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Empowering Mosque Youth through Technological Innovation: Implementation of Web-Based Information Systems

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Abstract

This community service activity aims to design an information system and empower the Nurul Ihsan Mosque Youth Association in Makassar through the use of information technology. So far, the management of activities, finances, and membership data has been done manually, which often causes delays, irregularities, and difficulties in accessing information. So to answer these challenges, the implementation team designed and implemented a web-based information system using the waterfall method approach, which includes needs analysis, design, implementation, testing, and maintenance. This system facilitates administrators in managing data in a structured and real-time manner, as well as opening up access to information for members and the wider community in a transparent manner. As part of the impact evaluation, a satisfaction test was conducted on 30 respondents, consisting of administrators and members of the mosque youth. The results of the statistical analysis showed that 90% of respondents stated that they were very satisfied with the ease of use of the application, the speed of accessing information, and the intuitive interface. The average value of the overall satisfaction level reached the maximum scale, indicating positive acceptance and effectiveness of the system in supporting organizational activities. The implementation of this system not only improves the efficiency of the administrators' work but also strengthens member participation and builds a more professional and adaptive organizational image to technological developments. This initiative proves that appropriate digital innovation can be a key driver in strengthening the role of religious organizations in modern society.

Keywords: Youth Empowerment; Information Systems; Mosque; Web Technology; Digital Participation.

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Introduction

Mosques are not just places of worship, but also play a strategic role as centers of religious, social, educational, and community empowerment activities. Among the important elements in strengthening the function of mosques is the role of mosque youth as the driving force of activities involving the younger generation. Mosque youth organizations are present as a forum for developing the spiritual and social potential of young people, as well as the spearhead of creative and adaptive preaching to the dynamics of the times. However, in practice, not a few mosque youth face administrative obstacles, especially in managing activities, finances, and membership data effectively.

This condition is also experienced by the Nurul Ihsan Mosque Youth Association located in RW 02 Kampung Asang, Pai Village, Biringkanaya District, Makassar City. The entire documentation and information management process is still done manually, resulting in various obstacles such as slow information delivery, lack of data accuracy, and high workload for administrators. In fact, in the current digital era, organizations are required to be more responsive, efficient, and open, especially in terms of data management and delivering information to the public. Therefore, a technological solution is needed that is able to respond to this challenge appropriately and effectively.

One of the relevant technology alternatives is a web-based information system. This system allows administrators to manage information centrally, systematically, and it can be accessed anytime and anywhere. In addition, the use of a website can also increase member involvement, strengthen transparency, and build a more modern and professional organizational image. The presence of a digital information system not only acts as an administrative tool but also as a means of empowering mosque youth in adapting to the development of information technology.

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A system in the general sense is a set of elements that interact with each other and are integrated to achieve certain goals (Colarika & Zahro, 2023; Pohl et al., 2021). In this context, the system is defined as an organizational structure that combines hardware, software, human resources, and work procedures to manage information efficiently and accurately. A system has key characteristics such as components, boundaries, environment, interfaces, inputs, processes, outputs, and targets. These components must work in harmony for the system to function properly.

Information is the result of processing raw data into meaningful and relevant knowledge to support decision making. In the context of organizational management, timely, accurate, complete, and relevant information is needed by managers in designing activities, preparing financial reports, and conveying information to members.(Nugroho & Utama, 2025; Tjahjanto et al., 2025). Quality information is an important foundation for openness and accountability in a community organization, including mosque youth.

Information systems are a combination of technology, people, and procedures designed to produce useful information systematically. The main purpose is to provide support for operational activities and decision-making within the organization. The information system built in this study is web-based in order to provide flexible access to administrators and members of the organization. Web-based technology allows the integration of data and information that can be accessed from various devices, anytime and anywhere, and provides better transparency (Alraina et al., 2025; Suprianto, 2024; Widyasari et al., 2025).

