

# JITU

JOURNAL INFORMATIC TECHNOLOGY AND COMMUNICATION

E - ISSN 2620-5157



SINTA Accredited Rank 4 Decree of  
The Director General of Higher  
Education, Research, and Technology,  
Number: 10/C/C3/DT.05.00/2025



Published by Universitas Boyolali  
Jl. Pandanaran No.405, Dusun 1,  
Winong, Kec. Boyolali, Kabupaten  
Boyolali, Jawa Tengah 57315

Email: [jitu@uby.ac.id](mailto:jitu@uby.ac.id)  
Website Publisher: [uby.ac.id](http://uby.ac.id)  
Website Journal:  
[ejournal.uby.ac.id/index.php/jitu](http://ejournal.uby.ac.id/index.php/jitu)



# FOREWORD

We express our deepest gratitude to God Almighty for His abundant grace upon us, who has given us the resources and ability to publish Jurnal JITU Volume 9, No. 2 right in November 2025. This achievement would not have been possible without the dedicated commitment of the editors and reviewers.

This issue features 12 scientific articles contributed by 11 college in Indonesia. The editors would like to thank all authors who have chosen Jurnal JITU as a platform to disseminate their thoughts. Your contributions have enriched not only our publications, but also the wider scientific community, especially in the ever-growing field of information technology. While we celebrate our achievements, we acknowledge that the journey to becoming a leading journal is still very long. We invite and appreciate your constructive criticism and suggestions, as they give us the opportunity to further improve the quality and reach of Jurnal JITU.

Thank you for your continued support and readership. May the articles in this and future volumes become invaluable resources that contribute to the development of scientific knowledge.



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<https://doi.org/10.36596/jitu.v9i2.1929>

**Abstract:**

*The high cost of ICT investment is often an obstacle to ICT implementation, especially for educational institutions with limited budgets. Without analysis, the risk of budget waste and incompatibility with the real needs of the institution becomes higher. This study aims to assess the readiness of information and communication technology (ICT) investment using an integrative approach that combines Cost-Benefit Analysis (CBA), Technology-Organisation-Environment (TOE) Framework, and OODA Loop. This approach is designed to provide a comprehensive evaluation of economic, technological, organisational, and decision-making dynamics in ICT investment. The research method uses a qualitative approach with data collection through observation, interviews, and documentation studies. The analysis is carried out by integrating the results of CBA to assess the feasibility of investment, the TOE Framework to identify factors influencing technology adoption, and the OODA Loop to understand the iterative and adaptive decision-making process. The research findings indicate that based on the CBA analysis, the ICT investment in the form of developing and implementing an e-learning system at SMAN 01 Sanggau is highly feasible to execute. However, from the TOE Framework perspective, the organisation's readiness to adopt the e-learning system is still partial with some shortcomings. From the OODA Loop perspective, the investment is deemed feasible after considering: financial calculations showing benefits through metrics such as NPV, ROI, and PP, non-financial benefits such as improved access to learning and educational quality, and proactive risk mitigation against technical, financial, and operational challenges.*

Keamanan Siber Berbasis AI untuk Mitigasi Ancaman Komputasi Kuantum  
Maria Atik Sunarti Ekowati, Darsini 124-135  
<https://doi.org/10.36596/jitu.v9i2.2079>

**Abstract:**

*Cybersecurity has become a major challenge in protecting data and information systems in the rapidly evolving digital era. One emerging threat is the potential impact of quantum computing on the cryptographic algorithms currently in use. Quantum computing has the potential to weaken the resilience of conventional encryption, thereby creating vulnerabilities that could be exploited by cyberattacks. Therefore, innovation in cybersecurity systems is urgently required to anticipate these threats. This study aims to develop and evaluate a cybersecurity prototype based on Artificial Intelligence (AI) designed to protect data from quantum computing threats. The research methodology includes the development of AI algorithms for anomaly detection, system resilience testing, and quantum computing threat simulation in real-world scenarios. The results indicate that the developed AI-based system is capable of identifying potential attacks and responding more quickly than traditional security systems. Moreover, the prototype demonstrates greater resilience against attacks leveraging quantum computing capabilities. The expected outcome of this research is the establishment of a cybersecurity framework that can be implemented across various sectors, along with strategic recommendations for adopting AI in addressing future cybersecurity challenges.*

