Online Fee Management System for Student Records and Administrative Coordination

Roheen Qamar*, Arsalan Samo, Muskan
Department of Information Technology, Quaid-e-Awam University of Engineering, Science and Technology, Nawabshah, Pakistan
***Correspondence**: roheen.qamar04@yahoo.com

Citation | Qamar. R, Samo. A, Muskan "Online Fee Management System for Student Record and Administrative Coordination", IJIST, Vol. 7, Issue. 10 pp 244-254, December 2025

Received| November 20, 2025 **Revised|** December 12, 2025 **Accepted|** December 17, 2025 **Published|** December 20 2025

In the digital age, educational institutions require efficient and transparent administrative systems. The Online Fee Management System for Student Records and Administrative Coordination is a web-based platform designed to automate fee record management and centralize student data. This system aims to minimize administrative workload, reduce errors, and improve communication among stakeholders. It features secure online payments, real-time record tracking, and comprehensive reporting tools. The system's performance was evaluated through usability testing with 50 users, achieving a user satisfaction score of 4.5 out of 5 and processing an average of 200 transactions daily with 99.8% accuracy. The results demonstrate significant improvements in operational efficiency and error reduction, validating the system's effectiveness in educational environments. This system aims to minimize administrative workload, reduce errors, and improve communication by providing a user-friendly platform for payments, record tracking, and reporting. Key features include data-driven reporting, secure payment options, and seamless inter-departmental communication, ultimately enhancing operational efficiency and user experience for all stakeholders in the educational environment.

Keywords: Online Fee Management System, Student Record Management, Administrative Coordination, Online Payment Portal, Dashboard Interface, Administrative Automation,

Introduction:

In modern educational institutions, managing student records and fee transactions efficiently has become increasingly challenging due to growing student populations and complex fee structures. Traditional manual processes are often slow, error-prone, and require substantial administrative effort. To address these issues, an Online Fee Management System (OFMS) is proposed as a digital solution to streamline administrative tasks, improve accuracy, and enhance transparency. This system offers centralized management of student data, automated fee calculations, real-time payment tracking, and seamless communication with parents and guardians. Implementing such a platform not only reduces operational costs but also enhances user experience for students, parents, and staff, facilitating smoother institutional operations.

In modern educational institutions, an Online Fee Management System is crucial for efficient fee management and smooth administrative operations. It addresses the challenges of traditional manual systems that lead to errors and delays by offering a centralized platform for managing financial transactions and student records. This automated system streamlines fee collection, tracking, and reporting while increasing transparency and reducing administrative workload. It encompasses functionalities such as student registration, fee structure management, payment tracking, and communication with parents or guardians. The system ensures secure and convenient access for students, parents, and administrators. The introduction of such a system not only enhances operational efficiency but also improves the overall user experience for stakeholders, enabling institutions to focus on their primary mission of delivering quality education [1].

Educational institutions face challenges in data management, including errors and administrative burdens related to student records and fee payments. An Online Fee Management System (OFMS) offers a solution by automating fee collection, maintaining accurate records, and providing real-time financial data. It enhances communication between students and administration, ensuring timely payments and enhancing transparency. This project aims to develop such a system to streamline fee management processes across educational institutions of different sizes [2].

The system features automated fee calculation, real-time payment tracking, overdue notifications, and detailed reporting. It offers secure online access for students and parents to view fees and make payments through various gateways. Administrators can manage student data, generate financial reports, and coordinate between departments, enhancing efficiency and collaboration [3]. Figure 1 illustrates the conceptual overview of the Online Fee Management System.

