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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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B-ST145: SIAUMKM : WEB AND ANDROID MOBILE DESIGN MODEL IN STRENGTHENING MSME ACCOUNTING INFORMATION SYSTEMS WITH AN R&D MODEL

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ABSTRACT

The Accounting Information System (SIAUMKM) is an important aspect in business management, especially for Micro, Small and Medium Enterprises (MSMEs). The use of web and mobile-based information technology can increase the efficiency of accounting records and help MSMEs make more informed decisions. This article discusses the development of the SIAUMKM application, a web and Android-based mobile application, using the Research & Development (R&D) research model. This research aims to design an application model that is easy to use, safe and efficient in helping MSMEs manage their finances. The application development process goes through several R&D stages, including data collection, prototype development, testing, and refinement. Based on the results of the SIAUMKM test, the research results show that SIAUMKM can improve operational efficiency, recording accuracy and decision making for MSMEs. During the implementation of SIAUMKM, MSME members stated that financial recording became 100% easier.

Keywords: SIAUMKM, MSME, Accounting Information System, Web, Mobile Android, R&D.

1. Product Description

System Architecture

The SIAUMKM application was built using a multi-tier architecture, which separates the backend (server), frontend (user interface) and database layers. The backend is for data processing and storage in the cloud, while the frontend provides an intuitive and responsive user interface on web and mobile platforms. One of the key features of SIAUMKM is real-time data synchronization between web and mobile platforms. This allows users to record transactions on mobile devices and view financial reports on web devices without data loss or input errors.

User Interface (UI)

UI/UX design is an important aspect in the development of SIAUMKM, with a focus on ease of navigation and a user-friendly appearance. On the web platform, users can access all features through a clear and organized dashboard. Meanwhile, in the mobile application, it is easier for users to record transactions with fast and practical input features.

