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Proceedings of the

Business Information Systems Students Symposium 2025

Department of Information Technology
FMSC | University of Sri Jayewardenepura

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Department of Information Technology
Faculty of Management Studies and Commerce
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Agenda

Time	Activity
12.45pm-1.00pm	Arrival of guest and Registration
1.00pm-1.05pm	Commencing the event
1.05pm-1.15pm	Welcome speech by symposium chair Mr. Prabhasara Athurupane
1.15pm-1.25pm	Speech by Head of the Department Prof. Lasith Gunawardena
1.25pm-2.00pm	Keynote speech by Dr. Lakmal Meegahapola *"Advancing Multimodal Mobile Sensing for Health, Behaviour and Context"*
2.00pm-2.05pm	Launching the Proceeding Book of the Symposium
2.05pm-4.05pm	Information Systems related Research Presentation and Q&A (SBFF 01)
	Information Systems Development Project Presentation and Q&A (SBFF 02)
4.05pm-4.30pm	Tea Break
4.30pm-5.30pm	Panel Discussion – *"The intersection of Business and Technology: Unlocking New- Age Careers for BIS Students"*
5.30pm-5.45pm	Announcing winners and awards ceremony
5.45pm-5.55pm	Token of appreciations
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N.D.S. Madhumali[1], K.P.K.H. Silva[2]
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Abstract

This study investigated the factors influencing digital banking satisfaction among Generation Z in Sri Lanka. Rapid advancements in Information and Communication Technology have revolutionized banking services, making digital banking increasingly prevalent, particularly during the COVID-19 pandemic. Using a quantitative research design, data were collected from 189 respondents aged 20–27 years, primarily students from the Faculty of Management Studies and Commerce at the University of Sri Jayewardenepura. The study employed the Electronic Service Quality Model, the Bank Service Quality Model, and the Technology Acceptance Model to develop a conceptual framework. The data were analyzed using descriptive analysis and Structural Equation Modeling techniques, utilizing SmartPLS4 and SPSS as analytical tools. Findings revealed that ease of use, security, and web design and content significantly influence digital banking satisfaction among Generation Z. However, reliability and information privacy do not have a significant impact. Hypothesis testing confirmed these results, with path model analysis demonstrating the strength of relationships between variables. The findings highlighted critical areas for improvement in digital banking services to enhance customer satisfaction among Generation Z. This research offers valuable insights for policymakers and banking institutions in developing digital business strategies, such as creating regulations that promote seamless digital banking experiences. Additionally, content creators and online service providers can refine their strategies to better align with user expectations, fostering greater adoption and trust in digital banking. By focusing on Generation Z, a dynamic and influential demographic group, this study contributes to Sri Lanka's digital banking landscape by enhancing awareness. However, the study's limitations, including a small sample size, highlight the need for future research incorporating larger and more diverse samples, additional influencing factors, and mixed method approaches to provide a more comprehensive understanding of digital banking satisfaction in Sri Lanka.

Keywords: *Digital Banking, Gen Z, Satisfaction*

Usage of Cloud Security Audit Tools among Information System Audit Professionals in Sri Lanka

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Abstract

The increasing reliance on cloud computing has elevated the importance of robust security and compliance frameworks within cloud systems to a prominent area of global research focus. Cloud Security Audit Tools (CSATs) play a crucial role in safeguarding data integrity and regulatory adherence, yet their adoption in Sri Lanka remains limited due to challenges such as inadequate awareness, skill deficiencies, and regulatory uncertainties. This study aims to assess the level of knowledge and expertise among Information System Audit Professionals (ISAPs) in Sri Lanka, their perceptions of global trends in cloud security auditing, and the potential impact of these tools on the auditing profession in both the short and long term. A qualitative research approach was employed, utilizing semi-structured interviews with seven experienced ISAPs. Thematic analysis revealed that while CSATs enhance efficiency, risk assessment, and continuous monitoring, several barriers impede their adoption, including cost constraints, data security concerns, and the lack of structured training programs. Additionally, evolving regulatory requirements present further complexities for organizations seeking to integrate these tools into their audit practices. The findings underscore the need for targeted training initiatives, stronger industry collaboration, and clearer regulatory frameworks to facilitate broader adoption. This study has significant implications for policymakers, organizations, and educators, providing insights into how Sri Lanka can align with global security standards while addressing local challenges. Limitations include a small sample size and geographic scope, suggesting that future research should incorporate larger, more diverse participant groups and conduct comparative studies across different regulatory environments to deepen understanding and drive meaningful advancements in cloud security auditing.

