appear, and customers are allowed to edit the appointment information for rescheduling and cancellation. ChanteQ's design prioritises localised, culturally sensitive, and customer-focused approaches, addressing shortcomings often overlooked by traditional salon management platforms. Figure 4 displays a sample of screen views that showcase the prototype's main features.



Figure 4. Screen view of ChanteQ.

Novelty and Uniqueness

ChanteQ is a unique mobile app developed specifically for the local hair salon sector by overcoming the challenges of traditional booking methods that depend on phone calls, messaging apps, or walk-ins. Unlike other platforms, ChanteQ is a localised, customer-centred design that prioritises cultural relevance. It also provides a smooth, first-time booking experience, with real-time slot availability, automated reminders, cancellation management, and an easy-to-use interface. These technically and culturally sensitive features are uniquely designed to benefit both customers and hair salon owners, addressing a significant gap in the Malaysian hair salon services market. By adopting functionality with cultural sensitivity, ChanteQ transforms traditional appointment booking systems into an effective and inclusive digital solution.

Potential Commercialisation

ChanteQ shows great potential for commercialisation by entering Malaysia's rapidly expanding beauty and wellness sector, which currently lacks a mobile booking platform. Revenue is mainly generated through various streams, such as subscription plans for hair salon owners, in-app advertisements, and loyalty rewards, which provide diverse and scalable income options. The target market for these apps not only focuses on the hair salon sector but can be expanded into related fields such as spas, nail salons, slimming clinics, massage therapy, wellness centres, and many others. ChanteQ's unique features, which cater to Muslim customers and offer a dual-language interface, aim to attract underserved but valuable customers.

CONCLUSION

In conclusion, the development of ChanteQ meets the demand for a localised, effective system for booking hair salon appointments. By addressing the existing challenges, it indicates that ChanteQ can transform a traditional service sector into a simpler, accessible, and customer-centred experience.

ACKNOWLEDGEMENTS

The authors acknowledge Universiti Teknologi MARA, Sarawak Branch, for providing the resources and facilities.

REFERENCES

- Chai, A. & Chuah, C. W. (2017). SHEARS Inc. Salon management system. *JOIV: International Journal of Informatics Visualization*, 1(4-2), 246-249.
<https://dx.doi.org/10.30630/joiv.1.4-2.72>
- Uriawan, W., Faroj, R. Z., Hadid, R. A., Khoirunnisa, S., Julianto, S. & Sopian, A. R. (2004). Innovative data management strategies in point-of-sale application development: Increasing business productivity. *Preprints*.
<https://doi.org/10.20944/preprints202407.0241.v1>

