

Implementation of a Violation Reporting System to Enhance Transparency and Accountability: A Case Study at the Depok City Office of Kemenag

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Abstract— Good governance demands accountability and transparency, especially in public agencies such as the Depok City Office of the Ministry of Religious Affairs (Kemenag). One of the main challenges is the absence of a secure, confidential, and easily accessible channel for the public and internal employees to report suspected violations, such as corruption or abuse of power. This research aims to design and implement a web-based Violation Reporting System, or Whistleblowing System (WBS), as a solution to this problem. The development method used is the prototyping model, which allows for iterative development based on continuous feedback to refine features and the user interface. The system is built using the PHP programming language with a MySQL database and is equipped with crucial features, including a public reporting form with a guaranteed anonymity option, a report tracking system using a unique code, and a comprehensive management dashboard for WBS administrators. The admin dashboard includes report statistics, data visualizations, an export-to-Excel feature, and a mechanism to follow up on each report according to the workflow defined in official guidelines. The result of this research is a functional, responsive, and secure WBS portal that is publicly accessible, successfully providing a structured reporting channel, increasing the potential for public participation in oversight, and supporting the Depok City Kemenag Office's efforts to establish a clean and transparent integrity zone, in line with the principles of modern e-government.

Keywords: Whistleblowing System; Transparency; E-Government; PHP; MySQL; Prototyping Model.

1. INTRODUCTION

The era of bureaucratic reform in Indonesia places the principles of good governance as the fundamental foundation for public service delivery. Efforts to establish a clean government free from Corruption, Collusion, and Nepotism (KKN) have become a priority agenda mandated by Undang-Undang Republik Indonesia Nomor 28 Tahun 1999 (Undang-Undang Republik Indonesia Nomor 28 Tahun 1999 Tentang Penyelenggaraan Negara Yang Bersih Dan Bebas Dari Korupsi, Kolusi, Dan Nepotisme, 1999). One of the key instruments in realizing this goal is by opening space for public participation in the oversight function (Riskiyono, 2015). This participation can be realized through the provision of effective, secure, and reliable reporting channels that enable the public to report suspected violations occurring within government institutions (Setiawan, 2024). The Office of the Ministry of Religious Affairs (Kemenag) of Depok City, as a vertical agency representing the central government at the regional level, holds the responsibility of upholding integrity and delivering transparent services (Kementerian Agama RI, 2018). Based on its internal guidelines, the institution is committed to preventing misconduct and strengthening the implementation of good governance through a Whistleblowing System (WBS) (Pedoman Whistle Blowing System Kantor Kementerian Agama Kota Depok, 2024).

Despite this commitment, a fundamental issue faced is the absence of a dedicated, secure, and easily accessible digital platform for both the public and internal staff. Conventional reporting channels often raise concerns among potential whistleblowers regarding the confidentiality of their identity and fears of retaliation (Sansena, 2021). The absence of a structured system also hinders management from efficiently and accountably managing, verifying, and following up on incoming reports (Kusumacandra, 2025). This creates a cycle in which violations go unreported, oversight becomes weakened, and public trust in the institution is at risk of declining (Afriani et al., 2024). Therefore, an information technology solution is needed to bridge this gap.

Numerous studies have been conducted on the implementation of information systems in the public sector. Research by Dai et al. (2017) developed an Android-based public service complaint system, which emphasized mobile accessibility but lacked focus on anonymity and the protection of sensitive whistleblower data, as required in the context of a Whistleblowing System (WBS) (Dai et al., 2017). On the other hand, Shonhadji et al. (2021) discussed the importance of a Whistleblowing System (WBS) in detecting fraud within the banking sector. However, the workflows and regulatory frameworks in the private sector differ significantly from those in the public sector (Shonhadji & Maulidi, 2021). Meanwhile, the study on web application security by Wijaya (n.d.) highlights the importance of techniques such as the use of prepared statements to prevent SQL Injection—a critical technical aspect for systems that handle confidential data (Wijaya, n.d.). The analysis by Firmansyah & Setiawan (2021) concluded that trust and ease of use are key factors in the successful adoption of a Whistleblowing System (WBS) by the public (Antari, 2020). From this literature review, a research gap becomes evident—namely, the need for the design of a Whistleblowing System (WBS) model that is not only technically functional and secure but also developed through an iterative process focusing on usability and modern interface design to build user trust. This model should be specifically tailored to the workflows of municipal-level government institutions in Indonesia.