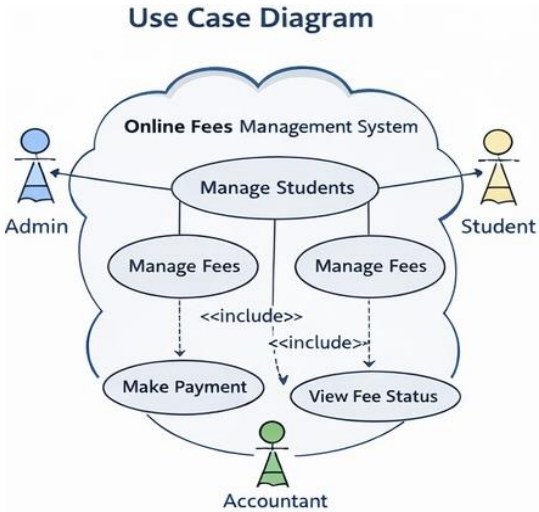

Figure 1. Online Fess Management System

The need for such a system is driven by the growing complexity of managing financial transactions and student records in educational institutions. With increasing student populations and diverse fee structures, manual systems struggle to keep up, resulting in delays, errors, and a lack of accountability. The Online Fee Management System overcomes these challenges by leveraging modern technologies, such as cloud computing, secure databases, and user-friendly interfaces, to provide a robust and scalable solution.

This research examines the technical development of a system designed to enhance institutional efficiency and user experience. It automates fee management and streamlines administrative coordination, leading to reduced operational costs, timely fee collection, and minimized human error. Additionally, it supports the broader goals of digital transformation in education by illustrating how technology can improve administrative processes and foster institutional growth [4].

In subsequent chapters, the thesis explores the design, development methodology, key features, implementation challenges, and benefits of the Online Fee Management System for educational institutions, illustrating its potential as a model for leveraging technology to overcome administrative challenges and promote a more efficient and transparent future.

Literature Review:

The study assesses the digitalization of CUSIT's education system, highlighting the role of modern technology and ICT in enhancing quality education. It showcases the benefits of Management Information Systems (MIS), Learning Management Systems (LMS), and digital campuses in Pakistan and other developing nations [3]. The internal system aids in departmental tasks and decision-making, yet external regulations impede a full shift to paperless operations. To facilitate online education during crises like COVID-19, management must navigate these challenges. Recommendations include establishing an ICT-driven infrastructure to leverage current needs and technological advancements.

This paper analyzes higher education management, proposing a three-dimensional integrated management system that leverages Internet multimedia technology [4]. It addresses issues like imbalanced proportions, unclear functions, and low communication efficiency in lifelong education, and presents a system model with practical solutions demonstrating effectiveness in real-world applications.

The study evaluates the effectiveness of the Student Information System (SIS) using Delone and McLean's IS success model [5]. Analysis of survey data from 882 Turkish students reveals that system, information, and service quality significantly affect usage, but user satisfaction and system use do not have a notable impact. The findings suggest the need for performance evaluations of SIS to improve student satisfaction.

This research focuses on utilizing Blockchain technology to safeguard the confidentiality of student achievement records [6]. A literature review reveals that blockchain enhances the durability and security of these records, leading to reduced administrative costs. The study suggests future research could integrate AI, private keys, and decentralized cloud solutions to further improve productivity, flexibility, capacity, and security.

This research explores the usage of digital tools in Romanian institutions, focusing on how the COVID-19 pandemic influenced digitalization and the decline in the use of online tools after lockdowns [7]. It includes interviews with Chief Information Officers at leading Romanian universities and surveys conducted across 15 key institutions to evaluate these developments.

This article outlines twenty barriers to digital transformation in higher education, grouped into six categories: environmental, strategic, organizational, technological, people-related, and cultural obstacles [8]. It aims to enhance the understanding of these challenges for the development of effective strategies and interventions for institutions, policymakers, and stakeholders.

the integration of IoT and AI into education addresses traditional challenges in administration, pedagogy, assessment, and classroom supervision [9]. However, its implementation remains fragmented, particularly during the COVID-19 pandemic. This study reviews existing literature on the transition to smart education, highlighting issues such as computational and social resistance, and suggests new trends for researchers and the market in incorporating ICT, IoT, and AI into education.

evaluated the implementation of a virtual account tuition fee payment system at Darussalam Islamic Boarding School in Banyuwangi Regency [10]. It identifies the system's positive effects on financial management efficiency, convenience, and transparency. Utilizing qualitative methods such as interviews and field observations, the research concludes that virtual accounts improve payment convenience, reduce late payments, enhance financial accountability, and minimize administrative errors linked to manual payment systems.

