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E-PROCEEDING

EXTENDED ABSTRACT

UiTM *di hatiku*

اوسها تقوى موليا

E-PROCEEDING

EXTENDED ABSTRACT



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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

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CATEGORY 2
SS (ACADEMIC)

PRESERVING CULTURAL HERITAGE THROUGH AR-INFUSED STORYTELLING: PROMOTING KASUT MANIK VIA INTERACTIVE STORYBOOK FOR THE YOUNGER GENERATION

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ABSTRACT

Baba and Nyonya beaded shoes, also known as 'Kasut Manik', have become an iconic symbol for their ethnicity and cultural identity. It also draws a lot of interest from tourists to come and get their hands on the exquisite handicraft. However, the continuity of the legacy might force it to cease, as it did not attract interest among the youngsters of the community. Primed with the Technology Acceptance model, an augmented reality interactive storybook of Kasut Manik was developed, as an effort to promote Kasut Manik among youngsters and tourists, as it offers a more in-depth perspective in promoting Kasut Manik.

Keywords: augmented reality, storybook, kasut manik, cultural heritage, baba and nyonya

INTRODUCTION

The history of Baba and Nyonya ethnicity, also commonly known as Baba Nyonya existence, can be traced back as early as the 15th century (Azmi et al., 2018). It was said that the origin came through from the infamous gesture of the Emperor of China sending Princess Hang Li Po to the Sultan of Malacca as a token of gratitude (Yuanzi, 2021). Nowadays, this community can be found in Malacca and Penang. Among the uniqueness of this ethnicity is their traditional handicraft that can be found on their footwear, which is also known as 'Kasut Manik'. The handcrafted shoe (Kasut Manik) features a pointed toe and a tiny heel and is elaborately beaded with vibrant glass beads in patterns that are typically floral or geometric (Zakaria et al, 2017). The Kasut Manik is an iconic sign of Baba and Nyonya cultural heritage, and it continues to be an important element of their community's cultural identity. To date, it has also become one of the tourism attractions in Malacca as most tourists will consider it an interesting souvenir to bring back home. Despite that, the continuity of this heritage is currently in a dire state. The young generation is not interested or does not even know about Kasut Manik (Beck, 2013). Therefore, this innovation aims to promote this golden traditional handicraft of Kasut Manik via the implementation of augmented reality technology in the form of a storybook towards the younger generation.

AUGMENTED REALITY STORYBOOK

Augmented reality is not something strange in this age. It is something that people nowadays, especially youngsters, are already accustomed to. Augmented Reality allows virtual assets to be accessed by the user with the help of appropriate devices. Using a smartphone or tablet, people can experience and interact with virtual items superimposed on the real world. For example, with an AR-infused storybook, users can scan the printed brochure with their mobile device and view a 3D model or animation of the Kasut Manik that they might not otherwise have access to. It provides a more in-depth experience towards users while maintaining the originality of the Kasut Manik (Chung et al., 2018). The Kasut Manik can be presented in a dynamic and engaging manner using AR technology, capturing the attention and curiosity of younger generations who may be unfamiliar with traditional crafts like this. AR technology can also be used to highlight the fine features and craftsmanship of the Kasut Manik, which might be difficult to appreciate with static photographs or textual descriptions alone.

Storybooks can be incorporated into cultural tourism for two reasons: education and involvement. Younger generations are more interested in local traditions because storybooks provide relatable material and creative illustrations. According to Stranger-Johannessen et al. (2018) storybooks can serve as an accessible and emotionally impactful means of introducing heritage symbols such as kasut manik in multilingual and multicultural settings. Cultural storybooks serve as both entertainment and a gentle educational tool by providing visitors with a contextualized introduction to local customs. Storybooks become "living artifacts" in this sense, bridging indigenous narratives with audiences around the world.

To produce the AR storybook, a team of designers and developers will collaborate with local artisans and experts in the field of traditional crafts. The project will also involve a user testing phase to assess the efficiency of the AR brochure in promoting the Kasut Manik to a broader audience, particularly younger generations who may be unfamiliar with this facet of Malaysian culture. The design process of the AR brochure was primed by the Technology Acceptance Model (TAM) as it gives more leverage on promoting cultural heritage via augmented reality (Haugstvedt & Krogstie, 2012).

This project's intended outcomes include an innovative and engaging platform to promote the Kasut Manik to a larger audience while also contributing to the country's socioeconomic development. The project may also draw more visitors and tourists to Malaysia, as well as help to preserve and promote traditional crafts and cultural heritage.

