Participatory Community Action

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IMPROVING THE QUALITY OF INFORMATION SERVICES AT THE FACULTY OF SCIENCE AND TECHNOLOGY UNISNU JEPARA THROUGH WHATSAPP BOT AND ARTIFICIAL INTELLIGENCE

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ABSTRACT

Objective: This community service aims to improve the quality of information services at the Faculty of Science and Technology, Universitas Islam Nahdlatul Ulama (UNISNU) Jepara, to support promotion and new student admissions.

Design & Methods: The approach involves developing an AI-based WhatsApp Bot capable of providing automatic and responsive information services 24/7. In addition, attractive promotional brochures were designed to expand information dissemination. The implementation stages include planning, development, deployment, training, and evaluation, involving collaboration between lecturers, students, and faculty staff.

Result: The developed WhatsApp Bot successfully improved the efficiency of information delivery to prospective students, while the visual promotional media supported broader outreach beyond digital platforms.

Keywords: Information services, WhatsApp Bot, artificial intelligence, visual promotional media, new student admissions

INTRODUCTION

Improving the quality of information services is an important requirement in the management of higher education institutions, especially in facing the challenges of competition in the digital era (Ary, 2021; Ramayasa, 2020). The Faculty of Science and Technology at the Islamic University of Nahdlatul Ulama (UNISNU) Jepara is committed to providing fast, responsive, and integrated information services to support new student admission promotion activities. However, limited information integration and slow responses often cause prospective students to miss opportunities to get the information they need in a timely manner. Promotional efforts that have been made include providing information through the official website, distributing brochures, visiting schools, and participating in education fairs.

Along with the development of technology, the need for a more efficient and modern information service system is becoming increasingly urgent. Traditional promotional strategies such as distributing brochures or participating in education fairs still play an important role, but their limited scope and effectiveness in the digital era are beginning to be felt (Supriyanto et al., 2022). on the other hand, the utilization of digital technologies, such as web-based systems or

applications, provides great potential to expand reach and improve interaction with prospective students in a more personalized and responsive manner (Setiyadi, 2023). For this reason, the Faculty of Science and Technology at UNISNU Jepara sees great opportunities in integrating digital innovations with existing promotional approaches to create a more optimized information system.

However, there are a number of obstacles that are still faced, such as limited access to information, slow response, and lack of utilization of digital technology in the information service system (Agustiono et al., 2021). Information related to study programs, facilities, and faculty activities has not been fully integrated, while information services are only available during working hours. In addition, the use of digital promotional media is still limited, so it is not able to reach a wider audience optimally.

Based on this situation analysis, innovative technology-based solutions are needed to overcome existing obstacles and improve the efficiency of information services. In this case, artificial intelligence (AI) and WhatsApp Bot technology are strategic choices because they are able to provide information services automatically, responsively, and are available 24/7 (Bariyah & Imania, 2022; Mulyo & Maori, 2024). With this technology, prospective students can access information at any time without depending on the faculty's operational time. In addition, visual promotional media such as brochures and pamphlets also remain relevant to reach audiences in various strategic locations (Anggelina & Trisnadoli, 2020).

The purpose of this service is to improve the quality of information services at the Faculty of Science and Technology UNISNU Jepara through the application of AI-based WhatsApp Bot technology and the provision of attractive and informative promotional media. The scope of activities includes the design and development of the WhatsApp Bot system, the creation of brochures with attractive layouts and designs, and training to faculty staff to ensure the sustainability of system implementation.

A literature review of AI-based information service technologies shows that these solutions are effective in improving information accessibility, operational efficiency, and user satisfaction. In addition, visual promotional media such as brochures are still considered relevant in attracting the attention of certain audiences, especially in areas that have limited internet access. Therefore, an approach that integrates AI technology with visual promotion strategies is expected to have a positive impact on the promotion and admission of new students at the UNISNU Jepara Faculty of Science and Technology. This approach is expected to not only improve the efficiency of information services but also create a competitive advantage for the Faculty of Science and Technology UNISNU Jepara in the digital era.

METHODS

This service activity was carried out with a collaborative approach involving lecturers and students from the Informatics Engineering (TIF) and Visual Communication Design (DKV) Study Programs at the Faculty of Science and Technology, UNISNU Jepara. This collaborative approach is considered effective in integrating technical expertise from both study programs to produce a responsive and innovative technology-based information service system (Bariyah & Imania, 2022). All stages were carried out in a structured manner from planning, development, implementation, to evaluation.

1. Planning and Preparation

This service activity was carried out with a collaborative approach involving lecturers and students from the Informatics Engineering (TIF) and Visual Communication Design (DKV) Study Programs of the Faculty of Science and Technology, UNISNU Jepara. This collaborative approach is considered effective in integrating technical expertise from both study programs to produce a responsive and innovative technology-based information service system (Supriyanto et al., 2022). All stages were carried out in a structured manner from planning, development, implementation, to evaluation.