2. Pictures

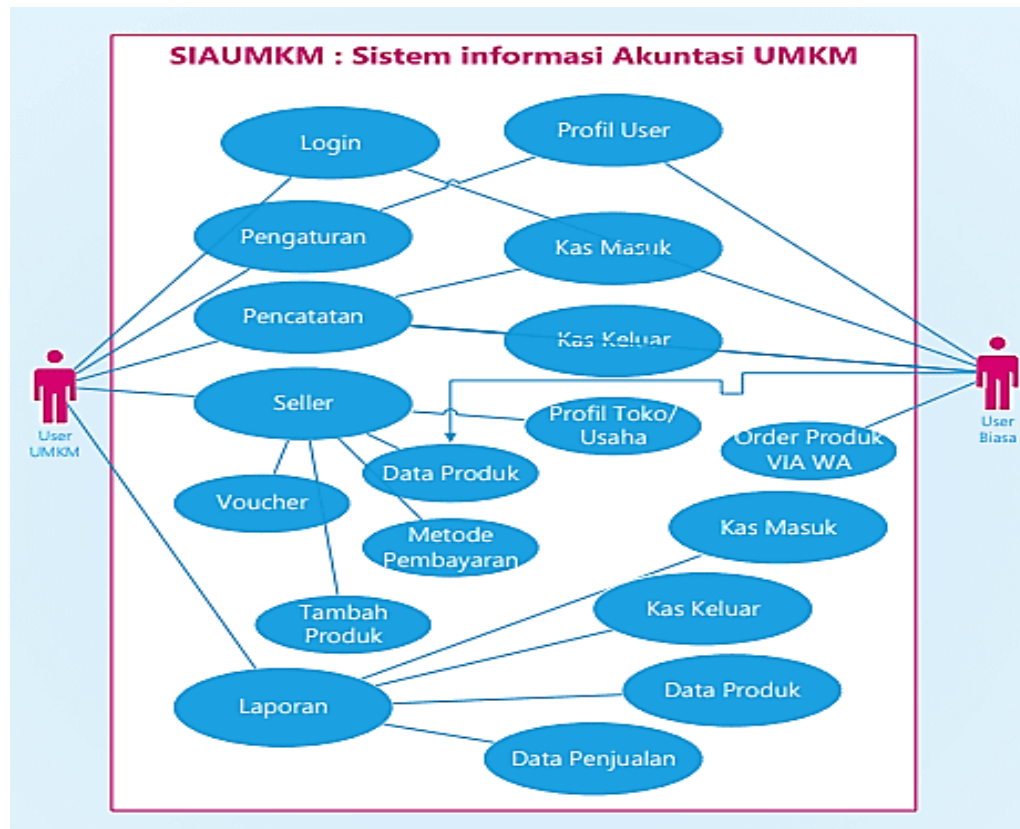


Figure 1. SIAUMKM Use Case Diagram, Use Case Diagram of SIAUMKM, where the use of SIAUMKM can be accessed by two users, namely umkm owner users and ordinary users.

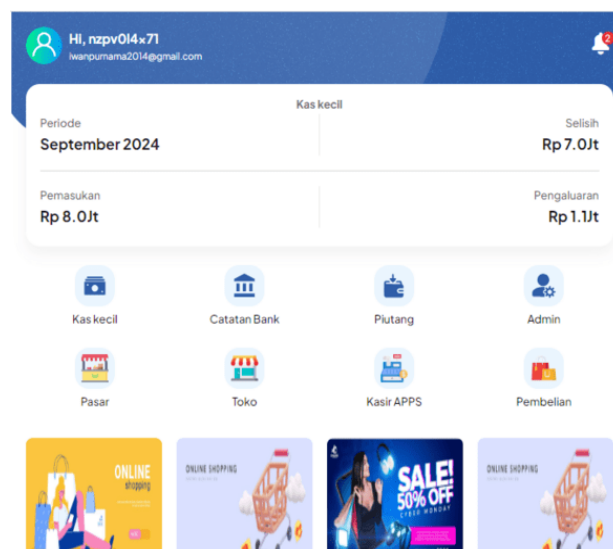


Figure 2. SIAUMKM main page, is the main page display in the SIAUMKM application with several menus and features offered after the user logs in to the SIAUMKM application.

Form pettycash



Masuk
Cash



Keluar
Cash

Tanggal

19/09/2024

Nominal

55.000

Jenis / Kategori

+ Pemasukan / Penjualan

Keterangan

Penjualan Baju

File input Choose File No file chosen

Nil: File gambar boleh kosong.

Continue

Cancel



Home



Pengguna



Bank



Pemasukan



Keluar

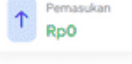
Figure 3. SIAUMKM Money In and Out Recording Page, this is a petty cash menu to make simple financial records by selecting the date, amount of cash, type / category and description of petty cash expenditure or income.

module=bankrecords

Bank Records

September 2024



Pemasukan
Rp0



Pengeluaran
Rp0

Masuk Keluar



Home



Pengguna



Bank



Pemasukan



Keluar

Figure Figure 4. Incoming and Outgoing Bank Cash Recording Page, this menu is to record money transactions deposited by companies or MSMEs in certain bank accounts for payment of transactions or other company activities. This financial recording is done simply by selecting a date, nominal amount, selecting a bank account, selecting a transaction type and creating a description for incoming funds and outgoing funds.

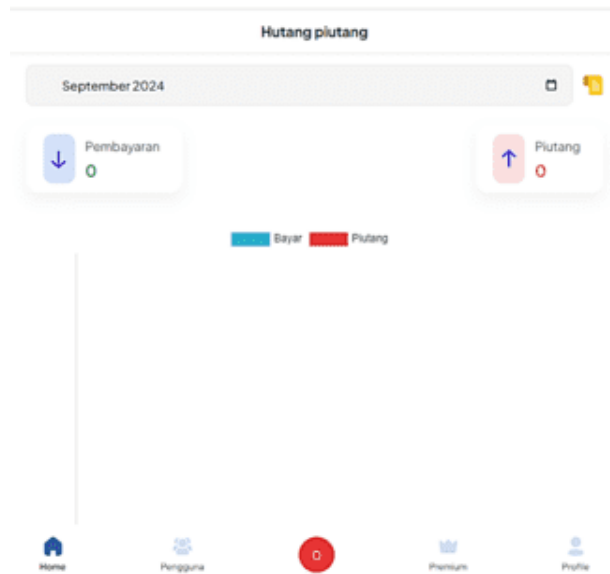


Figure 5. Accounts Payable and Receivable Recording Page, this menu is for recording payables or receivables simply by entering the due date, nominal amount, select the type of instalment, select the customer and create a description of the payable or receivable.