Keywords: *Cloud Security Audit Tools, Information Systems Audit, Regulatory Compliance, Data Security, Global Security Standards*

Investigating the potential of Blockchain to enhance Customer Data Privacy in the Banking Sector of Sri Lanka

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Abstract

Technological innovations of the world have profoundly influenced business operations, enhancing efficiency across industries. As a result, banks and financial institutions have prioritized research and development to identify new business models that streamline processes, optimize operations, and safeguard data. However, current data privacy applications and measures face various threats and challenges stemming from technological, economic, and social factors, as highlighted by previous research. This has significantly affected the industries such as the Banking sector which act as the financial intermediates to secure a society's economy. Blockchain technology has emerged promising in the modern technological era as a technology that is capable of transforming business processes, with special regard to safeguarding the sensitive and confidential data of any business. This research study aims to explore the capability that Blockchain technology holds to enhance customer data privacy in the Banking sector of Sri Lanka. Qualitative data collection method was performed with in-depth, one-on-one virtual interviews conducted with industry experts with knowledge of the Blockchain and Fintech realm. The research identified nine key themes addressing the research questions. Data privacy and protection measures are hindered by low awareness of data protection. Weaknesses in technological alignment and organizational infrastructure leads to data protection vulnerabilities and diminished customer trust. Conversely, Blockchain technology holds attributes with potential benefits for the banking sector, particularly in enhancing data privacy and improving customer satisfaction. However, various challenges could impede its implementation are present. The study also explored strategic directions for effectively incorporating Blockchain to achieve organizational objectives. This study provides valuable insights to Sri Lankan Banking industry stakeholders aiming to leverage Blockchain to enhance their operations to become the industry leaders in innovation and providing efficient financial services. Also, this helps anyone interested in integrating Blockchain to enable more secure transactions between business units.

Keywords: *Blockchain, Banking sector, Privacy, Data protection*

Cybersecurity enhancement for Cloud-Based Internet of Things (IoT) devices in Sri Lanka: Insights from Sri Lankan IT Professionals

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Abstract

The rapid adoption of cloud-based Internet of Things (IoT) devices in Sri Lanka has introduced significant cybersecurity risks, including unauthorized access, data breaches, weak encryption mechanisms, and software vulnerabilities. Despite the increasing reliance on IoT technology across industries such as healthcare, agriculture, and manufacturing, Sri Lanka lacks standardized security protocols and sufficient cybersecurity awareness. This study investigates the key cybersecurity challenges, the effectiveness of existing security measures, and potential strategies for enhancing IoT security in Sri Lanka. A qualitative research approach was employed, conducting semi-structured interviews with eight Sri Lankan IT professionals specializing in cybersecurity and IoT security. Thematic analysis was performed using the NIST Cybersecurity Framework and Sri Lanka's National Cyber Security Strategy (NCSS) to systematically categorize and analyze security concerns. The findings reveal that Sri Lankan organizations face multiple cybersecurity challenges, including poor authentication mechanisms, inconsistent security practices, and resource constraints. While some organizations utilize firewalls, intrusion detection systems (IDS), and antivirus solutions, a lack of comprehensive security frameworks weakens the effectiveness of these measures. Additionally, limited security awareness and workforce training further expose IoT ecosystems to threats. To mitigate these risks, the study proposes enhanced authentication and encryption mechanisms, regular vulnerability assessments, and cybersecurity training programs. Recommendations include implementing multi-factor authentication (MFA), end-to-end encryption, and AI-driven threat detection systems. Strengthening security governance frameworks and aligning with global best practices can improve Sri Lanka's cybersecurity resilience. This study contributes to the advancement of IoT security in Sri Lanka, providing practical recommendations for organizations, policymakers, and IT professionals. By integrating globally recognized cybersecurity strategies, Sri Lanka can ensure the secure and sustainable adoption of IoT technologies across industries. Future research could explore the role of AI, blockchain, and Zero Trust models in enhancing IoT security.