Pengembangan Aplikasi Keuangan Berbasis Web Menggunakan Laravel Filament di PT Kargo Transkontinental  
Tri Retno Utami, Galet Guntoro Setiaji, Ahmad Rifa'i 136-147  
<https://doi.org/10.36596/jitu.v9i2.2100>

**Abstract:**

*PT Kargo Transkontinental, as a company engaged in the field of freight forwarding with a high transaction volume, faces significant operational challenges due to its reliance on manual financial recording processes. This dependence leads to delays in the preparation of financial reports, which*

can take up to two working days, and carries a potential error rate of up to 10% in cost recording. Such conditions pose a major obstacle to conducting accurate and timely profitability analysis. This study aims to design and develop a web-based financial application using the Laravel Filament framework to overcome these inefficiencies. To ensure a systematic development process, the research adopts the waterfall development method, which consists of the stages of requirements analysis, design, implementation, testing, and maintenance. System requirements were gathered through direct interviews with the company's finance division. The study produced a functional web application that successfully integrates modules for employee income, expenses, and loans, further enhanced with an innovative digital receipt feature to bolster accountability. The application features role-based access control for superadmins and staff and offers centralized reporting capabilities. In conclusion, the developed application streamlines the job costing process, elevates data accuracy, and accelerates financial reporting, thereby supporting more effective decision-making.

Evaluasi Kinerja Website Universitas XXX Menggunakan Metode WebQual dan Performance Testing

Manorang Gultom

148-157

<https://doi.org/10.36596/jitu.v9i2.2090>

**Abstract:**

University websites play an important role as a means of disseminating information, providing administrative services, and facilitating interaction between the academic community and the public. This study aims to evaluate the performance of the XXX University website through a combination of WebQual 4.0 to assess user perceptions and performance testing to measure technical performance. The research method used is quantitative with a descriptive and experimental design. Perception data was collected through a WebQual questionnaire involving 170 respondents selected using purposive sampling. Descriptive analysis was performed using the Respondent Achievement Rate (TCR) formula, while performance testing was carried out using GTmetrix to measure performance score and speed index parameters. The results showed that the quality of the website service based on user perception was in the very high category with an average RAC of 93.6%, especially in the dimensions of usability (94.1%) and service interaction (93.9%). However, the dimension of information quality received a relatively lower score (92.8%), particularly in the indicators of relevance and depth of information. On the other hand, the performance testing results showed suboptimal technical performance with an average performance score of only 15% and a speed index of over 11 seconds, far from the ideal standard of <3 seconds. The website performed better in the morning than at night, indicating server capacity limitations and the impact of traffic load. The results of this study conclude that the XXX University website is considered superior in terms of service quality based on user perception, but is still weak in terms of technical aspects. Therefore, comprehensive improvements and continuous monitoring are required. The combined approach of WebQual and performance testing has proven to be effective in providing a comprehensive overview of the strengths and weaknesses of the website as a basis for further development strategies.

Analisis Perilaku Pengguna Fintech Berdasarkan Model UTAUT: Studi Kasus pada Mahasiswa Universitas XYZ

Suprianus Pian TA

158-167

<https://doi.org/10.36596/jitu.v9i2.2095>

**Abstract:**

Students as Generation Z or millennials are not only consumers but also agents of change in the adoption of financial technology. However, research exploring their behaviour based on the UTAUT framework is still limited, especially in the context of XYZ University. This study aims to analyse the factors that influence the behaviour of fintech usage by students at XYZ University using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, which is expanded with the variables of trust, perceived security, and financial literacy. The research method used was a quantitative approach with a survey technique involving 185 student respondents who had used fintech services, which were then analysed using Partial Least Square–Structural Equation Modelling (PLS-SEM). The results show that performance expectancy, effort expectancy, social influence, trust, perceived security, and financial literacy have a significant effect on behavioural intention, while facilitating conditions do not have a significant effect on intention but have a positive effect on actual use. In addition, behavioural intention is proven to be the main predictor of actual fintech use by students. These findings confirm that benefits, convenience, trust, security, and financial literacy are

key factors driving fintech adoption, while infrastructure serves as a facilitator of actual use. This study has practical implications for campus administrators, fintech service providers, and regulators to increase adoption by providing real value, simple interfaces, applied financial literacy, and strengthening security and trust aspects.