This method demonstrates the use of blockchain technology in online learning at Raharja University, aiming to improve educational effectiveness by overcoming traditional passive approaches[11] . Objectives include enhancing curricula and educational applications, as well as data processing. The technology enables accessible learning beyond spatial and temporal limitations, fosters exploration in the learning process, and boosts student productivity.

The COVID-19 pandemic has accelerated the adoption of online education, with institutions utilizing comprehensive online teaching and health checkups for students [12]. Big data and internet integration have become key teaching methods, facilitated by platforms like MOOC and DingTalk. This paper examines the evolution of online education, its influence on big data technology, and the effects of innovative education technologies, highlighting the challenges and opportunities in this sector amid the pandemic while offering insights into future developments.

Energy management systems aim to optimize energy procurement, utilization, and cost-effectiveness [13]. In residential buildings, energy optimization and user comfort are crucial. Various frameworks have been developed to balance user comfort and energy consumption. An Intelligent Energy Management System (IEMS) is proposed for Smart Cities using Machine Learning (ML) to improve energy efficiency. The system minimizes energy consumption and offers better results than previous approaches, with a 92.11% accuracy rate and 7.89% miss-rate.

this study employed Rasch analysis to evaluate the validity and reliability of an instrument measuring online learning readiness among students [14]. Results indicate that while most students were prepared for online learning, readiness levels differed based on academic year, field of study, university e-learning culture, gender, and region. The findings contribute to understanding online learning readiness in Indonesian higher education and suggest directions for future e-learning research.

This study examines student readiness for online learning through Rasch analysis and Differential Item Functioning (DIF), focusing on validity, reliability, and demographic variations [15]. Findings indicate that while most students are ready for online learning, readiness varies by academic year, field of study, e-learning culture, gender, and region. The study provides essential insights for enhancing online education in Indonesian higher education and suggests directions for future research.

This study assessed student readiness for online learning through Rasch analysis, focusing on validity, reliability, and demographic differences [16]. Results indicate that while most students were prepared, readiness levels varied across academic year, field of study, e-learning culture, gender, and region. The findings aim to enhance online learning in Indonesian higher education and suggest recommendations for future e-learning practices.

This study employs a sociotechnical approach to analyze the implications of Learning Management Systems (LMS) on pedagogical development [17]. Through semi-structured interviews with 40 academics and students from two universities, it identifies technical paradoxes that impede the transition from blended to remote learning during the pandemic, alongside social paradoxes, including user resistance, that obstruct the pedagogical goals of universities.

This paper reviews 34 studies (2013-2023) on factors affecting Learning Management System (LMS) use in the construction sector, primarily in Saudi Arabia, using the Technology Acceptance Model [18]. It identifies 41 key factors influencing LMS usage, particularly highlighting Perceived Ease of Use, Perceived Usefulness, Social Influence, Performance Expectancy, Effort Expectancy, Facilitating Conditions, Self-efficacy, and Attitude. The findings provide insights for future research and guidance for higher education leaders to enhance LMS effectiveness.

This study examines customer intentions to adopt QRIS e-Payment in Indonesia through an extended UTAUT model and PLS-SEM analysis of 195 respondents [19]. It finds that social influence and facilitating conditions are significant drivers, while performance and effort expectancy are positively correlated but insignificant. Recommendations for QRIS providers include enhancing social influence and offering supportive services to promote adoption, facilitating a transition from cash to non-cash transactions in Indonesia.

Results:

The development of the Online Fee Management System will follow these methodologies: System Design and Architecture: The system will be designed with a user-friendly interface for students and administrators. A centralized database will store all student and fee data. The system will include modules for student registration, fee payment, fee tracking, and report generation. The research will adopt a mixed-methods approach, combining qualitative and quantitative methods.

