

Automated Incident Management System (AIMS)

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Abstract—Incident management plays a critical role in maintaining operational efficiency in organizations that rely heavily on information technology infrastructure. In many institutions, incident reporting and tracking are still handled through manual methods such as emails, registers, or verbal communication. These approaches often result in delayed responses, lack of transparency, duplicate complaints, and inefficient resolution of issues. This paper presents the design and development of an Automated Incident Management System (AIMS), a web-based platform that automates the entire lifecycle of incident handling from reporting to resolution.

The system enables users to report incidents such as network issues, hardware failures, software errors, and account-related problems through a structured interface. The platform automatically generates tickets, predicts incident priority, assigns the issue to the appropriate department, and allows real-time monitoring of incident status. Role-based dashboards enable users, technical staff, administrators, and super administrators to efficiently manage incidents according to their responsibilities.

Additional features such as duplicate incident detection, service level agreement (SLA) monitoring, audit logs, and OTP-based authentication improve system reliability and security. The implementation of AIMS significantly reduces response time, enhances accountability, and improves the overall efficiency of incident management in organizations and educational institutions.

Keywords— Incident Management, Automation, Web Application, Ticketing System, IT Support

I. INTRODUCTION

Information technology infrastructure has become an essential component of modern organizations. Educational institutions, corporate offices, and government organizations rely heavily on digital systems for communication, data storage, and operational processes. However, technical issues such as

network outages, hardware failures, software bugs, and account-related problems can disrupt normal operations.

Incident management refers to the process of identifying, recording, analyzing, and resolving such issues in a systematic manner. In many institutions, incident reporting is still handled manually using traditional approaches such as written complaints, emails, or verbal communication with IT staff. These methods are often inefficient and create several problems including delayed responses, difficulty in tracking issues, and lack of accountability.

To address these challenges, organizations are increasingly adopting automated systems for incident management. Automated platforms allow users to report issues digitally, track their status, and ensure that technical staff respond to incidents within a defined timeframe.

The Automated Incident Management System (AIMS) is designed to provide a centralized platform for incident reporting and resolution. By automating ticket generation, priority assignment, department routing, and status tracking, the system improves efficiency and transparency in handling technical issues.

II. LITERATURE REVIEW

Several studies and existing systems have focused on improving incident management through automation and digital platforms. Modern IT service management frameworks such as ITIL emphasize structured incident management processes that prioritize quick resolution and minimal disruption to services.

Traditional helpdesk systems allow users to create tickets that are assigned to support staff. However, many older systems lack intelligent features such as priority

prediction, duplicate detection, and automated department assignment.

Recent research in incident management systems focuses on improving efficiency using web-based platforms and machine learning techniques. These systems analyze incident descriptions to classify and prioritize issues automatically.

Although many commercial ticketing systems exist, they are often expensive and complex for small institutions to implement. Therefore, a lightweight and customizable solution like AIMS can provide a practical alternative for educational institutions and small organizations.

III. PROBLEM STATEMENT

Many institutions still rely on manual processes for reporting and managing technical issues. These systems create several operational challenges, including:

- Lack of a centralized platform for incident reporting
- Difficulty in tracking the status of reported issues
- Repeated reporting of the same problem by multiple users
- Delayed response times due to inefficient communication
- Lack of accountability among technical staff
- Difficulty in analyzing incident trends and system performance

These challenges highlight the need for a digital platform that automates the incident management process and improves coordination between users and technical staff.

IV. PROPOSED SYSTEM

The Automated Incident Management System (AIMS) is designed to automate the complete lifecycle of incident handling within an organization.

The system allows users to submit incident reports through a web-based interface. Each incident includes details such as title, description, category, and optional attachments such as screenshots or photographs.

Once an incident is submitted, the system generates a unique ticket number that enables easy tracking. The system also analyzes the incident information to

determine the priority level and assigns the issue to the appropriate department responsible for resolving it.