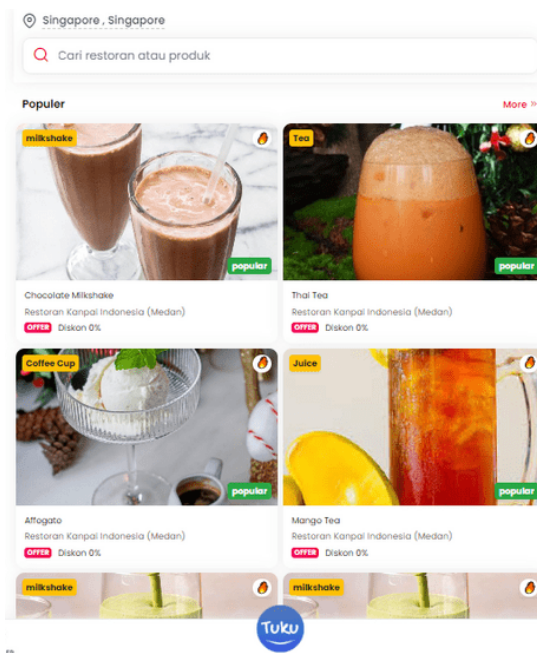


Figure 6. Market page for promoting MSME products, , this is a menu where MSME actors market their products.

3. Novelty and uniqueness

The SIAUMKM application has proven effective in strengthening the MSME accounting information system through web-based and android mobile designs. By implementing R&D methods, this application is able to optimize user needs, increase the efficiency of financial recording, and facilitate business decision making. The trial results show that

the SIAUMKM application is able to increase the efficiency of recording daily MSME transactions by up to 76 %. Users feel helped by automatic financial reports that can be accessed anytime and anywhere. The synchronization feature between web and mobile also allows flexibility in application use. The main advantages of SIAUMKM are ease of use and features that suit MSME accounting needs. The R&D method allows application development systematically and according to user needs. Each stage of development provides valuable feedback that improves the quality of the application gradually.

4. Benefit to mankind

The SIAUMKM application provides significant benefits to MSMEs which are the backbone of the economy. MSMEs can make better business decisions, improve financial health, and ensure long-term sustainability by providing more effective, accessible, and easy-to-use financial management solutions. The real-time synchronization and automated financial reporting of these applications improve financial transparency, accuracy, and control, which can lead to greater economic stability for individuals and communities. When MSMEs thrive, they contribute to creating jobs, reducing poverty, and advancing economic growth, which benefits society as a whole.

5. Innovation and Entrepreneurial Impact

Combining web-based and mobile platforms to provide an integrated accounting solution, SIAUMKM is a noteworthy breakthrough in the field of MSMEs financial management. The program gives entrepreneurs the tools to simplify financial administration, which is sometimes difficult for small companies to do due to their limited resources, by meeting the unique demands of MSMEs. SIAUMKM distinguishes itself by introducing automated financial reporting and real-time synchronization, which provides accounting methods that improve operational effectiveness. Due to the simplicity of using this application, entrepreneurs can concentrate more on growing their companies rather than fumbling with complicated financial procedures, which encourages an entrepreneurial atmosphere.

6. Potential commercialization

With the growing need for digital solutions that help small businesses to grow, the SIAUMKM application has huge commercialization potential. SIAUMKM can be marketed to MSMEs with essential features and an easy-to-use interface, especially small businesses that sometimes do not have access to sophisticated financial management solutions. SIAUMKM is also easy to modify and extend to different areas and sectors thanks to the scalability of the web and mobile platforms. To provide more resources and assistance to MSMEs and increase their commercial viability and influence on the global economy, SIAUMKM may also consider exploring partnerships with financial institutions, government agencies, and educational institutions.

7. Acknowledgment

The authors would like to express their thanks to all parties who have contributed to the process of creating this digital product. Their support and assistance have been invaluable in ensuring the successful completion of this product.

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2. UMKM Labuhanbatu

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