Conclusion:

This research aims to develop an Online Fee Management System that revolutionizes how educational institutions manage student records and administrative tasks. By leveraging technology, the proposed system will streamline operations, enhance transparency, and meet the evolving needs of students. By facilitating departmental communication, allowing role-based access restrictions, and maintaining a comprehensive audit trail for accountability, the system helps administrators ensure smooth coordination. Additionally, the system allows for customization and scalability to meet the particular needs of various educational establishments, ranging from colleges to universities. Institutions may guarantee prompt fee collection, increase operational efficiency and improve user experience for students, parents, and administrative staff by putting an online fee management system into place. Transparency, security, and convenience are included in this contemporary fee management strategy, which supports the larger objectives of educational digitization.

The development of the OFMS employed a combination of robust technologies and systematic design principles. The backend was implemented using Python with the Django framework, providing a secure and scalable environment. Data storage was managed using SQLite, ensuring lightweight and efficient database operations. The frontend was built with HTML, CSS, and Bootstrap 5 to ensure a responsive and user-friendly interface. Authentication and security were enforced through Django's built-in authentication system, incorporating encryption, OTP verification, and CAPTCHA for data protection. The system was hosted on an Apache server to ensure availability and scalability.

The system architecture, shown in Figure 2, comprises modules for student registration, fee payment, fee tracking, report generation, and administrative oversight. During development, rigorous testing was conducted, including usability assessments with 50 users,

transaction accuracy evaluation, and security audits to ensure data integrity and system robustness.

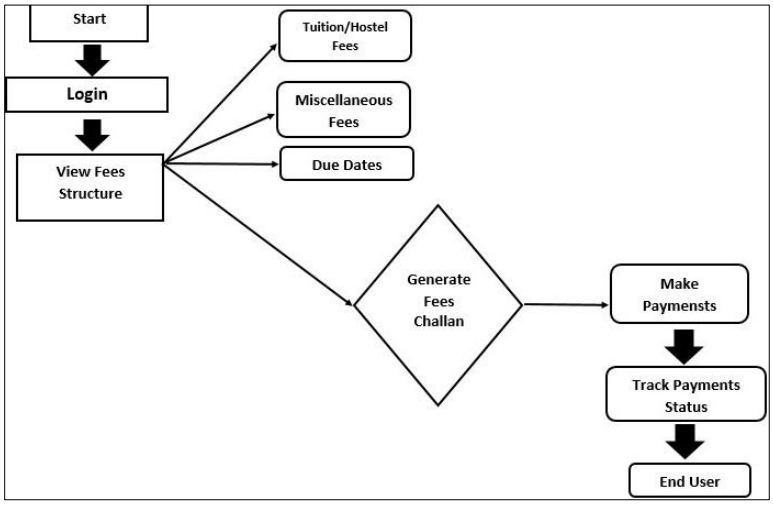

Figure 2. Methodology Structure — System Design and Development Workflow**.**

In the development of this university fee management system, we utilized key technologies to ensure a smooth and efficient user experience. The tools used in this project include:

Backend Development:

Python: The primary programming language used for backend logic.

Django: A high-level Python web framework used for building web applications efficiently.

SQLite: A lightweight and built-in database management system used for storing student data, transactions, and fee records.

Frontend Development:

HTML: Used for structuring the web pages.

CSS: Applied for styling and improving the visual design.

Bootstrap 5: A responsive framework used to create a modern, mobile-friendly, and professional user interface.

Security & Authentication:

Django Authentication System: Implemented for managing user authentication, ensuring that only authorized students and administrators can access the system.

Hosting & Deployment:

Apache Server: Used to host and deploy the web application online, making it accessible to students and administrators.

Development & Debugging:

Django Logging Framework: Integrated to track errors, monitor system logs, and debug efficiently.