PROJECT DESCRIPTION

The outcome of this project is a storybook of 'Kasut Manik' that is embedded with Augmented Technology. As mentioned earlier, the process of embedding Augmented Reality into the storybook was primed with the Technology Acceptance Model (TAM)(see figure 1). The Technology Acceptance Model (TAM) is a framework for explaining how users accept and utilise a technology based on their perceptions of its usefulness (PU) and ease of use (PEOU) (Davis et al., 1989). Perceived usefulness refers to the extent to which users believe that a particular technology will enhance their job performance or make their lives easier, whereas perceived ease of use refers to the extent to which users believe that a particular technology will be simple to use and understand. Perceived usefulness (PU) provides information on how the AR technology developed, in some way, provides value to users by enhancing their ability to complete tasks or their experience. On the other hand, perceived ease of use (PEOU) provides information on developing intuitive and easy-to-use augmented reality (AR) without requiring users to possess specialised knowledge or skills. This may involve creating user-friendly interfaces and detailed instructions on how to operate the application (Venkatesh & Davis, 2000).

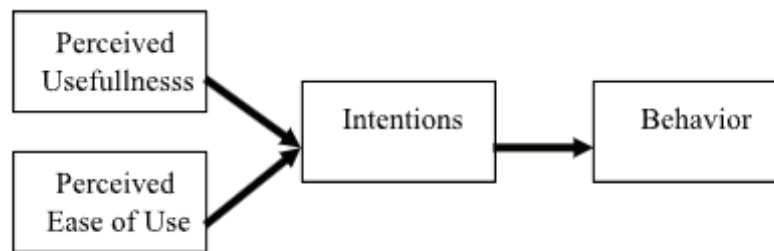


Figure 1. Technology Acceptance Model

The base of the project is the storybook design. The storybook was designed using information gather from literature review on 'Kasut Manik'. The brochure was then equipped with a QR code that enables the user to get access to the AR technology embedded in the brochure. The AR technology was then developed. AR technology involved two elements: the 3D representation of 'Kasut Manik' and the platform for integrating the 3D and the storybook. 3D representation of 'Kasut Manik' was built in a 3D software, namely Autodesk Maya, and the 3D object was brought to online AR tools called My Web AR for further processing of integrating the 3D object into an AR.

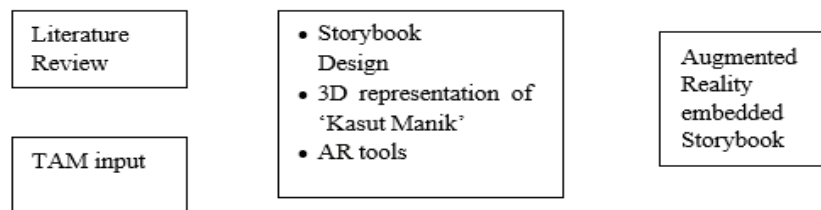


Figure 2. Project workflow

NOVELTY

Incorporating augmented reality (AR) technology into a storybook design can become a new perspective on the implementation and application of the Technology Acceptance Model (TAM). By incorporating AR technology, users can interact with the storybook content in novel ways, potentially enhancing its perceived utility and usability.

Using TAM as a framework for developing the AR-infused storybook can ensure that the technology is designed with user preferences and needs in mind. By emphasising perceived utility and perceived usability, developers can create an augmented reality (AR) experience that is both valuable and user-friendly. An AR-infused storybook for a cultural heritage, for instance, could use AR technology to superimpose additional information or images over the brochure. This may increase visitors' enjoyment and comprehension of the cultural and heritage content by making it more engaging and interactive. Overall, incorporating AR technology into the design of a storybook using TAM as a guide can be a creative and innovative way to enhance the user experience and improve the brochure's effectiveness.

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REFERENCES

- Azmi, N. A., Nizam, A., Mohamad, D., C Mohamed, B. (2018). Beaded shoes: the culture of Baba Nyonya. SHS Web of Conferences,
- Beck, E. (2013). *Maszni and Her Beaded Shoes (Kasut Manek)*. Retrieved 2nd April from <https://www.peranakanlife.com/news/16/15/maszni-and-her-beaded-shoes-kasut-manek>
- Chung, N., Lee, H., Kim, J.-Y., C Koo, C. (2018). The role of augmented reality for experience- influenced environments: The case of cultural heritage tourism in Korea. *Journal of Travel Research*, 57(5), 627-643.
- Davis, F. D., Bagozzi, R. P., C Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management science*, 35(8), 982-1003.
- Haugstvedt, A.-C., C Krogstie, J. (2012). Mobile augmented reality for cultural heritage: A technology acceptance study. 2012 IEEE international symposium on mixed and augmented reality (ISMAR),
- Stranger-Johannessen, E., Doherty, L., C Norton, B. (2018). The African Storybook and Storybooks Canada: Digital stories for linguistically diverse children.
- Venkatesh, V., C Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 4C(2), 186-204.

