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Development of a Telegram Chatbot as a Medium for Public Information Services and Community Complaints at the Sukabumi City Police Resort

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ABSTRACT

The delivery of public services at the Sukabumi City Police Resort faces challenges regarding transparency, accessibility, and responsiveness, particularly in administrative workflows and complaint handling. Conventional face-to-face services and call centers are often constrained by office hours, physical location, and high call volumes, which can hinder the public's right to information. To address these issues, this community service activity implemented a Telegram-based chatbot developed using Python, the Telegram Bot API, and MongoDB. The implementation method followed a systematic design-oriented approach, including needs identification, system design, development, and rigorous testing. The results show that the chatbot successfully provides automated information on Police Clearance Certificates (SKCK), Driving Licenses (SIM), and lost-item reports, while facilitating two-way communication for non-emergency complaints. Additionally, the system integrates a redirection feature to the 110 emergency hotline to ensure urgent reports are handled appropriately. In conclusion, the Telegram chatbot serves as an effective digital interface that enhances service efficiency, reduces manual workloads for officers, and improves public access to police services through a user-friendly and 24-hour accessible platform.

A. INTRODUCTION

The delivery of public services within police institutions is frequently confronted with issues of transparency, accessibility, and service responsiveness, which may ultimately affect the level of public trust in law enforcement agencies. The public still often experiences difficulties in obtaining accurate, clear, and easily understood information regarding procedures, requirements, and service workflows, particularly for administrative services

such as the issuance of Police Clearance Certificates (SKCK), Driving Licenses (SIM), and services at the Integrated Police Service Center (SPKT). This condition becomes more complex when digital service systems and public information provision have not been fully integrated with the principles of information disclosure (right to information) in an optimal manner (Susilo et al., 2025).

In addition to issues of information access, public complaint mechanisms within the police environment also face their own challenges. Community complaints that are submitted are often not managed through systems that ensure rapid responses, clear feedback, and traceable follow-up actions. This situation creates a perception that the complaint-handling system has not been fully effective in promoting institutional accountability (Poiyo et al., 2025). In fact, from a public administration perspective, the effectiveness of complaint handling is one of the key indicators of public service quality and citizen participation within the framework of good governance (Susanti, 2025). These problems are further exacerbated by limitations in human resources, suboptimal coordination among service units, and the limited utilization of information technology, which in turn lead to information uncertainty and slow responses to public complaints (Citra Anis Safitri, 2024; Susilo et al., 2025) . Therefore, improving the quality of police public services requires the application of transparency principles, openness, and integrated and responsive complaint systems.

In the context of police public services, conventional service models such as face-to-face services and call centers also have structural limitations that affect service quality. Face-to- face services allow direct interaction between officers and the public; however, access is constrained by office hours and the physical location of police offices. This condition potentially hinders individuals with limited time availability or those residing far from service centers (Lim & Lee, 2021). On the other hand, call center services designed to enhance information access and responsiveness often face obstacles such as high call volumes, limited numbers of operators, and potential response delays, particularly during peak hours. International studies indicate that heavy workloads and limited resources in police call-taking units can reduce interaction quality and slow the handling of public reports (Van Steden et al., 2023). These conditions underscore the need for service innovations capable of complementing conventional services through more flexible and adaptive mechanisms.

Along with the increasing use of Instant Messaging platforms such as Telegram and WhatsApp in daily life, these communication media have become potential tools for innovation in public service delivery. Instant Messaging–based chatbots offer advantages in the form of fast, interactive, and 24-hour information access, thereby reducing reliance on manual services and accelerating information dissemination to the public (Agustian & Yuliana, 2024). The use of chatbots also enables the expansion of service reach through platforms that are already familiar to the public, without requiring complex technological adaptation. Telegram, in particular, offers advantages in stable bot integration and a lightweight interface, making it suitable as a medium for information provision and two-way communication in public services.

Based on this background, this Community Service (Pengabdian kepada Masyarakat) activity focuses on the development and implementation of a Telegram-

based chatbot as a supporting tool for police services at the Sukabumi City Police Resort. The developed chatbot is designed to facilitate public access to police service information, including information on SKCK, SIM, SPKT services—especially lost-item reports—and information on police office locations. In addition, the chatbot supports public complaint mechanisms through digital communication that enables redirection to the 110 Call Center or emergency calls to 110 as needed. The implementation of this chatbot is expected to improve service efficiency and responsiveness, while also serving as part of the digital transformation of police public services that are more adaptive to community needs.