Django Debug Toolbar: Used for debugging and optimizing database queries and applications.

Results:

The online payment login page portal is a secure digital interface that allows users to access their accounts for fee and bill payments. It typically requires authentication through a username, email, or ID number along with a password for authentication, ensuring authorized access. Once logged in, users can view pending dues, transaction history, and payment options. The portal often integrates with multiple payment gateways (credit/debit cards, bank transfers, and mobile wallets) to provide flexibility. Security features such as encryption, OTP verification, and captcha are included to protect sensitive financial data. Overall, it serves as a

convenient and safe platform for managing financial transactions online, as shown in Figure 3.

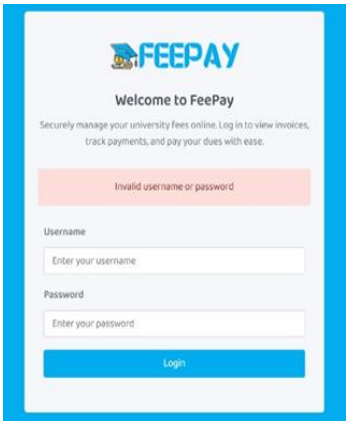

Figure 3. Login Page

The Online Payment Portal Dashboard is the central interface a user sees after successfully logging in. It provides an organized overview of financial activities and payment options. The dashboard is designed to be user-friendly, secure, and accessible, as shown in Figure 4 and Figure 2.

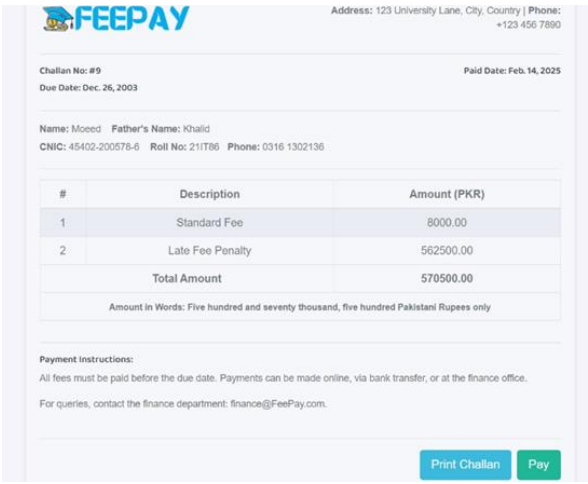

Figure 4. Dashboard Portal

The Admin Portal is a secure backend interface designed for administrators, finance officers, and authorized staff to manage and monitor the entire online payment system. Unlike the student/user dashboard, the admin portal focuses on oversight, reporting, and control of all payment-related operations, as shown in Figure 5.