2. System Development and Design

Based on the work plan, the TIF team started the development of an artificial intelligence-based WhatsApp Bot. The system was designed to make it easier to deliver information to users automatically and responsively, even outside of working hours, as suggested by research on WhatsApp-based chatbots (Bariyah & Imania, 2022). The DKV team designed user-friendly visual elements, including an attractive information layout. During this stage, partners were involved to provide feedback on the initial prototype to ensure that the development results met their needs and expectations (Sulistyo et al., 2021).

3. Implementation and Training

The implementation phase involves partners directly through technical training. This training is designed to improve partners' understanding and skills in operating the system, including an introduction to WhatsApp Bot features, simulations of its use, and guidelines for managing information through the system. During the training, partners are given the opportunity to try out the system directly with guidance from the development team, as practiced in technology-based information literacy training programs (Arman, 2020).

4. Evaluation and Monitoring

After the system is implemented, the evaluation stage is carried out by collecting feedback from partners regarding system performance and its impact on information services. The input provided becomes the basis for system improvements and refinements. In addition, the team also conducts regular monitoring to ensure that the system continues to run optimally according to partner needs (Pradana et al., 2022).

5. Dissemination of Results

As part of the dissemination process, the results of this community service initiative are documented in the form of scientific articles and presented at relevant seminars and conferences. Partners are involved in the documentation process to record their experiences during the activities. This approach is designed to ensure that the results of the community service initiative can provide broader benefits and serve as a reference for the development of similar information services in the future (Taufiq & Karim, 2021).

RESULT

This section describes the results of community service activities in developing a WhatsApp Bot-based information system and creating visual communication media to support information services at the Faculty of Science and Technology, UNISNU Jepara. These activities were carried out through collaboration between the community service team (lecturers and students) and partners, namely the administrative staff and the PMB committee of the Faculty of Science and Technology, UNISNU Jepara.

1. Results of WhatsApp Bot Information System Development

An artificial intelligence-based WhatsApp Bot system was developed to provide fast and accurate information services to students and lecturers. The main features of the system include:

a. Response Automation

The system can respond to general inquiries, such as information about class schedules, faculty lists, and academic announcements, using a keyword-based approach. This feature has helped reduce the manual workload of administrative staff, with an average response time of less than 1 minute.

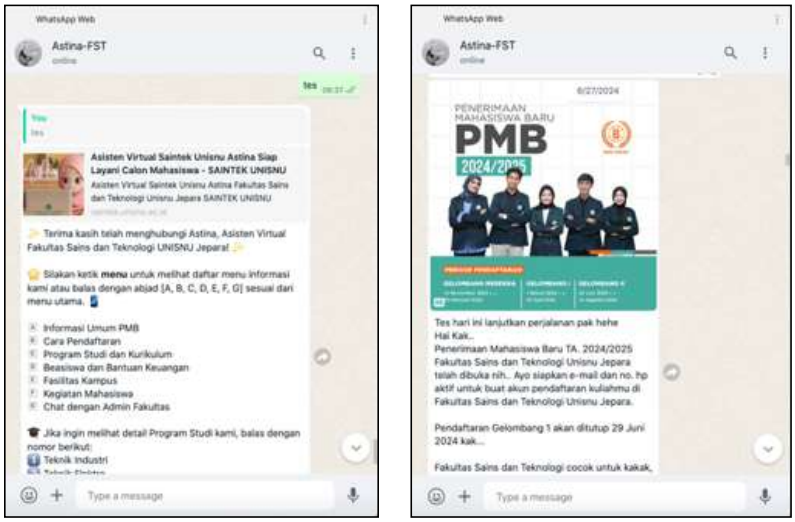

Figure 1. WhatsApp Bot Interface in Responding to User Questions

b. Mass Messaging

The system enables mass messaging to a large number of contacts, including information about PMB, academic schedules, and other important announcements. Partners are actively involved in composing and managing the content of messages sent through this feature.

Table 1. Evaluation of the Effectiveness of Mass Messaging

No	Type of Information	Number of Recipients	Delivery Time	Succes Rate (%)
1	Registration Schedule	150	5 second	98
2	Academic Information	200	8 second	96
3	Important Announcement	100	3 second	99

c. Contact Management

The system is equipped with a contact management module to manage prospective student data in a structured manner. Contacts are grouped based on school origin and data source, making the screening process more efficient.

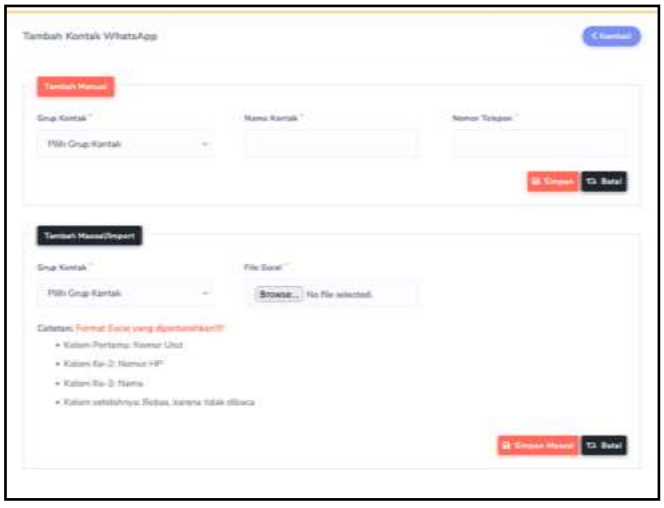

Figure 2. Contact Management Module Display

2. Contribution of Partners in System Development and Implementation

Partners, namely administrative staff and lecturers, were involved in every stage of the activity, from planning to evaluation. During the training, partners were given the opportunity to try out the WhatsApp Bot features firsthand and provide feedback for system improvement.