Keywords: *Cybersecurity, Internet of Things, Cloud Computing, IoT Security, Cloud Security*

Factors Affecting the Success of Agile Software Development Projects in Sri Lanka

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Abstract

Project success in Agile software development is influenced by several critical factors. This study aims to identify the factors that impact Agile software development success by focusing on people, organizational, and technical factors. The study examined how team skills and collaboration, organizational support and culture, and the use of effective tools and practices contribute to project success. This study followed a quantitative approach to answer the research questions. The convenience sampling method was used to select the sample for the study. Data was gathered by circulating an online survey questionnaire among IT Project Managers. Data was analyzed using advanced multivariate statistical software of Structural Equation Modelling (SmartPLS). The findings of the study provided considerable support for hypothesized relationships. The study findings revealed that personal characteristics have the most significant effect on Agile software development project success. This study provided some important implications for software development companies, project managers, and other relevant authorities on measures that could be taken used to ensure the success of Agile software projects. For organizations, understanding the critical success factors in Agile projects can lead to more effective strategy formulation, resource allocation, and process improvement. Project managers can apply these findings to overcome the complexities of Agile software development, optimize team performance, and enhance project delivery. The cross-sectional design hindered past behavior examinations, suggesting a longitudinal design for future studies. Future studies are also encouraged to consider combining quantitative and qualitative methods. Furthermore, it contributed to reducing the gap in the body of knowledge regarding factors affecting Agile Software Project Success in the Sri Lankan context.

Keywords: *Agile Software Development, Organization Factors, Technical Factors, People Factors*

Barriers and Enablers of Utilizing social media in SMEs in Sri Lanka for Marketing and Selling

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Abstract

The purpose of this study was to identify barriers and enablers of utilizing social media in the SMEs in Sri Lanka for marketing and selling purposes. This study was an exploratory qualitative research and data collection was done utilizing semi-structured interviews with ten SME owners covering seven provinces in Sri Lanka. The thematic analysis was used to analyze the collected data. The findings of the study reflect that participated SME owners use Facebook, Instagram, WhatsApp Business, and TikTok with varying success. Also, barriers include poor equipment, human resources, technical knowledge, trust, and internet access. Enablers include cost-effective marketing, customer reach, and brand visibility. Furthermore, the study highlights the need for better tools, internet access, content training, marketing skills, and advertising strategies. Therefore, this study helped to identify primary barriers, enablers, facilities and support needed by SMEs to social media utilization. The findings of this study helped to narrow down the theoretical gap in this domain and provided valuable insights about the barriers, enablers, required support for utilizing social media related to the SMEs in Sri Lanka. The findings of the study also would be useful from a practical point of view when trying to effectively utilize social media in marketing and selling in SMEs in Sri Lanka. There were few limitations for this research such as skipping two provinces due to language issues, varied social media experiences and busy schedules, collecting only the self-reported data, and the gender skewness towards female were the study's major limitations. Also, future research is encouraged to conduct further research focusing on different product and service categories, using mixed method research to provide a more comprehensive understanding of the domain.

Key words: *SME, Social media utilization, Enablers of social media utilization, Social media barriers for SMEs*

Information Systems Development Projects Abstracts

SELF-PRINTING SYSTEM

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Abstract

The University self-printing system addresses inefficiencies in the manual printing operations at B Mark, a campus-operated shop. The manual workflow—involving document submissions via email or WhatsApp, student-managed printing, and cash payments—results in delays, miscommunications, and bottlenecks, especially during peak periods such as examination weeks. The lack of automation and real-time updates further exacerbates operational inefficiencies, leading to unsatisfactory user experiences. To resolve these challenges, a comprehensive web-based application was developed to automate document submissions, payment processing, and print job management. The system allows students to upload documents, customize printing preferences such as paper size and color, and make secure online payments. A unique print code is generated for each job, ensuring error-free document collection and reducing miscommunication. Core functionalities include automated document validation, cost estimation based on printing preferences, and dynamic queue management. The system was developed using the Waterfall model. Technologies employed in the project include PHP for backend development, HTML, CSS and Java Script for creating interactive frontend interfaces, MySQL for efficient database management, and Figma for designing intuitive user interfaces. Functional testing and system testing were performed during development to ensure that individual features, such as document upload, print management, and payment processing, worked as expected. This process confirmed that the system met all functional and non-functional requirements, such as usability, scalability, reliability, and security. Key outcomes include the replacement of the outdated manual processes with an efficient, scalable, and user-friendly automated system. Automation reduces delays, enhances operational efficiency, and significantly improves user satisfaction. Future enhancements, such as mobile application integration, predictive maintenance for printers, and advanced analytics, are proposed to further expand the system's capabilities. The University Self-Printing System demonstrates the effective application of technology in addressing real-world problems, delivering a modern and reliable solution for campus printing needs.