This study aims to design and implement a web-based Whistleblowing System (WBS) for the Office of the Ministry of Religious Affairs (Kemenag) of Depok City. The primary objective is to provide a centralized platform that fulfills three key criteria: (1) Security, by protecting data against common cyber threats; (2) Confidentiality, by offering anonymous reporting options to safeguard the identity of whistleblowers; and (3) Accountability, by enabling tracking mechanisms for reporters and providing a clear workflow for system administrators.

By employing a prototyping development method, this research will produce a system that is not only functionally robust but also intuitive and user-friendly. As a result, it is expected to effectively support the integrity zone program and enhance the institution's image as a clean and transparent public entity.

2. RESEARCH METHODOLOGY

The methodology used in the development of this system is the Prototyping Model. This model was chosen because it is particularly well-suited for projects in which user interface and user experience (UI/UX) are critical success factors (Syafei & Hidayatullah, 2023). The iterative nature of the prototyping model allows developers to build an initial version of the system and then continuously refine it based on feedback and evaluation, ultimately resulting in a final product that truly aligns with user needs (Achmad Jauhari, Devie Rosa Anamisa, 2022). The development process documented in this research follows a continuous “Listen-Build-Test” cycle.

2.1 Research Stages

The research and system development process are divided into four main structured phases, as illustrated in Figure 1.

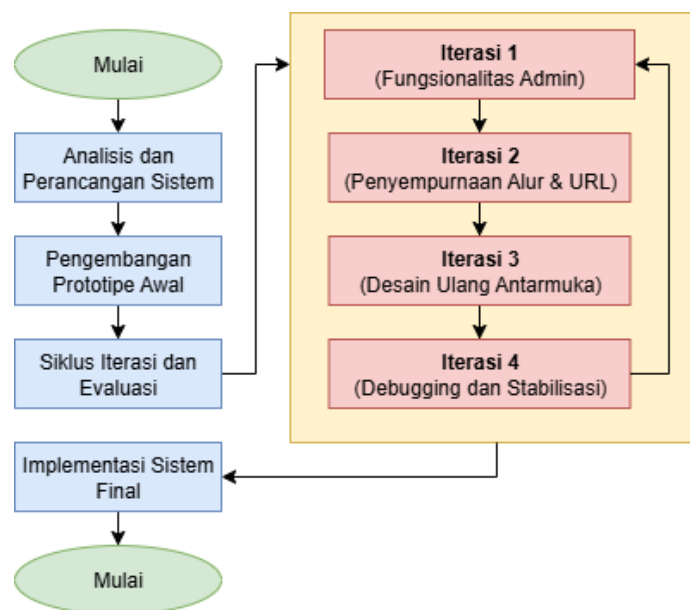


Figure 1. Research Stages

2.1.1 System Analysis and Design

This phase begins with an in-depth analysis of the “Whistleblowing System Guidelines” of the Office of the Ministry of Religious Affairs (Kemenag) of Depok City to identify the entities, workflows, and functional requirements (Pedoman Whistle Blowing System Kantor Kementerian Agama Kota Depok, 2024). The results of the analysis are then translated into the design of the system architecture and database. The system architecture is divided into two main components: the public interface and the admin panel. The database design results in four primary tables: *reports*, *admin*, *follow_up*, and *activity_log*, with their relationships illustrated in the Entity-Relationship Diagram (ERD).