Websites are the main medium in web-based information systems. Websites are a collection of digital pages that can be accessed via the internet and present information to visitors in an organized structure. Important elements in building a website include domains, hosting, content, programming languages, and displays. Interface (Hernawan et al., 2025; Indayanti et al., 2024; Kaluarachchi & Wickramasinghe, 2023) In the context of developing a youth mosque information system, content can include activity news, financial reports, preaching articles, and membership data.

Supporting technologies such as PHP (Hypertext Preprocessor), MySQL, and XAMPP play a major role in building a dynamic and efficient system. PHP is used to process program logic on the server side, while MySQL is used to store and manage databases containing important organizational information. XAMPP is used as a local server during the system development stage. Additional technologies such as CSS and JavaScript are also used to beautify the appearance of the interface and increase website interactivity, so that users feel comfortable accessing information. In addition, database management cannot be separated from the use of the SQL language, which is divided into DDL (Data Definition Language) and DML (Data Manipulation Language). DDL is used to define database structures, such as creating tables and schemas, while DML is used to manage database contents, such as adding, changing, or deleting data (Romadloni & Miswanto, 2024; Usman et al., 2025).

Based on this background, this study aims to design a web-based information system and empower the Nurul Ihsan Mosque Youth Association in Makassar to manage activity, financial, and membership data more effectively and efficiently. So with this system, it is expected that organizational activities can be well documented, information can be delivered faster, and member participation becomes more active. Theoretically, this study contributes to the development of science in the field of information systems, especially those applied in the context of religious organizations and mosque-based communities. While practically, this system can be directly utilized by the administrators and members of the Nurul Ihsan Mosque Youth Association to support the organization's daily operations, with flexible access through various digital devices such as computers, laptops, tablets, or smartphones connected to the internet.

Method

This research uses an information system development approach with the Waterfall method, namely a sequential and systematic software development model, starting from the stages of needs analysis, design, implementation, testing, to system maintenance.(Anis et al., 2024; Iskandar, Retnawati, et al., 2024). Each stage in this method is completed thoroughly before proceeding to the next stage. This model is considered suitable for developing systems based on clearly identified needs, such as the Mosque Youth Association information system. An illustration of the process of this method can be seen in Figure 1.

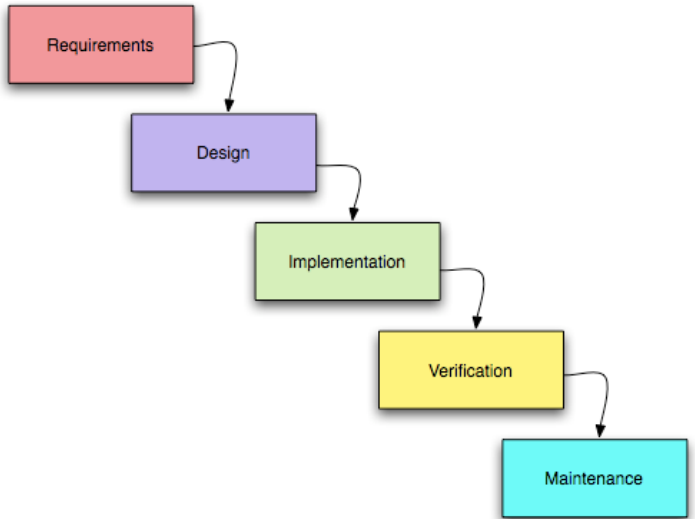

Figure 1. Waterfall method of system requirements

In the first stage, needs analysis was conducted using a qualitative approach through direct observation at the Nurul Ihsan Mosque. This observation aims to understand the pattern of mosque youth activities, event management, and administrative and financial aspects that take place in the field. Furthermore, to complete the data, the researcher also conducted structured interviews with the administrators of the Mosque Youth Association to obtain in-depth information about the system needs and the obstacles they experience in managing the organization on a daily basis.