Keywords: *Automated Printing, Document Submission, Online Payment System, Queue Management, Operational Efficiency*

Memorandum of Understanding (MoUs) Management System for International Affairs Division

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Abstract

Managing Memoranda of Understanding (MoUs) at the International Affairs Division of the University of Sri Jayewardenepura has been a manual and inefficient process, resulting in significant delays, misplaced documents, and poor tracking of renewal deadlines. On average, processing MoUs took two to three weeks, leading to administrative bottlenecks and missed collaboration opportunities. To address these challenges, a web-based MoU Management System was developed to automate key processes such as MoU creation, approval tracking, renewal notifications, and reporting. The system centralizes MoU data, streamlines workflows, and reduces administrative workload while improving data accuracy. Automated reminders prevent missed renewals, and a user-friendly dashboard provides real-time updates to stakeholders, including administrators and faculty coordinators. Security measures, such as role-based access controls and data encryption, protect sensitive information. The system was developed using the Agile methodology, incorporating stakeholder feedback in iterative development cycles. Flask and Django Representational State Transfer Framework were used for backend operations, while MySQL ensured structured and secure data management. The front end was designed with HTML, Tailwind CSS, and JavaScript, prioritizing usability. Tools like python-docx and SendGrid facilitated automated document generation and email notifications. Extensive testing, including unit, integration, and usability tests, validated the system's reliability, efficiency, and user-friendliness. By reducing reliance on manual processes, this system enhances operational efficiency and ensures timely MoU renewals. Automated reporting and email notifications improve decision-making while minimizing administrative effort. Future enhancements, such as mobile accessibility and advanced search capabilities, will further optimize the system, enabling the university to manage its international collaborations more effectively.

Keywords: *MoU Management, Academic Collaboration, Digital Workflow Automation, Agile Development*

Document Management System for the Department of IT

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Abstract

This project presents an enhanced web-based Document Management System (DMS) designed to address the inefficiencies of the paper-based document handling process currently used by the Department of IT at the University of Sri Jayewardenepura. The system improves document accessibility, security, collaboration, and process tracking by incorporating structured document workflows, role-based access control, QR-based document validation, and secure collaboration tools tailored for administrators, teachers, and students. Unlike conventional solutions such as Google Drive and SharePoint, this custom-built system offers a more structured and secure approach to document management. The system introduces three distinct user roles: Admins, who oversee user roles, platform administration, and security enforcement; Teachers, who manage file organization, document tracking, document validity, group document sharing, course materials, and community engagement; and Students, who interact through document sharing, document tracking, document validity requests, group collaboration, course access, and community discussions. Key features include a file explorer for secure document management, document tracking with timeline-based workflows, document groups for efficient collaboration, a QR-based document validity system, an integrated chat and messaging system, course management functionalities, and user settings for secure profile updates. To ensure data security and compliance, the system implements encryption, Role-Based Access Control (RBAC), audit logs, and adherence to GDPR and university data privacy policies. The system is built for high scalability and reliability, leveraging cloud-based deployment via AWS or Azure, optimized database indexing, and performance testing to support high concurrent user loads. Future enhancements include offline functionality through Progressive Web Apps (PWA), AI-powered search and tagging for intelligent document retrieval, and real-time collaboration using WebSockets or Firebase. This DMS modernizes document handling by improving efficiency, security, and accessibility while addressing limitations in existing paper-based and conventional digital solutions, with future expansions focusing on AI integration, mobile accessibility, and enhanced collaboration tools.

