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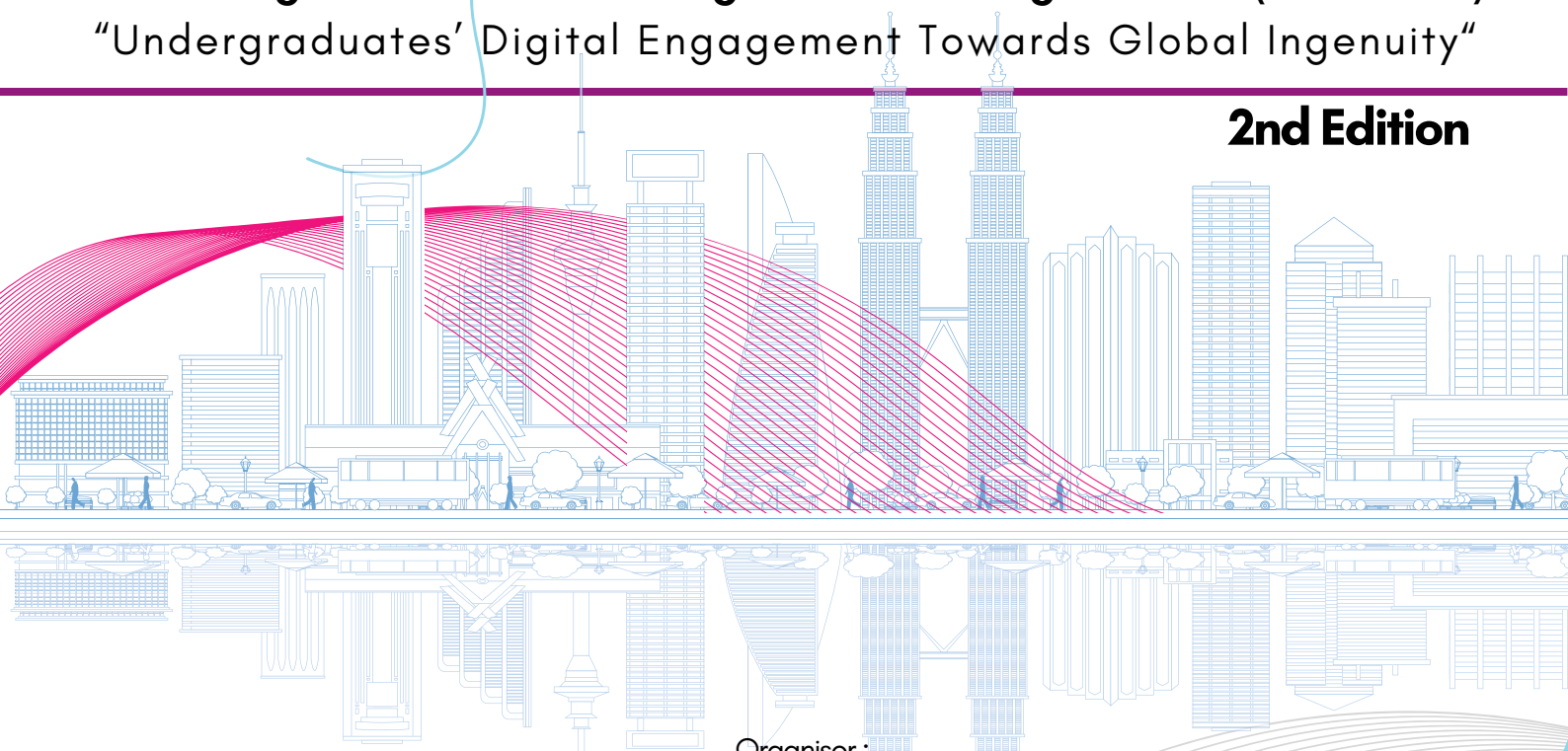
Proceeding for International Undergraduates Get Together 2024 (IUGeT 2024)

"Undergraduates' Digital Engagement Towards Global Ingenuity"

2nd Edition



Organiser :

Department of Built Environment Studies and Technology, College of Built Environment, UiTM Perak Branch