2.1.2 Initial Prototype Development

An initial functional prototype was developed using a predefined technology stack: PHP version 8 as the programming language, MySQL (MariaDB) as the database server, and Apache as the web server. This prototype includes the core features, namely a report submission form and a login-enabled admin panel. The database schema is designed to store report data, admin data, and follow-up logs, as outlined in Table 1.

Table 1. Main Database Table Structure

Table Name	Function Description
laporan	Stores all detailed data of incoming reports.
admin	Stores the credentials of WBS administrators.
tindak_lanjut	Records the history of actions and comments by the admin.
log_aktivitas	Logs all important activities performed by the admin.

2.1.3 Iteration and Evaluation Cycle

This is the longest phase, during which the prototype is iteratively refined.

a. Iteration 1 (Admin Functionality):

Focused on building the admin dashboard. Features added included report statistics, data tables with pagination, date range filters, and data export functionality to Excel format.

b. Iteration 2 (Workflow & URL Enhancement):

The report status flow within the system was adjusted to align with official guidelines (e.g., from “New” to “Report Received,” “Initial Clarification,” etc.). System URLs were made more user-friendly by implementing mod_rewrite rules in the .htaccess file.

c. Iteration 3 (Interface Redesign):

Based on evaluation of the initial design, the public interface was completely revamped. The homepage was transformed into an informative landing page, and the report submission form was moved to a separate page (/create-report) to improve user flow. A modern, clean, and responsive design was applied across all pages.

d. Iteration 4 (Debugging and Stabilization):

This stage addressed technical issues, particularly bugs related to caching (Cloudflare) that prevented CSS files from loading correctly. Solutions were implemented by ensuring absolute paths for assets and providing users with guidance on how to perform a hard refresh.

2.1.4 Final System Implementation

After all iteration cycles were completed and the system was deemed stable, all code components were integrated into the final application, ready for deployment and use.

2.2 Security Implementation

Security is a critical non-functional aspect of any Whistleblowing System (WBS). Two main techniques were implemented to secure the system:

a. SQL Injection Prevention

All database queries involving user input are executed using prepared statements from the PHP Data Objects (PDO) extension. This technique separates SQL commands from data, thereby preventing attackers from manipulating queries through malicious inputs.

```
$sql = "SELECT * FROM laporan WHERE tracking_code = ?";
$stmt = $pdo->prepare($sql);
$stmt->execute([$tracking_code_input]);
$laporan = $stmt->fetch();
```

Figure 1. Example of SQL Injection Prevention Code

b. Cross-Site Scripting (XSS) Prevention

All user-supplied data or content retrieved from the database that is to be displayed on HTML pages is passed through the htmlspecialchars() function. This function converts special HTML characters (such as < and >) into HTML entities, thereby preventing the execution of malicious scripts in the user's browser.

```
<td><?php echo htmlspecialchars($laporan['judul_laporan']); ?></td>
```

Figure 2. Example of XSS Prevention Code

3. RESULT AND DISCUSSION

The outcome of this research is a complete and functional Whistleblowing System (WBS) application. The application successfully implements all the requirements identified in the initial phase and has undergone a series of design and functionality refinements.

3.1 Public Interface

The public interface is designed with a strong emphasis on user-friendliness, accessibility, and building user trust.

3.1.1 Homepage (Landing Page)

This page serves as the main gateway for information, explaining the purpose of the WBS, service guarantees, operational procedures, and frequently asked questions (FAQ). Its modern and clean design aims to convey a professional and trustworthy impression.



Figure 3. WBS Website Homepage

3.1.2 Report Form Page

This page is dedicated to the reporting process. The form includes all required fields as outlined in the official guidelines, including specific categories of violations and an option to upload supporting evidence. A key feature on this page is the anonymity option, which is controlled via JavaScript, allowing users to choose whether or not to disclose their identity.

3.1.3 Tracking Page

This page provides transparency for whistleblowers. By entering a unique code, users can view the status of their report and the handling history provided by the WBS administrators. The history is displayed in a timeline format for easier readability, as shown in Figure 4.