Technical staff and administrators can access their dashboards to view assigned incidents, update their progress, communicate with users through comments, and mark incidents as resolved when the issue is fixed.

The system also includes administrative controls for managing users, monitoring system activity, and enforcing security policies.

V. METHODOLOGY

The development of the Automated Incident Management System follows a structured approach consisting of several phases:

1) *Requirement Analysis*

In this phase, the requirements of users and administrators are analyzed to determine the features required in the system.

2) *System Design*

The system architecture and database structure are designed to support incident management operations.

3) *Implementation*

The application is developed using web technologies that support user interaction, data processing, and database management.

4) *Testing*

The system is tested to ensure that all modules such as incident submission, ticket generation, and status tracking function correctly.

5) *Deployment*

The final system is deployed in an environment where users can access it through a web browser.

VI. SYSTEM ARCHITECTURE

The system follows a client-server architecture consisting of three primary layers.

A. *User Interface Layer*

This layer allows users to interact with the system through web pages where they can submit incidents, track progress, and receive notifications.

B. Application Layer

This layer processes user requests, manages incident records, performs priority prediction, and controls system logic.

C. Database Layer

The database stores all system information including user accounts, incident records, comments, attachments, and audit logs.

This layered architecture ensures efficient data handling, scalability, and secure access to system resources.

VII. FEATURES OF THE SYSTEM

The Automated Incident Management System includes several features designed to improve efficiency and user experience.

1) Automated Ticket Generation

Every incident reported in the system automatically generates a unique ticket number for identification and tracking.

2) Smart Priority Prediction

The system analyzes the incident description and category to determine the appropriate priority level.

3) Department Assignment

Incidents are automatically routed to the relevant department responsible for resolving the issue.

4) Duplicate Incident Detection

The system identifies similar incidents to reduce duplicate complaints and improve resource management.

5) Role-Based Dashboards

Different dashboards are provided for users, staff members, administrators, and super administrators.

6) Status Tracking

Users can monitor the progress of their incidents from submission to resolution.

7) Notifications

Users receive notifications when incidents are assigned, updated, or resolved.

8) Security and Monitoring

Security features such as OTP verification, account blocking, and audit logs ensure system reliability and accountability.

VIII. ADVANTAGES OF THE SYSTEM

The Automated Incident Management System offers several advantages compared to traditional manual reporting systems.

- Faster incident reporting and resolution
- Reduced duplicate complaints
- Improved transparency and accountability
- Centralized management of technical issues
- Real-time monitoring of incident status
- Enhanced system security and access control

IX. APPLICATIONS

The system can be implemented in various environments where technical incident management is required, including:

- Educational institutions
- Corporate organizations
- IT support centers
- Government offices
- Service management environments

X. RESULTS AND DISCUSSION

The implementation of the Automated Incident Management System demonstrates significant improvements in the incident handling process. By automating ticket generation and department assignment, the system reduces the time required to process and resolve issues.

Users can easily track the progress of their complaints, which improves transparency and user satisfaction. Administrators can monitor system activity through

dashboards and audit logs, ensuring better accountability among staff members.

Overall, the system enhances communication between users and technical teams while improving the efficiency of incident management operations.

XI. FUTURE ENHANCEMENTS

Future improvements to the system may include:

- Integration with artificial intelligence for automated incident classification
- Mobile application support for easier access
- Predictive analytics for identifying common incident patterns
- Integration with external IT service management tools

XII. CONCLUSION

The Automated Incident Management System (AIMS) provides a structured and efficient approach for managing technical incidents within organizations. By automating ticket generation, incident prioritization, and status tracking, the system reduces response time and improves operational efficiency.

The system also improves transparency and accountability by providing role-based dashboards and real-time monitoring of incidents. As organizations continue to depend on digital infrastructure, systems like AIMS can play an important role in maintaining reliable and efficient technical support services.

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