Several previous studies in the context of public services in Indonesia indicate that the utilization of digital technology and information systems plays an important role in improving the quality of service delivery to the public. Research on chatbots in public services confirms that this technology can enhance service efficiency and provide information and complaint channels that are more accessible compared to conventional manual methods (Agustian & Yuliana, 2024). Meanwhile, e-government studies emphasize that the application of information and communication technology (ICT) enables faster, more transparent, and more effective service processes, while expanding service access beyond spatial and temporal limitations (Muliawaty & Hendryawan, 2020; Nurfadillah, 2025). Other studies show that the implementation of e-government in local public services has a positive impact on administrative efficiency and user satisfaction through the provision of structured information and responsive interactive features (Ammas et al., 2023) Overall, this body of literature strengthens the argument that the integration of information systems and digital platforms, including Instant Messaging–based chatbots, has the potential to improve the quality of public services, strengthen community engagement, and support the principles of good governance, as pursued in the Community Service activity on the development of a Telegram chatbot for police services at the Sukabumi City Police Resort.

However, despite these advancements, several research gaps remain. Previous studies indicate that the implementation of chatbot technology in the public sector is still largely dominated by conceptual discussions and evaluations of user acceptance, with limited empirical evidence regarding its practical application in real institutional environments (Chen & Gasco-Hernandez, 2025). In addition, the adoption of chatbots in government frontline services still encounters challenges related to system integration, data governance, and alignment with existing service workflows, which may hinder their effectiveness in supporting comprehensive public service delivery (Wang et al., 2024). Furthermore, recent literature reviews reveal that chatbot research in e-government contexts tends to focus on general service domains and technical performance, rather than sector-specific implementations such as law enforcement services (Firmandany et al., 2026). In the Indonesian context, studies examining the integration of Instant Messaging–based chatbot systems with police service mechanisms—such as SPKT services, administrative services (SKCK and SIM), and complaint handling connected to emergency services—are still very limited. This indicates a gap between the theoretical potential of chatbot technology and its practical implementation in supporting more responsive, accessible, and integrated police public services.

B. METHODS

This Community Service (Pengabdian kepada Masyarakat) activity was carried out using a design and implementation approach in the field of information technology. This approach was applied to produce a digital solution that directly addresses the partner's problems, namely the need for a more effective and easily accessible medium for public information services and community complaints. The focus of the activity was the development and implementation of an Instant Messaging–based chatbot on the Telegram platform to support police public services at the Sukabumi City Police Resort.

The design of this Community Service program was applicative and implementation-oriented, emphasizing the development of an information system that can be used directly by both the public and police officers. The activity was structured into several main stages, starting from service needs identification, system design, chatbot development, to system implementation and evaluation. This approach allows the system to be adjusted to the real conditions of police service delivery in the field.

The Community Service activity was conducted at the Sukabumi City Police Resort, West Java Province, located at Jl. Perintis Kemerdekaan No. 10, Gunungparang, Cikole District, Sukabumi City, West Java 43111, over a period of four months, from August to December 2025. During this period, the authors were directly involved in service activities in several work units, particularly the Integrated Police Service Center (SPKT), the Command Center (Call Center 110), and the Technology Intelligence Unit (Inteltek).

a. Stages of Activity Implementation

The implementation of this community service activity was carried out through several systematic stages, as follows:

1. Observation and Needs Identification

   The initial stage involved direct observation of service processes at the Sukabumi City Police Resort, particularly in the Integrated Police Service Center (SPKT) and the 110 Call Center. The observation aimed to identify the types of services most frequently accessed by the public, issues arising in manual service delivery, and the need for digital service media that could assist both officers and the community.
2. Chatbot System Design

   Based on the observation results, the chatbot system was designed, covering user interaction flows, service menu structures, and community complaint schemes. The design focused on ease of use (user-friendliness), clarity of information, and alignment with police service needs, such as information on SKCK, SIM, lost-item reports, and complaint services.
3. Telegram Chatbot Development

   The next stage was the development of the chatbot using the Telegram platform by utilizing the Telegram Bot API. The chatbot was developed to display interactive menus, provide automated responses to information requests, and offer direct communication features between the public and officers through the complaint service.
4. System Testing

   System testing was conducted to ensure that all chatbot features functioned properly and in accordance with the design. The testing included menu functionality tests, complaint flow tests, and user interaction data storage tests. This stage aimed to minimize system errors before active use.
5. Implementation and Use

After the system was confirmed to be functioning properly, the chatbot was implemented as a medium for information services and community complaints within the Sukabumi City Police Resort. The public can access the chatbot via the Telegram application to obtain service information and submit complaints as needed.