After the requirements are collected, the next stage is system design. At this stage, the designer uses the Unified Modeling Language (UML) approach to document the system through various diagrams such as use cases, activity diagrams, and flowcharts. These diagrams provide a visual depiction of the relationship between users and the system and the process flow that occurs within the system.(Aryani & Voutama, 2025; Sidik et al., 2023). In addition, the user interface design is designed so that the system is easy to access and understand, both by administrators and general users. The design of the main page, login page, and admin dashboard is done by paying attention to the principles of readability, ease of navigation, and consistency of appearance.(Luthfi, 2025).

The implementation phase is carried out by building a web-based system using relevant programming languages and software. The design results are translated into program code that can be accessed via desktop or mobile devices. After the system is completed, the testing phase is carried out to ensure the system runs according to specifications. This study uses the black box testing method which focuses on testing system functionality without viewing the program code directly.(Iskandar, Wanita, et al., 2024; Sholeh et al., 2021). The trial also involved users from among the mosque youth to get direct feedback.

The final stage in this process is system maintenance. The system will continue to be monitored and refined based on the needs and developments of the organization in the future. With this development approach, it is hoped that the web-based information system that is built can be a digital solution in supporting the empowerment of mosque youth, increasing information transparency, and strengthening member participation in various organizational activities.

Results and Discussion

Results

The development of a web-based information system for the Nurul Ihsan Mosque Youth Association (IRMA) aims to provide practical solutions in managing a more orderly, transparent, and structured organization. Through the stages that have been passed, starting from needs analysis to system testing, the implementation results were obtained which were actually able to answer the needs of users in the mosque youth organization environment. The following is a presentation of the implementation results of each part of the system.

Home Page

The main page is the initial display that welcomes every visitor to the system. This page is designed to display basic information about the IRMA Nurul Ihsan organization, including the name of the organization, logo, and a brief introduction to their goals and activities. The visual design in Figure 2 is arranged simply but remains attractive, so that it is easy to understand and access by both internal members and the general public.

Figure 2. Main Page View of Information System

This page serves as a gateway to the system's main features, such as articles, activity agendas, contact information, and login. A clean appearance and easy-to-understand navigation contribute to comfort in use.

Login Page

Each user registered in the system has an account that is used to log in to the dashboard. The login process is equipped with authentication that is adjusted based on access rights, namely superadmin, chairman, secretary, and treasurer. Through this approach, the system can guarantee data security and a clear division of tasks between users, as in Figure 3.

Figure 3. User Login Form View

This login form display is designed to be concise yet secure, using a data validation mechanism to prevent input errors and unauthorized access attempts. Grouping access rights, each user can only view and manage sections relevant to their tasks. In addition, there is also a superadmin dashboard page which is the main control center in the system. Through this page, the superadmin has full authority to manage data, from creating and managing user accounts, publishing articles, recording finances, setting activity agendas, to member data collection. The menu structure is arranged logically and functionally, using an intuitive navigation sidebar. This aims to make it easier for the superadmin to carry out administrative tasks quickly and efficiently.

Descriptive Analysis Results

As part of the system evaluation, based on the results of the system testing with blackbox testing, everything went well without any error constraints and after a survey was conducted on users consisting of the administrators of the Nurul Ihsan Mosque Youth Association (IRMA), with the aim of assessing their level of satisfaction with the implementation of this web-based information system. The survey was conducted after users tried all the main features of the system, including login, article management, financial recording, and activity agenda management. The results of the statistical analysis showed that 90% of respondents stated that they were very satisfied with the ease of use of the application, the speed of information access, and the intuitive interface. Respondents felt that this system was very helpful for them in carrying out organizational activities in a more structured and efficient manner. The simple but functional appearance was considered to make it easier for them, even for users who were not familiar with the previous digital system.

The average value of the overall satisfaction level is at the highest scale, indicating a very positive acceptance of the existence of this system. This finding strengthens the assumption that the information system developed has succeeded in meeting user expectations and is effective in supporting organizational operations, from archiving activities, distributing internal information, to managing more transparent financial data. In addition, 80% of respondents also stated that this system facilitates coordination between members, because data and information can be accessed at any time without having to meet face to face. This is very important for youth mosque organizations that often face time and place constraints in gathering regularly. In general, the results of the analysis show that this information system is not only able to answer the administrative needs of the organization, but also provides added value in the form of increased professionalism, time efficiency, and strengthening a technology-based work culture within the scope of youth mosque organizations.