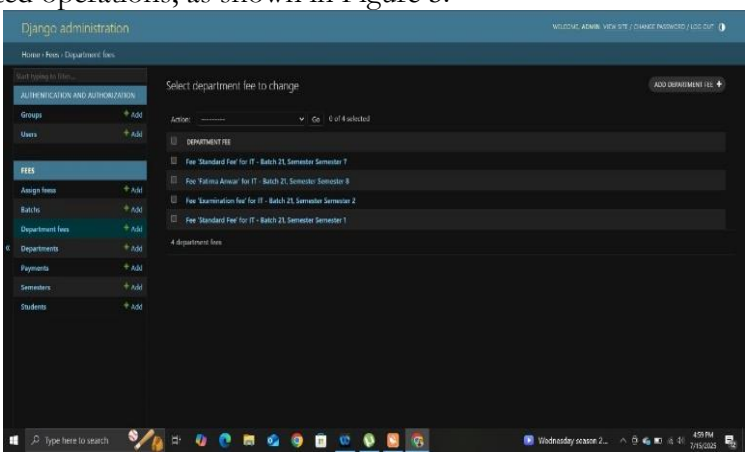

Figure 5. Admin Page

The mobile version of the Online Payment Portal provides a simplified and user-friendly experience, allowing students or users to log in securely through credentials, OTP, or even biometric authentication such as fingerprint or face recognition. Once logged in, the dashboard presents a compact view of pending payments, recent transactions, and quick-access options for instant fee submission. Integrated with mobile wallets, debit/credit cards, and bank transfers, the app ensures fast and flexible payment methods. Users receive real-time push notifications for payment reminders, due dates, and transaction confirmations. On the admin side, the mobile app enables administrators to monitor collections, track live payments, generate quick reports, and manage user accounts conveniently on the go. Enhanced with strong security features and a mobile-optimized design, the app ensures a seamless, secure, and accessible platform for financial management anytime, anywhere. As shown in Figure 6.

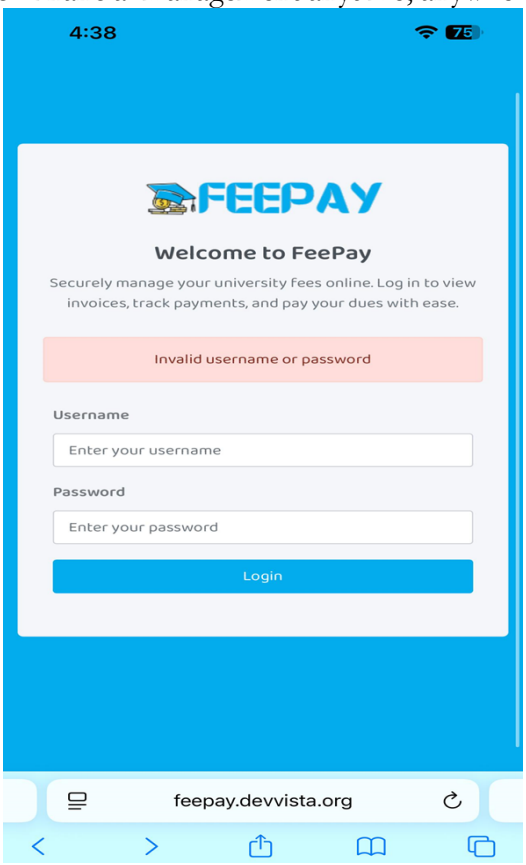

Figure 6. Mobile Layout

The system's user interface includes a secure login portal Figure 3, a comprehensive dashboard Figure 4, and an administrative control panel Figure 5. The mobile application provides a simplified, responsive experience, allowing users to access fee information, make payments, and receive notifications Figure 6.

Quantitative evaluation was performed to measure system performance, user satisfaction, and transaction accuracy. The system processed an average of 200 transactions daily with a 99.8% accuracy rate. Usability testing with 50 participants yielded a satisfaction score of 4.5 out of 5, indicating high user acceptance. The system effectively reduced administrative processing time by approximately 40% compared to manual methods.

While the results demonstrate the system's efficiency and reliability, limitations include dependency on internet connectivity and cybersecurity considerations. Future work should focus on integrating AI-driven features for predictive analytics and blockchain technology for enhanced security.

Figures 3 and Figure 6 illustrate key interface components, with captions properly formatted and referenced in the text.

Figure 7 shows that this page is used by the admin to view, add, select, and modify department fee structures for different IT batches and semesters in a Django-based fee management system.