6. Activity Evaluation

Evaluation was conducted to assess the effectiveness of chatbot usage in supporting public services. The evaluation included recording the number of users, interaction logs, and service reviews provided by the public through the rating system. The evaluation data were used as a basis for assessing the impact of the activity and the potential for future system development.

In the implementation of this community service activity, the technologies used included the Python programming language as the foundation for system development, the Telegram Bot API as the medium for user interaction, and MongoDB as the database for storing user information, conversation logs, and service reviews. The selection of these technologies was based on their ease of integration, development flexibility, and support for the requirements of Instant Messaging–based public service systems.

C. RESULTS AND DISCUSSION

1. Implementation of a Telegram Chatbot as an Information Service Medium

The main outcome of this community service activity is the successful implementation of a Telegram-based chatbot that can be accessed by the public as a medium for police information services. The chatbot is designed with interactive menus, allowing users to select the required services without having to manually type commands. The chatbot's main menu includes information services for Police Clearance Certificates (SKCK), Driving Licenses (SIM), lost-item reports through the Integrated Police Service Center (SPKT), as well as information on the locations of police offices within the jurisdiction of the Sukabumi City Police Resort.

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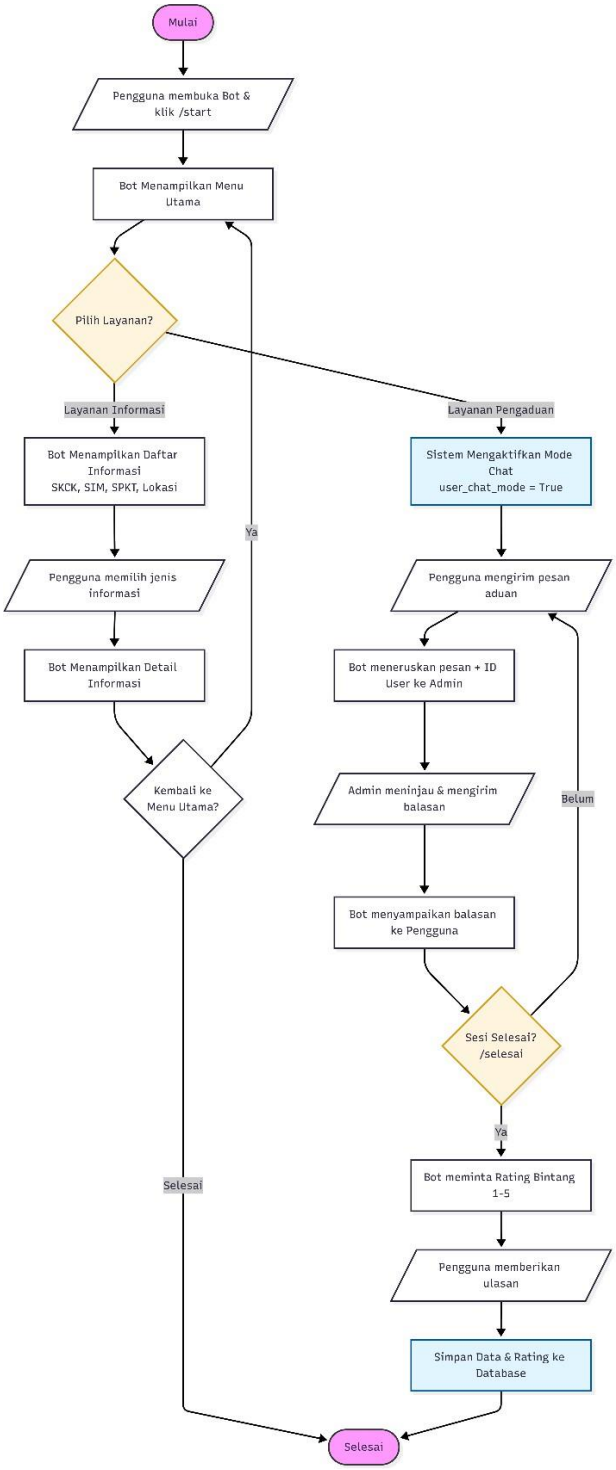