Sistem Informasi Sekolah Berbasis Android di Sekolah SMA Negeri 1 Cepogo Kabupaten Boyolali  
Dhefi Intan Lukmana, Fatkhan Agus Setiawan, Fariyono, Wisnu Sanjaya 168-179  
<https://doi.org/10.36596/jitu.v9i1.1815>

**Abstract:**

Effective communication between schools, students, and parents is a crucial factor in supporting the success of the educational process. However, many schools still rely on informal communication platforms such as WhatsApp groups, which often lack structure and can lead to miscommunication. This study aims to design and develop InfoSekolah Cepogo, an Android-based application that delivers school information in a centralized, real-time manner according to user access rights. The research employs a system development method consisting of planning, implementation, and evaluation stages, using Black-Box Testing and User Testing techniques. Data were obtained through functional testing of the main features and questionnaires distributed to 30 respondents, consisting of students, teachers, and parents. The results show that the application runs stably on various Android devices, is user-friendly, and facilitates faster information delivery. Moreover, the application increases parental involvement in school activities. Several improvements were made based on user feedback, including the addition of automatic notification features and initial usage guides. Based on these findings, it can be concluded that InfoSekolah Cepogo is effective as a modern and functional school communication and information platform.

Pengembangan Website WardellTech dengan Agile Scrum dan Laravel untuk Mendukung Layanan Freelance

Syah Bintang, Rangga Wasita Ningrat, Jonathan Cristiano Rabika, Mochammad Alwan 180-191  
Al Ataya, Aditya Wicaksono, Gema Parasti Mindra  
<https://doi.org/10.36596/jitu.v9i2.1849>

**Abstract:**

This research focuses on the development of a freelance e-commerce website for WardellTech using the Laravel framework. The objective is to build a web-based platform that is secure, responsive, and user-friendly, supporting freelance service transactions. Laravel was selected for its structured MVC architecture, built-in security features, and its ability to streamline development and maintenance. A Software Requirements Specification (SRS) document was created to define both functional and non-functional requirements in detail, ensuring that all stakeholders—developers, testers, and project managers—have a unified understanding of the system. WardellTech specializes in web and mobile application development, emphasizing quality design, user experience, and data security. Therefore, the website integrates key features such as secure payment gateways, intuitive navigation, and optimized performance. Continuous analysis and improvement of the user interface are also prioritized to enhance usability and customer satisfaction. The final system is expected to not only meet WardellTech's business needs but also compete effectively in the freelance digital services market. Additionally, it is designed to adapt to ongoing technological advancements and evolving user demands in the dynamic e-commerce landscape.

Studi Komparatif Algoritma KNN, SVM, dan Naive Bayes untuk Analisis Sentimen pada Review Google Play Aplikasi Traveloka

Nurul Siti Mukaromah, Nur Wakhidah 192-201  
<https://doi.org/10.36596/jitu.v9i2.1861>

**Abstract:**

Sentiment analysis has become an important approach in understanding user opinions towards digital applications, especially on review platforms such as the Google Play Store. This study aims to compare the performance of three popular classification algorithms, namely K-Nearest Neighbor (KNN), Support Vector Machine (SVM), and Naive Bayes, in classifying sentiment in Traveloka application reviews. The methods used include collecting user review data from Google Play, preprocessing stages such as tokenization and stopword removal, and applying the three algorithms to the cleaned data. The evaluation was carried out using accuracy, precision, recall, and f1-score

metrics. The dataset used consisted of 5000 review data that were evenly divided between positive and negative sentiments. The results showed that the SVM algorithm provided the best performance with an accuracy of 88%, followed by Naive Bayes at 86%, and KNN at 87%. The conclusion of this study states that SVM is more reliable in handling text-based sentiment analysis in the context of mobile application reviews. These findings are expected to be a reference in developing a more accurate sentiment analysis system for business needs and future research.

Implementasi Metode Design Thinking pada Aplikasi Bank Sampah Sistem Kelurahan Brumbungan Kota Semarang

Raffly Rizqi Setyawan, Eka Ardhiyanto

202-213

<https://doi.org/10.36596/jitu.v9i2.1942>

**Abstract:**

Waste banks are one of the community-based waste management solutions that continue to grow, as implemented by the "Sampahku Berkahmu" waste bank in Kelurahan Brumbungan. However, in practice, several challenges still exist, particularly in the manual recording and reporting systems. With the advancement of digital technology, there is a need for a digital application that can simplify the management process of waste banks more efficiently and accommodate the limited technological literacy among the managers. This study aims to design a simple and user-friendly waste bank application that can assist both managers and users in monitoring and managing transaction data and waste weighing reports. The method used in this study is Design Thinking, which consists of five stages: empathize, define, ideate, prototype, and test. Data was collected through interviews and observations of the managers and users of the waste bank in Kelurahan Brumbungan. The application was developed using the Kodular platform and evaluated using the System Usability Scale (SUS) to measure its usability. The test results showed a SUS score of 85, which falls under the "Excellent" category and is classified as grade B, indicating that the application was well-received by users and can serve as an effective digital solution for waste bank data management.