Discussion

The results of the implementation of a web-based information system at the Nurul Ihsan Mosque Youth Association showed very high effectiveness in supporting organizational activities. This system not only succeeded in providing a functional digital platform, but was also able to accommodate various administrative needs of the organization efficiently and in a structured manner. First, in terms of ease of use (usability), as many as 90% of respondents felt very helped by the simple, intuitive, and easily accessible system interface. This is in line with the opinion(Rojuaniah et al., 2024; Waworuntu et al., 2024), which states that ease of use is one of the main indicators of the success of an information system because it has a direct impact on the user experience. A user-friendly interface makes it easy for administrators to manage activities, upload articles, and record finances without requiring in-depth technical training.

In terms of speed of access to information, respondents gave a very positive assessment of the system's ability to present data in real-time and centrally. This reinforces previous findings by(Solihin et al., 2024)that automated information systems can accelerate the decision-making process in small to large organizations. In the context of religious organizations such as mosque youth, the speed of sharing information about activities or financial reports is an important aspect in building transparency and trust between members. In addition, the financial management and activity agenda features are considered very helpful in creating accountable organizational governance. So with this system, information can be recorded, monitored, and evaluated systematically. This is in line with the theory of management information systems according to(Rismawati et al., 2024), which states that the integration of information in a system will help organizations optimize resource management and operational activities.

In addition to the technical aspects, this system has also succeeded in increasing member participation and involvement, especially through online registration features and activity publications. As many as 80% of respondents admitted to being more active in following organizational information after the presence of this system. This proves that the use of information technology is not only administrative, but also able to build better community engagement.(Erlin et al., 2024). However, challenges remain, especially in the limited digital access for some users who are not yet accustomed to using technology optimally. Therefore, a continuous coaching approach is needed so that this digital transformation is truly inclusive and beneficial for all elements of the organization. Overall, these findings confirm that the implementation of a web-based information system in the context of empowering mosque youth has great potential to improve organizational efficiency, accountability, and active participation. This approach can be an initial model for other community-based religious organizations that want to adopt digitalization in their internal governance.

Conclusions

Based on the results of the implementation and analysis of the web-based Nurul Ihsan Mosque Youth Association information system, it can be concluded that the development of this system has a significant positive impact on organizational management. This system has proven effective in supporting smooth internal administration, accelerating information distribution, and increasing the accountability of administrators through systematic and transparent data recording. Functionally, the main features, such as article management, activity agenda management, financial recording, and membership administration, have been running well. This is indicated by the high level of user satisfaction, where 90% of respondents stated that this system is easy to use, informative, and has a comfortable and easy-to-understand interface. Furthermore, the presence of this system has also succeeded in encouraging member involvement in organizational activities, which is reflected in increased access to information and participation in mosque activities.

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References

Alraina, VD, Armadansyah, D., Marbun, ACL, Yusup, M., & others. (2025). UI/UX Design on Village Websites for Digital Transformation. Serasi Media Teknologi.

Anis, Y., Wahyudi, EN, & Kurniawan, HC (2024). Waterfall Method in Developing Inventory System to Improve Stock Management Efficiency. Journal of Technology and Business Information Systems, 6(2), 329–338.

Aryani, F., & Voutama, A. (2025). Design of Motorbike Rental Management Information System in Bekasi Area Using SDLC Method. Journal of Technology and Information, 15(1), 15–28.

Colarika, S., & Zahro, FA (2023). Basic Concepts in Management Information Systems in Education. ASCENT: Al-Bahjah Journal of Islamic Education Management, 1(2), 51–60.

Erlin, E., Andriani, L., Andriani, D., Nurmaya, N., Wahyuningsih, A., Febrianti, I., & Burhan, MR (2024). The Role of Public Relations Management in Building Image in Educational Institutions. Journal of Governance and Public Administration, 2(1), 1–9.