Figure 1. Telegram Chatbot Workflow Flowchart

Figure 1 illustrates the workflow of the Telegram chatbot developed as a medium for public information services and community complaints at the Sukabumi City Police Resort. The system flow begins when users open the Telegram application and access the chatbot by pressing the /start command. At this stage, the system initializes the user session and displays the main menu as the initial interaction interface.

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Figure 2. Telegram Chatbot Main Menu Interface

After the main menu is displayed, users are prompted to select the type of service they require. The system provides two main service categories: information services and complaint services. This separation is intended to distinguish between general information needs and complaints that require direct interaction with officers.

In the information service, the chatbot displays a list of available information, including details on Police Clearance Certificates (SKCK), Driving Licenses (SIM), Integrated Police Service Center (SPKT) services—particularly lost-item reports—and information on police office locations. Users can select the desired type of information, after which the system presents detailed information according to the user's selection. Once the information is displayed, users are given the option to return to the main menu, allowing them to explore other services without restarting the session.

In the complaint service, the system activates a direct conversation mode with the administrator by setting the `user_chat_mode` status to true. In this condition, every message sent by the user is treated as a complaint message. The message is forwarded by the chatbot to the administrator along with the user's identity, enabling the administrator to clearly understand the context and source of the report.

The administrator then reviews the incoming complaint messages and provides responses through the chatbot system. The administrator's replies are subsequently forwarded back to the user, creating real-time two-way communication. This process may continue repeatedly until the issue raised by the user is considered resolved.

After the complaint session ends, the system asks the user whether the conversation session has been completed. If the user confirms completion, the chatbot automatically requests the user to provide a service rating in the form of a star rating on a scale of one to five. Users may also submit a brief review of their service experience.

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The rating and review data are then stored in the database as material for evaluating service quality.

This chatbot workflow is designed to ensure ease of access to services, clarity of interaction flow, and the availability of a service evaluation mechanism that can be utilized by the police to continuously improve the quality of public services.

2. Implementation of Community Complaint Services

In addition to serving as an information medium, the chatbot is also equipped with a community complaint service feature. Through this feature, users are provided with several complaint submission options, including engaging in direct conversations with an administrator via Telegram, being redirected to the WhatsApp Call Center service, or making an emergency call to the 110 hotline. This feature is designed to accommodate the varying levels of urgency of reports submitted by the public.

Figure 3. Complaint Service Menu Interface on the Chatbot

Through the direct chat feature with the administrator, the public can submit questions or reports directly to officers without having to visit the police office in person. Messages sent by users are forwarded to the administrator, enabling real-time two-way communication. This mechanism provides an alternative communication channel for the community, particularly for non-emergency reports or follow-up inquiries that require clarification from officers.

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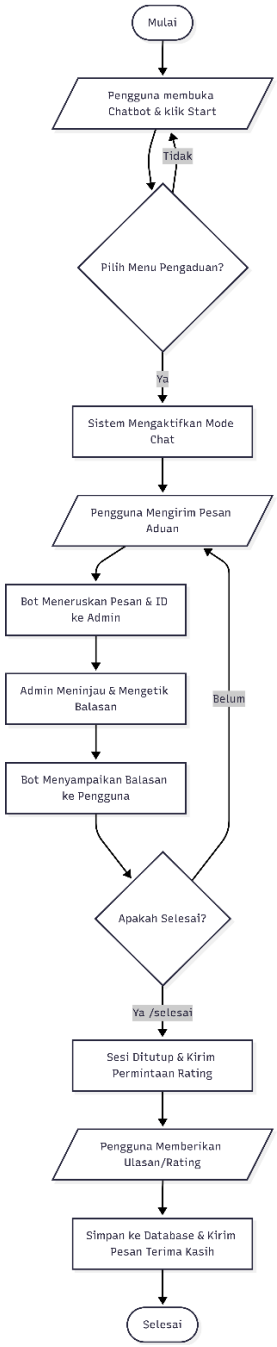

Figure 4. Complaint Communication Flow between Users and Administrators

Integration with WhatsApp services and the 110 Call Center is also an essential component of the complaint system. This redirection aims to ensure that emergency reports are handled through the official channels established by the police. Thus, the chatbot does not replace the function of the 110 Call Center but serves as a supporting medium that helps direct the public to the service channels most appropriate to their needs.