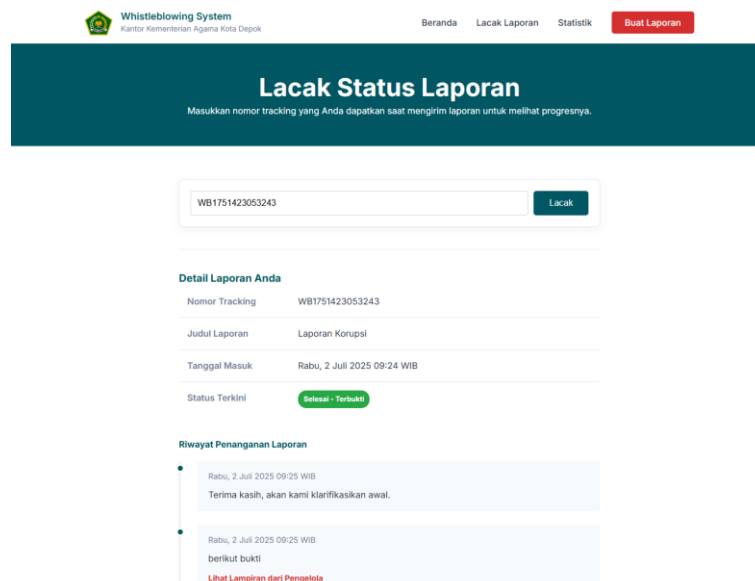


Figure 4. Report Status Tracking Page Interface

3.2 WBS Administrator Panel

The admin panel is designed to serve as the control center for the WBS management team in processing every incoming report.

3.2.1 Login Page

The entry point to the admin panel is secured with an authentication system. User passwords are stored in hashed format using `password_hash()` and verified with `password_verify()` to ensure maximum security. The interface is designed to be clean and professional (Figure 5).

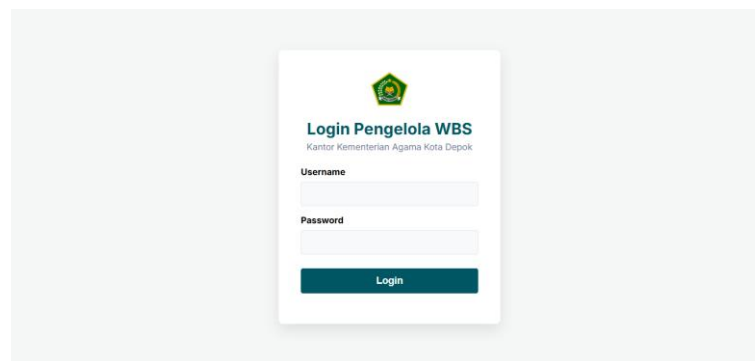


Figure 5. WBS Admin Login Page Interface

3.2.2 Main Dashboard

After logging in, administrators are welcomed by an informative main dashboard (Figure 6). This dashboard provides a summary of report statistics in card format, a data visualization of report distribution by category using Chart.js, and a table listing all incoming reports. Features such as date-based filtering, pagination, and Excel export are available to support effective data management.

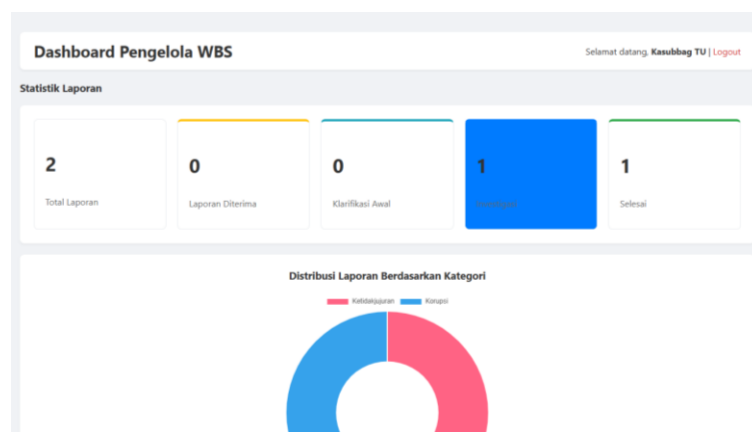


Figure 6. Main Dashboard Interface of the WBS Admin Panel

3.2.3 Report Detail Page

This page serves as the main workspace for handling individual reports. Admins can view all report details, including supporting evidence and reporter information (if not submitted anonymously). A key feature of this page is the ability to update the report status according to the defined workflow (e.g., from “Report Received” to “Initial Clarification”) and to add comments or follow-up actions. These updates are visible to the reporter through the tracking page.