Hernawan, D., Sularsa, A., & Prasetyanto, F. (2025). Development of a Company Profile Website for Arenda Nuansa Berlian. EProceedings of Applied Science, 11(2).

Indayanti, D., Athallah, MHH, & Chodidjah, S. (2024). Development of Web-Based Random Team Generator Application Using File Upload Feature. Jurnal Minfo Polgan, 13(1), 619–628.

Iskandar, A., Retnawati, H., & others. (2024). Design of a Web-Based Information System for New Student Registration in Vocational High Schools. Ingenierie Des Systemes d'Information, 29(4), 1469.

Iskandar, A., Wanita, F., Amiruddin, EG, Hendra, A., Tobechukwu, O., & others. (2024). Designing A Web-Based Reporting Application For Elementary School Kompleks Sambung Jawa. Inspiration: Journal of Information and Communication Technology, 14(1), 96–110.

Kaluarachchi, T., & Wickramasinghe, M. (2023). A systematic literature review on automatic website generation. Journal of Computer Languages, 75, 101202.

Luthfi, MAK (2025). Interface Design and User Experience (UX) on the Mosque Information System Website: Design Study at Al Barkah Mosque. Jawara Information System Journal, 2(2).

Nugroho, AW, & Utama, AAGS (2025). Business Intelligence Systems and Their Impact on Organizational Decision-Making and Performance Outcomes: Literature Review. Owner: Research and Accounting Journal, 9(2), 1269–1284.

Pohl, C., Klein, J. T., Hoffmann, S., Mitchell, C., & Fam, D. (2021). Conceptualizing transdisciplinary integration as a multidimensional interactive process. Environmental Science\& Policy, 118, 18–26.

Rismawati, R., Ibrahim, T., & Arifudin, O. (2024). The Role of Information Systems in Improving the Quality of Educational Services. Tahsinia Journal, 5(7), 1099–1122.

Rojuaniah, R., Anugraheni, S., Syah, TYR, Havidz, ILH, & Sari, BM (2024). Analysis of Factors Influencing Customer

Trust and Satisfaction of Mobile Banking Users. Ekonomis: Journal of Economics and Business, 8(1), 321–328.
Romadloni, NT, & Miswanto, M. (2024). Database System: Theory and Practice. PT. Sonpedia Publishing Indonesia.
Sholeh, M., Gisfas, I., Fauzi, MA, & others. (2021). Black Box Testing on UKM Bantul. com Page with Boundary Value Analysis and Equivalence Partitioning Methods. Journal of Physics: Conference Series, 1823(1), 12029.
Sidik, M., Fauziah, S., & Hadikristanto, W. (2023). Library information system at SMPN 1 Karang Bahagia web-based using extreme programming method. INFOTECH: Journal of Informatics & Technology, 4(2), 247–258.
Solihin, HH, Kom, S., Kom, M., Hasan, FN, Kom, S., Kharisma, IL, Kom, M., Himawan, A., Kom, S., Perdana, RS, & others. (2024). Information System Concept in the Digital Era. Kaizen Media Publishing.
Suprianto, A. (2024). Development of a Web-Based Goods Ordering Information System. Journal of Information Technology, Software Engineering and Computer Science, 2(3), 131–139.
Tjahjanto, S., Yulistiawan, BS, Krisnanik, E., Faizi, RR, & others. (2025). Management Information System Book. Widina Publisher.
Usman, A., Sumah, J., Purnama, PAW, Siregar, FA, Putra, GM, Siwalette, R., Lapatta, NT, & Nasution, A. (2025). Basic Concepts of Database. Serasi Media Technology.
Waworuntu, KC, Pinandito, A., & Wijoyo, SH (2024). Analysis of Factors Affecting User Satisfaction of Educational Management Information Systems at the Higher Education Level. Journal of Information Technology and Computer Science Development, 8(4).
Widyasari, E., Harsono, H., Suyatmini, S., & others. (2025). The role of information technology in improving school administration management. INJOSEDU: International Journal of Social and Education, 2(3), 626–643.