Keywords: *Document Management System, File categorization, Tracking Multi-user collaboration*

Web-based Vehicle Reservation System (VRS)

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Abstract

The Vehicle Reservation System (VRS) is a web-based application designed to streamline the vehicle reservation and approval process at the University of Sri Jayewardenepura (USJ). The existing system operates manually, requiring students and staff to submit paper-based forms with trip details. The approval process involves multiple administrative steps, including manual verifications and obtaining signatures from relevant department head, Dean and Vice chancellor. Once the approval granted, the general admin authorities inform the vehicle allocation and driver information to the department and shared information about the journey to assigned drivers. This process lacks transparency and it's difficult for users to track their reservation status in online real time. The VRS was developed to automate and optimize this process, ensuring efficient coordination, improved resource utilization, and enhanced user satisfaction. The system developed following the traditional System Development Life Cycle (SDLC) approach. The information requirements of key stakeholders were collected to identify the system functionalities. Students expected the system to provide vehicle availability for a given date, reserve vehicles, manage reservations, receive confirmations, and view their booking history. The relevant head, dean and vice chancellor expected to see all relevant information in one place and convenient approval mechanism. Further, office staff expected to assign vehicle and inform drivers after the approval granted. Key functionalities of the system include real- time tracking of vehicle availability, electronic request submission, easy approval, and role-based user access. The backend was implemented using Node.js and MongoDB, while the frontend was built with React.js and Material-UI. Testing methodologies such as unit testing, integration testing, and user acceptance testing were employed to ensure system reliability and performance. The VRS expected to eliminates paperwork, reduces administrative workload, and provides real-time tracking of reservations, significantly improving operational efficiency provided proper ICT infrastructure. This is a foundation for a mobile-based VRS system.

Keywords: *Web-based application, Vehicle Reservation System, System Development Life Cycle*

Web-Based Career Guidance and Development Portal

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Abstract

The Web-Based Career Guidance and Development Portal was developed to enhance the efficiency and accessibility of career advisory services at the University of Sri Jayewardenepura. The existing manual system at the Career Guidance Unit (CGU) presented several challenges, including inefficiencies in appointment scheduling, delays in resume reviews, difficulties in tracking student career progress, and communicating career-related opportunities to students. To address these issues, we designed and developed a centralized, automated platform that integrates key features such as appointment scheduling, AI-assisted career guidance, resume generation and reviews, real-time notifications, and career progress tracking. By replacing manual workflows with a web-based solution, the portal facilitates improved collaboration between students and career advisors to ensure a more efficient and accessible career guidance process. The development process followed the Waterfall model of the System Development Life Cycle (SDLC) which incorporated phases starting from system analysis, moving on to system design, development, followed by testing and evaluation to ensure the final solution met user requirements effectively. The system was developed using technologies, including React for frontend development, Node.js with Express for backend, and MySQL for database management. AI-driven features were also integrated to provide students with automated interview practice and personalized career support. The implementation of this system significantly improved the services of the CGU, streamlining the process for both students and advisors. The system's ability to automate key functions reduced administrative overhead while enhancing the quality of career guidance services. Feedback from testing has shown that the platform meets the intended objectives effectively, and it has the potential to positively impact the career readiness of students.

Keywords: *Career Guidance, Appointment Scheduling, Resume Generation, Career Progress Tracking, AI-Assistance, Waterfall Model*

AI-Powered Supermarket Management System

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Abstract

This project presents an AI-powered Supermarket Management System (SMS) designed to streamline operations in small to medium-sized supermarkets, typically managed by a single owner. Many such businesses rely on manual processes, leading to inefficiencies such as delayed checkouts, inaccurate inventory tracking, inconsistent promotional applications, and inadequate customer data management. These challenges result in operational inefficiencies and reduced customer satisfaction. The proposed SMS integrates essential functionalities, including Point of Sale (POS), Inventory Management, Promotions, and Customer Management, into a unified system. Developed using Qt Creator for the graphical user interface and MySQL for backend database management, the system ensures real-time data updates, automation of critical processes, and improved accuracy in daily operations. Key features include automatic discount applications, stock alerts, and customer purchase tracking, helping managers make informed decisions efficiently. Extensive testing confirmed the system's ability to enhance transaction speed, minimize errors, and optimize inventory and customer management. These improvements contribute to higher operational efficiency and an improved shopping experience for customers. However, the system has certain limitations, such as the lack of remote access and advanced reporting capabilities. Future enhancements could include cloud integration, mobile accessibility, and e-commerce functionality, making the system more versatile and scalable. Overall, this AI-powered SMS modernizes supermarket management by addressing the specific needs of small-scale operators. By leveraging automation and real-time data processing, the system enhances decision-making, reduces manual workload, and improves overall business performance. This project highlights the transformative potential of technology in revolutionizing traditional retail operations and paving the way for smarter, more efficient supermarket management.

Keywords: *Supermarket management system, Artificial Intelligence, Customized barcodes*

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