3. Management of Interaction Data and Service Evaluation

In its implementation, the chatbot is equipped with a system for recording user interaction data. The managed data include user information, conversation logs, and

service reviews provided by the public. This data recording is intended to support service evaluation processes and continuous monitoring of system usage.

Service evaluation is conducted through a review feature in the form of star ratings submitted by users after a conversation session with the administrator has ended. The review results serve as an initial indicator for assessing the level of public satisfaction with the chatbot service. In addition, the stored interaction data can be utilized by the police as evaluation material to improve service quality, both in terms of officer responsiveness and future system feature development.

Table 1. Types of Data Managed in the Chatbot System

No	Jenis data	Tujuan Pengelolaan	Manfaat dan Pelayanan
1	User Identity Data (Telegram ID, name, username)	To identify service users and record interaction activities	Facilitates officers in recognizing reporters and following up on complaints
2	Complaint Message Data	To identify service users and record interaction activities	Serves as the basis for handling reports and enabling two-way communication between users and officers
3	Admin Response Data	To document officer responses to complaints	Maintains transparency and quality of communication services
4.	Service Rating Data	To measure user satisfaction with the chatbot service	Used as material for evaluation and improvement of service quality
5.	Interaction Time Data	To record the time messages are sent and received	Helps analyze response speed and service effectiveness

4. Impact of the Activity on Public Services

Based on the implementation and use of the chatbot, this community service activity has produced several positive impacts for both the public and the partner institution. For the public, the chatbot facilitates easier access to police service information and provides an alternative complaint channel that can be easily accessed via personal devices. For the Sukabumi City Police Resort, the chatbot helps reduce the workload of manual services, particularly in responding to repetitive informational inquiries.

In addition, the use of the chatbot has the potential to optimize the function of the 110 Call Center by redirecting non-emergency reports to more appropriate service

channels. As a result, Call Center officers can focus more on handling emergency reports that require rapid responses. These impacts demonstrate that the utilization of an Instant Messaging–based chatbot can serve as a supporting solution to enhance the efficiency and quality of police public services.

D. CONCLUSION

This Community Service initiative resulted in the implementation of a Telegram-based chatbot, designed to serve as a complementary medium for public information and community complaint services at the Sukabumi City Police Resort. The development of the chatbot represents a strategic application of Instant Messaging technology to enhance the accessibility and efficiency of public service delivery.

The implementation demonstrates that the Telegram chatbot is capable of providing structured and comprehensive information regarding police services, including Police Clearance Certificates (SKCK), Driving Licenses (SIM), Integrated Police Service Center (SPKT) services related to lost-item reports, and the locations of police offices. Beyond its informational function, the chatbot also facilitates community complaints through direct interaction with officers, as well as through redirection to the WhatsApp Call Center 110 or emergency calls to 110, according to the urgency of the user's needs. In this way, the chatbot functions as an initial digital service interface, bridging the public with multiple police service channels.

The system's management of user interaction data, complaint messages, and service evaluations provides valuable feedback for the police in monitoring and assessing service quality. In particular, the rating feature offers an empirical basis for measuring user satisfaction with the chatbot, supporting data-driven evaluation and future service improvements.

Overall, the deployment of the Telegram chatbot contributes to enhancing the accessibility and responsiveness of police services, streamlining information dissemination, and promoting the digital transformation of public service provision at the Sukabumi City Police Resort. The chatbot represents a viable model for developing adaptive, citizen-centered policing services in the digital era.

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F. AUTHOR CONTRIBUTIONS

Activity implementation: Adinda Clara Putri Maharani (ACPM); System development and technical implementation: ACPM; Data collection and needs assessment: ACPM; Results analysis and impact evaluation: ACPM; Article preparation and writing: ACPM; Final approval of the manuscript: ACPM.

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