Perancangan Sistem Pengamanan Pintu Lemari Arsip Berbasis Pengenalan Wajah Menggunakan Esp32-Cam dan Faceapi.js

Riskhan Hadid, Busran Busran, Minarni Minarni, Indra Warman, Putri Mandarani

214-224

<https://doi.org/10.36596/jitu.v9i2.2077>

**Abstract:**

A facial recognition-based security system for filing cabinets using ESP32-CAM and the face-api.js library is designed as a modern solution to enhance the security of storing important documents in office or organizational environments. This system utilizes facial recognition technology as a biometric authentication method, offering greater reliability compared to conventional systems. The ESP32-CAM serves as the device that captures users' facial images in real-time and transmits them to a web interface for further processing. Facial detection and feature extraction are performed using the face-api.js library, built on top of TensorFlow.js, leveraging deep learning techniques based on Convolutional Neural Networks (CNN). The models employed include TinyFaceDetector for face detection, faceLandmark68Net for determining facial landmark points, and faceRecognitionNet for generating a 128-dimensional face descriptor. Registered facial data is stored in a web-based database, allowing significantly greater storage capacity compared to local storage in the ESP32-CAM's memory. Verification is conducted by comparing the detected face descriptor against stored data using the FaceMatcher algorithm with a threshold of 0.6. Testing results indicate that the system can accurately recognize faces under adequate lighting conditions, although performance decreases under low-light intensity. This integration of hardware and software provides a more efficient and modern security solution.

Analisis Kegunaan Website Penerimaan Mahasiswa Baru Menggunakan Metode System Usability Scale

Andhika Adnan

225-234

<https://doi.org/10.36596/jitu.v9i2.2088>

**Abstract:**

Advances in information technology have prompted universities to utilise digital systems in administrative processes, including the admission of new students (PMB). Universitas Widya Dharma Pontianak has developed a PMB website as an online registration tool, but no systematic evaluation

of its usability has been conducted. This study aims to analyse the usability of the PMB website using the System Usability Scale (SUS) method. The study employs a quantitative approach, distributing SUS questionnaires to 294 respondents selected via simple random sampling from a total population of 1,102 prospective new students for the 2025/2026 academic year. Data were analysed by calculating each respondent's SUS score, then determining the overall average score and its interpretation based on SUS standards. The results showed that the PMB website achieved an average score of 93, which falls into the "A" grade category, an "acceptable" acceptance level, and an "excellent" adjective rating. These findings indicate that the PMB website has a very high level of usability, is easy to use, and provides high satisfaction for users. However, the study also recommends further development regarding improved accessibility and interactive features to support a broader user experience.

Sistem Aplikasi Kas Untuk Pembukuan Koperasi Ta'awun Berbasis Website Menggunakan Metode Agile

Sekar Asri Andamari, Muhammad Fauzan Gustafi

235-245

<https://doi.org/10.36596/jitu.v9i2.2195>

### **Abstract:**

*The Ta'awun Cooperative was established within the Muhammadiyah Metro General Hospital environment. All financial management activities are still carried out manually, which causes a lack of transparency and can lead to errors. Therefore, a digital system is needed to support cash management. This research aims to develop a website-based cooperative cash application system to support the recording of cash inflows, cash outflows, and all existing transactions so that they are easily accessible. This development uses Agile Software Development with the stages of planning, implementation, testing, documentation, deployment, and maintenance. The application was built using PHP (Laravel Framework) with Filament as the admin panel to support data processing and MySQL as the database. This application system is capable of automating the recording of all cash inflows, cash outflows, loan data, payment data, and presenting financial reports in real-time, as well as having an easy-to-use interface. Testing through Black Box Testing and User Acceptance Testing (UAT) showed that the system functions as expected and is well received by cooperative administrators because it is easy to use and improves recording efficiency. This system is a solution for cooperatives undergoing digitalization, while also supporting modern, accountable, and transparent governance.*