Co-organiser :

INSPIRED 2024. Office of Research, Industrial Linkages, Community & Alumni (PJIMA), UiTM Perak Branch

Bauchemic (Malaysia) Sdn Bhd

Universitas Sebelas Maret

Universitas Tridinanti (UNANTI)

Publication date :

November 2024

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Perpustakaan Negara Malaysia Cataloguing in Publication Data

No e- ISBN: 978-967-2776-42-0

Cover Design: Muhammad Anas Othman
Typesetting : Arial

e-ISBN: 978-967-2776-42-0

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e-ISBN: 978-967-2776-42-0

E-COMMERCE LAYOUT DESIGN (E-LAD) USING MOBILE APPLICATION FOR NON-IT USER

Asyraf Shahzwan Muhamad Azizon[1*], and Dzulkarnaen Ismail [2]

[1, 2] Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA, Perak Branch, Seri Iskandar Campus

*dzulk004@uitm.edu.my

Abstract
This study explores the development of a mobile application tailored for non-designers and non-IT users in the construction industry. The primary objective of this research is to innovate a software solution that facilitates layout design, construction material cost estimation, and information technology integration in construction projects. Specifically, the study aims to (1) identify existing mobile applications that cater to layout design for users without design or IT expertise, (2) assess the challenges and issues these users face in utilising such technologies, and (3) propose a marketable IT mobile application concept for construction management, focusing on design and build projects. The research methodology includes a desk study and the simulation of a product prototype. Through a comprehensive literature review and detailed analysis, the study evaluates the performance of current mobile layout design applications, highlighting their features, limitations, and the materials they employ. The proposed innovation addresses the evolving construction cost estimation and design needs, offering users greater flexibility in designing their dream homes. The findings demonstrate that the new application can significantly enhance information provision in construction and better adapt to varying user needs and preferences.

Keywords: *E-commerce Mobile Application, Information Technology Industry, Social Media Fraud, Awareness of Cybercrimes, Online Shopping Scams*

1. INTRODUCTION

Social media has become a vital aspect of everyday life, influencing various areas, including personal interactions and commercial operations. Popular social media platforms like Facebook, Google+, Snapchat, YouTube, and Twitter have substantially influenced how customers interact and perceive things. Malaysia is one of Asia Pacific's top social media users (Go-globe., 2015). Integrating social media and e-commerce has resulted in the development of effective advertising platforms, especially mobile applications. This transition is particularly prominent in industries such as building, where contractors implement social media and e-commerce platforms to promote and advertise their project designs and house layouts. The convenience and wide-ranging accessibility of these platforms provide significant advantages for business promotion and client interaction (Omar & Aun, 2019).

This research aims to propose an innovation to the mobile software application that can be used in the construction industry related to the design and build, construction materials cost, and information technology in construction. The study focused primarily on evaluating the initial phase of a mobile application aimed at addressing and preventing construction fraud. The primary research goals of this study are to investigate the challenges and concerns associated with layout design and information technology for individuals who need more design expertise and to identify mobile applications that assist non-designers or information technology users in the construction industry with layout design.

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Moreover, it aims to propose an efficient and inventive mobile application that tackles precise obstacles and prospects in the design and construction processes within the construction industry.

The project involves conducting an extensive literature review to understand customers' requirements and challenges better, then creating a fully operational prototype incorporating these security measures and technologies. Fraud and scam issues on social media platforms will be used as a benchmark to improve the house design method. The marketability of the proposed design is evaluated through a comprehensive analysis of its potential application in the design stage of construction.

The main results of this study indicate that the E-LAD mobile application provides a practical and innovative solution to the issues presented by fraud and deception. The product's modular construction allows for a broader range of design options and decreases the time needed for design. Furthermore, the E-LAD mobile application promotes confidence in the user when selecting a contractor or seeking consultation.