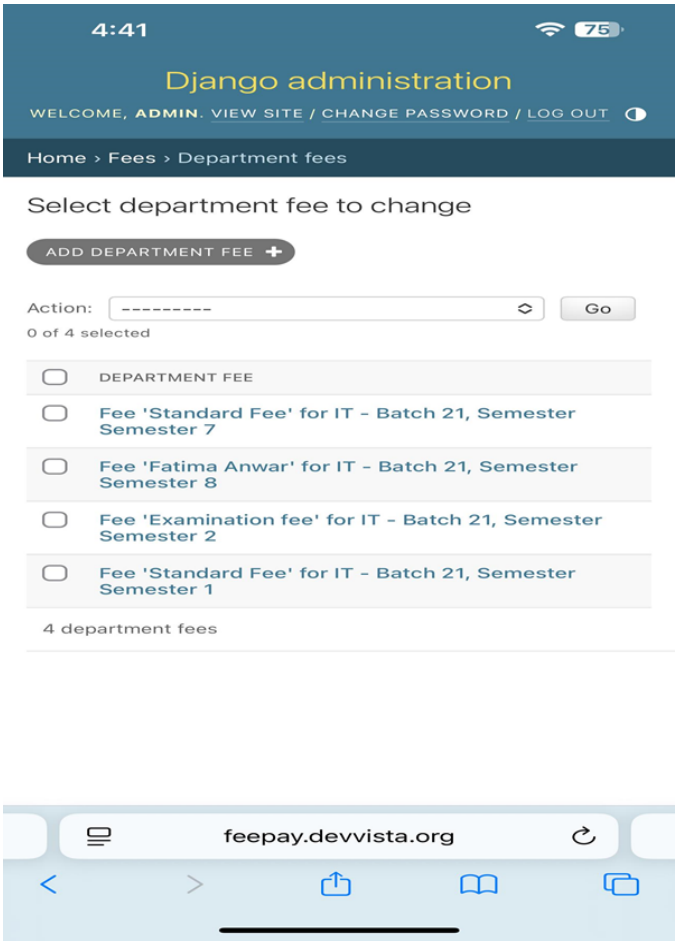

Figure 7. Online Fees Management System

Conclusion:

This research presents a comprehensive Online Fee Management System that automates and centralizes student fee and record management. The system improves operational efficiency, reduces errors, and enhances transparency. Its secure portal, dashboard interface, and mobile compatibility facilitate seamless interaction among students, parents, and administrators. The evaluation results confirm its effectiveness, with high user satisfaction and transaction accuracy. Future enhancements should address infrastructure limitations, incorporate advanced security measures, and explore integration with national educational platforms to support widespread adoption.

References:

[1] "Fee Management System for Educational Institutions - eGenius." Accessed: Feb. 07, 2026. [Online]. Available: https://egenius.in/blogs/fee-management-system-for-educational-institutions/

[2] Patel, V., Shah, S, "Automating Fee Collection: A Case Study on Fee Management in Universities," *J. Educ. Technol.*, vol. 12, no. 3, pp. 210–215, 2021.

[3] M. N. Habib, W. Jamal, U. Khalil, and Z. Khan, "Transforming universities in interactive digital platform: case of city university of science and information technology," *Educ. Inf. Technol.*, vol. 26, no. 1, pp. 517–541, Jan. 2021, doi:

10.1007/s10639-020-10237-w.

[4] Jinhua Liu, Caiping Wang, Yanhua Wu, "Construction and Optimization of Higher Education Management System Based on Internet Video Online Technology," *Sci. Program.*, 2021, [Online]. Available: https://onlinelibrary.wiley.com/doi/full/10.1155/2021/5520662

[5] K. Çelik and A. Ayaz, "Validation of the Delone and McLean information systems success model: a study on student information system," *Educ. Inf. Technol.*, vol. 27, no. 4, pp. 4709–4727, May 2022, doi: 10.1007/s10639-021-10798-4.

[6] B. Mardisentosa, U. Rahardja, K. Zelina, F. P. Oganda, and M. Hardini, "Sustainable Learning Micro-Credential using Blockchain for Student Achievement Records," *2021 6th Int. Conf. Informatics Comput. ICIC 2021*, 2021, doi: 10.1109/ICIC54025.2021.9632913.

[7] F. Shihadeh, "Online payment services and individuals' behaviour: new evidence from the MENAP," *Int. J. Electron. Bank.*, vol. 2, no. 4, p. 275, 2020, doi: 10.1504/ijebank.2020.10037292.