Table 2. WhatsApp Bot Training Evaluation

No	Evaluation Aspect	Average Score (1-5)	Partner Comments
1	Understanding of basic features	4.8	"Very helpful in managing information."
2	Ease of use of the system	4.6	"Easy navigation, even for beginners."
3	System response speed	4.7	"Information is sent in seconds."

3. Creating of Visual Media for PMB

The Visual Communication Design (DKV) team collaborated with partners to design posters and digital materials for the promotion of New Student Admissions (PMB). The media produced included:

a. PMB Information Posters: Contained registration schedules, requirements, and contact information.

b. Digital Materials for Social Media: Graphic designs optimized for platforms such as Instagram and WhatsApp to attract the attention of prospective students.

Figure 3. Example of a PMB Promotion Poster for the Faculty of Science and Technology

4. System Evaluation and Testing

After implementation, the system was tested to ensure that all features worked according to the partner's requirements. Functional testing was performed to ensure the reliability of the automated response, mass messaging, and contact management features.

Table 3. System Functionality Test Results

No	Fitur	Skenario Pengujian	Hasil Pengujian	Status
1	Automasi Respons	Respon terhadap keyword	Respon sesuai permintaan	*Passed*
2	Pengiriman Pesan Massal	Pengiriman ke 100 kontak	Semua pesan terkirim	*Passed*
3	Manajemen Kontak	Penyaringan data kontak	Data tersaring sesuai kriteria	*Passed*

5. Impact and Dissemination of Results

This activity had a direct impact on improving the efficiency of information services at the Faculty of Science and Technology. The results were documented in a report, presented at an internal seminar, and planned for publication in a community service journal.

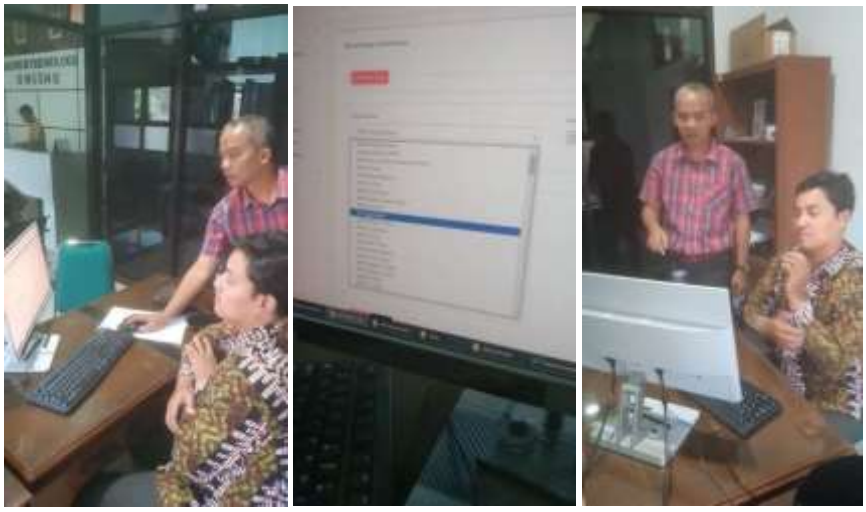

Figure 4. Joint Training Session with Partners

CONCLUSION

This community service activity succeeded in developing a WhatsApp Bot-based information system specifically designed to support information services for prospective new students at the Faculty of Science and Technology, UNISNU Jepara. This system is able to provide fast, accurate, and automatic responses to general questions related to New Student Admission (PMB), such as registration schedules, requirements, and registration procedures. In addition, the creation of visual communication media, such as posters and digital materials, has helped increase the effectiveness of information delivery through various platforms. Collaboration between the service team and partners has a significant impact on improving the efficiency of information services, which is felt directly by prospective new students and administrative staff.

For further development, here are some suggestions that can be considered:

1. Enrichment of WhatsApp Bot Features: The addition of interactive features such as chatbot integration with the faculty database to provide more specific information, such as the registration status of prospective students.
2. Increased System Capacity: System optimization to handle a larger volume of messages, especially during peak registration periods.
3. Digital Promotion Media Development: Production of short video content and animations to expand the reach of information through social media platforms.
4. Continuous Evaluation: Implementation of a survey of prospective students to obtain feedback on the effectiveness of the communication systems and media that have been developed.
5. Replication and Scalability: Adopting a similar approach to the development of information services in other units within the university or similar educational institutions.

With these steps, it is expected that the systems and media that have been developed can be continuously improved and provide wider benefits in the future.

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Hopefully the contributions that have been made can provide sustainable benefits and support the improvement of the quality of information services at the Faculty of Science and Technology UNISNU Jepara.

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