2. LITERATURE REVIEW

This literature review analyses the problems and difficulties related to social media platforms, specifically focusing on social media fraud and its effects on different user groups. Social media fraud is a widespread problem that impacts users of all age groups, with a higher incidence observed among younger users. During the initial six months of 2023, individuals between the ages of 20 and 29 saw a 38% frequency rate of monetary losses due to fraudulent activities on social media. In comparison, individuals aged 18 to 19 had an even higher rate of 47%. The percentages decrease as individuals age, indicating variations in social media usage across different generations. The predominant form of social media fraud mainly revolves around endeavours to procure things promoted on platforms such as Facebook and Instagram. The most commonly reported problems entail unmet orders for clothing and electrical devices (Federal Trade Commission, 2023).

Fraudulent activities cause an ongoing risk to all commercial enterprises, including government and private sector organisations. Although internal controls are in place, it is impossible to completely eliminate the risk of fraud. Limited resources

Often, it is an obstacle to implementing efficient internal controls, such as the absence of anti-fraud technology and external oversight heightening susceptibility to fraudulent activities (Omar et al., 2016). Significant corporate failures, such as Enron, highlight the seriousness of fraud and its influence on employee morale, which can harm financial performance (Pamungkas et al., 2018). Employee fraud can substantially impact operational activities, resulting in the loss of opportunities, reduced revenue, and inventory losses, ultimately harming the company's reputation (Herlita & Bayunitri, 2021).

The internet has transformed many aspects of life, including business, communication, and shopping. This change has led to the rise of e-commerce as a modern way of conducting business and buying goods and services. Technological advancements have allowed companies to effectively advertise and distribute their products globally, overcoming geographical limitations. With the widespread availability of mobile devices and internet connectivity, companies can reach consumers through multiple channels, expanding their market reach (Bhattacharjee, 2012).

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Digital commerce, or e-commerce, encompasses all economic activities through electronic connections. Over recent decades, the substantial growth of e-commerce has significantly transformed the role of logistics within the supply chain. The COVID-19 pandemic has further accelerated the expansion of the e-commerce sector. Recent analyses project that the global e-commerce market will exceed $6388 billion by 2024, with an annual growth rate of approximately 13.5% (Zennaro et al., 2022).

3. METHODOLOGY

This section offers an in-depth review of the methodologies and materials utilised in researching mobile e-commerce applications. The research process began with identifying the research problem and developing a design framework. This framework guided principles throughout the creative, developmental, and implementation phases (Pombo & Tschimmel, 2005).

A preliminary literature review was conducted to gather data from previously published sources and advertisements on social media platforms. This information is a reliable foundation for enhancing general knowledge and was effectively incorporated into the innovation report (Bhattacharyya, 2009).

Simulation methodologies were used to collect and analyze data, utilising historical records and real-time data collection. When developing software process simulation models, defining the objectives and specific issues management aims to address is essential. This helps delineate the model's scope and identify the necessary data to be collected (Kellner et al., 1999).

4. RESULT AND DISCUSSION

This section explores the outcomes and conversations arising from the goals mentioned in Section 1. This paper thoroughly analyses the concerns and obstacles related to e-commerce on social media platforms. It also proposes the innovative idea of integrating a Layout Design with a Mobile Application as a solution.

Based on the research, the main difficulties associated with traditional mobile application development are extended development cycles and higher expenses. Creating resilient and intuitive apps requires substantial effort and resources, resulting in heightened costs and a longer time to market.

To solve these problems, the proposal for the E-LAD Mobile application was put forward. This application aims to simplify the procedures of designing and developing mobile applications for e-commerce purposes. This innovation utilises simulation techniques to accelerate the process of creating home designs and security and privacy by using solid steps to safeguard user data, enabling faster variation and improvement of application concepts. This application aims to significantly decrease the time spent on design development by offering various types of design and visualization, thereby enhancing overall efficiency.

The E-LAD Mobile Application is specifically created for sale to designers and developers who aim to create unique and designed mobile applications for users. It includes various essential characteristics to improve creativity and functionality. Significantly, its user-friendly interface allows users to simulate many design situations, guaranteeing that the end product fulfils customer requirements and expectations. The tool incorporates diverse simulation models and interactive components, enabling seamless design iterations and promoting efficient user involvement.