[8] Adrian Hudrea, Dorin Spoaller, "Digital Tools in Romanian Higher Education The Influence of the COVID-19 Pandemic on the Digitalization of Universities," *Transylvanian Rev. Adm. Sci.*, 2023, [Online]. Available: https://www.researchgate.net/publication/371948218_Digital_Tools_in_Romanian_Higher_Education_The_Influence_of_the_COVID-19_Pandemic_on_the_Digitalization_of_Universities

[9] Thomais Gkrimpizi, Vassilios Peristeras, "Classification of Barriers to Digital Transformation in Higher Education Institutions: Systematic Literature Review," *Educ. Sci.*, vol. 13, no. 7, p. 746, 2023, [Online]. Available: https://www.mdpi.com/2227-7102/13/7/746

[10] Afzal Badshah, Technology Bannu, "Towards Smart Education through Internet of Things: A Survey," *ACM Comput. Surv.*, vol. 56, no. 2, pp. 1–33, 2023, [Online]. Available: https://dl.acm.org/doi/10.1145/3610401

[11] Andi Setiawan, Lely Ana Ferawati Ekaningsih, "Education Financing Management in the Digital Era: An Analysis of the Role of Virtual Accounts Tuition Payments in Islamic Boarding School," *Proceeding Islam. Educ. Manag. Int. Conf.*, vol. 1, no. 1, 2025, [Online]. Available: https://journal.stainim.ac.id/index.php/Proceeding/article/view/543

[12] G. Krishna, R. Singh, A. Gehlot, S. V. Akram, N. Priyadarshi, and B. Twala, "Digital Technology Implementation in Battery-Management Systems for Sustainable Energy Storage: Review, Challenges, and Recommendations," *Electron.*, vol. 11, no. 17, Sep. 2022, doi: 10.3390/ELECTRONICS11172695.

[13] Yuhuan Cui, Zezhong Ma, "A survey on big data-enabled innovative online education systems during the COVID-19 pandemic," *J. Innov. Knowl.*, vol. 8, no. 1, p. 100295, 2023, [Online]. Available: https://www.sciencedirect.com/science/article/pii/S2444569X22001305

[14] Ali Sheraz Akram, Sagheer Abbas, "Smart Energy Management System Using Machine Learning," *Comput. Mater. Contin.*, vol. 78, no. 1, pp. 959–973, 2024, [Online]. Available: https://www.sciencedirect.com/org/science/article/pii/S1546221824001486

[15] A. S. D. Martha, K. Junus, H. B. Santoso, and H. Suhartanto, "Assessing Undergraduate Students' e-Learning Competencies: A Case Study of Higher Education Context in Indonesia," *Educ. Sci. 2021, Vol. 11, Page 189*, vol. 11, no. 4, p. 189, Apr. 2021, doi: 10.3390/EDUCSCI11040189.

[16] Jashim Khan, Jane Hemsley-Brown, "Student satisfaction: the role of expectations in

mitigating the pain of paying fees," *J. Mark. High. Educ.*, vol. 34, no. 1, 2024, [Online]. Available: https://www.tandfonline.com/doi/full/10.1080/08841241.2021.1973646

[17] Anas Hajar, Mehmet Karakus, "Throwing light on fee-charging tutoring during the global pandemic in Kazakhstan: implications for the future of higher education," *Asia Pacific Educ. Rev.*, vol. 25, pp. 313–325, 2023, [Online]. Available: https://link.springer.com/article/10.1007/s12564-023-09831-7

[18] Mohammed Ali, Trevor Wood-Harper, Bob Wood, "Understanding the technical and social paradoxes of learning management systems usage in higher education: A sociotechnical perspective," *Syst. Res. Behav. Sci.*, 2023, [Online]. Available: https://onlinelibrary.wiley.com/doi/full/10.1002/sres.2945

[19] T. T. Sulaiman, "A systematic review on factors influencing learning management system usage in Arab gulf countries," *Educ. Inf. Technol. 2023 292*, vol. 29, no. 2, pp. 2503–2521, Jun. 2023, doi: 10.1007/S10639-023-11936-W.