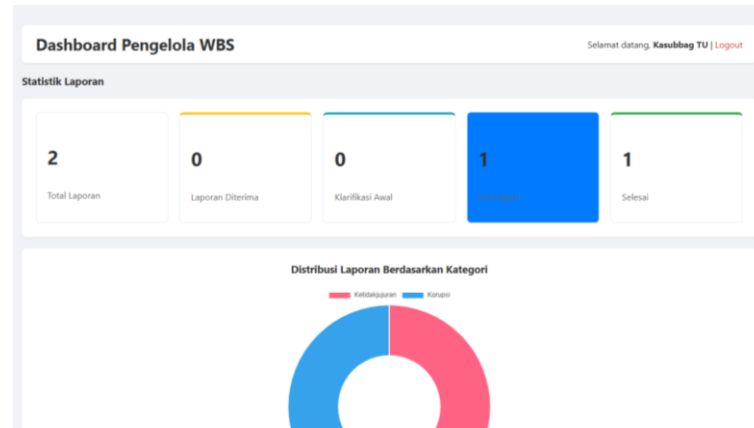


Figure 7. Report Detail Page Interface

3.3 Discussion

The system developed successfully addresses the primary issue identified—namely, the absence of a structured Whistleblowing System (WBS) platform at the Office of the Ministry of Religious Affairs (Kemenag) in Depok City. The implementation of key features such as anonymous reporting and real-time status tracking directly mitigates concerns that potential whistleblowers may have regarding confidentiality and retaliation.

Compared to general complaint systems such as the one in the study by Dai et al. (2017) (Dai et al., 2017), this system has a sharper focus on confidentiality and the specific internal investigative workflows required for handling violations. The adoption of the prototyping method proved highly effective. Its iterative nature allowed the system to evolve from a basic concept into a mature application with a modern, responsive interface and rich functionality.

Functionally, the system provides a strong foundation and can be considered a baseline model that may be adopted or adapted by other similar government institutions in Indonesia seeking to enhance transparency and accountability.

4. CONCLUSION

This research has successfully designed and implemented a functional, secure, and responsive web-based Whistleblowing System (WBS), specifically tailored to the needs of the Office of the Ministry of Religious Affairs (Kemenag) in Depok City. Utilizing a “prototyping development method”, the system was developed iteratively, enabling continuous improvements in features and interface design through phased evaluations. Key features such as an anonymous reporting form, a report tracking system with unique codes, and a comprehensive management dashboard were effectively implemented.

The system provides a secure and trustworthy channel for both the public and internal staff to report suspected violations, directly supporting the principles of “transparency” and “accountability” in public governance.

Despite meeting all identified functional requirements, this research has a few limitations. The system has not yet undergone “stress testing” to evaluate its performance under high-volume simultaneous report submissions. Furthermore, a formal “third-party security audit” has not been conducted to uncover potential deeper vulnerabilities.

Looking ahead, several enhancements could be pursued: (1) Mobile application development (Android/iOS) to increase accessibility for users on various platforms; (2) The addition of “advanced analytics dashboards” on the admin side to detect trends or violation patterns based on categories, timeframes, or locations; and (3) A “longitudinal study” to assess the impact of the system's implementation on the volume of submitted reports and the level of public trust could serve as a compelling subject for further research.

This system may serve as a “baseline model” for other regional government institutions in Indonesia seeking to enhance governance through transparent and citizen-engaging mechanisms.

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