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Additionally, the E-LAD Mobile Application is distinguished by its capacity to rapidly create prototypes, which is essential for situations that require swift development. The E-LAD Mobile Application's design materials include user flowcharts, wireframes, and interactive prototypes. The materials are chosen based on their capacity to effectively communicate design principles and collect user feedback, guaranteeing that the application remains functional and focused on the users.

Furthermore, the E-LAD Mobile Application's structural framework incorporates cloud-based collaborative features, enhancing user communication and contractor efficiency. This material selection enhances the tool's flexibility and ability to scale, making it appropriate for various housing and development teams and client and contractor/consultation.

In addition, the operational operations of the E-LAD Mobile Application have been depicted using visualization tools such as Canva and Powtoon. Figures 4.1, 4.2, 4.3, and 4.4 present a comprehensive view of the E-LAD interface and functions, including labelling for reference purposes. The E-LAD Mobile Application Software simplifies house layout design selection and buying. It also streamlines communication with trusted contractors and uses modern technologies to help people visualise their dream homes.

Figure 4.1: Home Page Interface

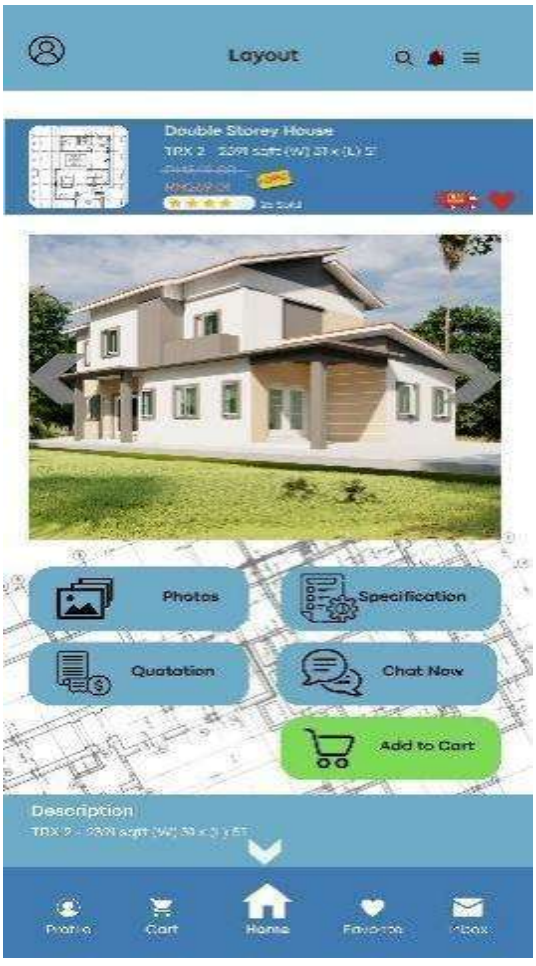

Figure 4.2: Details and specification layout plan

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Figure 4.3: Shopping Cart Page

Figure 4.4: Details of Contractor

5. CONCLUSION

This paper underscores the need for innovative solutions in layout design for mobile applications, which was identified through a thorough literature review. It highlights challenges such as fraud and scammer issues, trusted contractor or consultation, and mobile application development material and calls for innovative approaches.

The research goal of this innovation project is to develop an adaptable mobile application for user personnel unfamiliar with information technology and the construction industry. The application aims to minimise cybercrimes, fraudulent activities, and inefficiencies while advancing sustainable development goals and enabling cooperative design and planning. The application will incorporate a design thinking framework and a prototype model to include features such as authentication, real-time tracking, data-rich models, secure payment, documentation, and education.

This effort also aims to tackle existing obstacles in the construction sector by utilising information technology and design thinking. Its goal is to establish a more efficient, secure, and environmentally responsible working environment for individuals who are not in the IT field. The project's significant focus on transparency, responsibility, quality, and customer happiness is praiseworthy. It is expected to accomplish its goals effectively, making an excellent contribution to the progress of the construction industry.

6. ACKNOWLEDGMENT

The authors gratefully acknowledge Universiti Teknologi MARA Perak Branch's invaluable support, providing access to innovation facilities and expert supervision throughout this project.

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