Lost and Locate Centralized Smart Recovery System

Dr. A. Meenakshi, M.E., Ph. D [1], R. Dharun Nagavel[2], K Naveen Kumar[3], Sanjay M[4]
[1] Head of the Department, Dept. of CSE, Kamaraj College of Engineering and Technology, Virudhunagar, Tamil Nadu, India
[2,3,4] UG Scholar, Dept. of CSE, Kamaraj College of Engineering and Technology, Virudhunagar, Tamil Nadu, India
Emails: hodcse@kamarajengg.edu.in[1], dharunnagavel1226@gmail.com[2], nknavin116@gmail.com[3], sanjaymuthuraj20@gmail.com[4]

Abstract

The loss and misplacement of personal and valuable items is a frequent problem in both urban and rural environments, often leading to stress, time loss, and financial impact. Traditional methods of locating lost items such as manual inquiries, notice boards, and social media posts are inefficient, unstructured, and lack a centralized tracking mechanism. These limitations reduce the probability of successful recovery and delay the identification of matching lost and found reports. The system enables users to report lost items, register found items, and track recovery status in real time. Advanced data processing and matching techniques are applied to analyze item attributes such as category, location, date, and description to improve identification accuracy. The application is developed and simulated at an early design stage to evaluate system performance, data flow, and reliability under different user scenarios. Multiple data models and storage strategies are analyzed to optimize system efficiency, security, and scalability.

Keywords: *Lost and Found System, Item Recovery, Real-Time Tracking, Data Matching, Centralized Tracking.*

1. Introduction

The recovery of lost items remains a persistent challenge in both urban and rural environments due to the absence of a centralized, intelligent reporting mechanism. Conventional methods such as manual announcements, notice boards, and social media posts are often unorganized, time-consuming, and ineffective, leading to delayed or unsuccessful item recovery. Individuals frequently face difficulties in providing accurate descriptions, tracking reports, and identifying potential matches, especially when multiple reports are involved. To address these challenges, we propose a Lost and Locate Web Application that streamlines the process of reporting, searching, and matching lost and found items through a unified digital platform. The system allows users to submit detailed reports containing textual descriptions, images, and location information of lost or found objects. Once submitted, the application performs real-time data processing to analyze and compare reports using similarity based matching techniques. The proposed system leverages text similarity analysis, image comparison, and location-based filtering to identify potential matches with higher accuracy. Upon detecting a probable match, the system automatically notifies the relevant users, enabling faster communication and item recovery. By integrating intelligent matching algorithms, real-time notifications, and an intuitive web interface, the system minimizes manual effort, reduces recovery time, and improves accessibility for users with varying levels of digital literacy. This solution offers an efficient, scalable, and user-friendly approach to lost-item recovery, contributing to safer and more connected communities.

1.1. Methods of Sign Language

- **User Registration and Authentication:-** The system begins with user registration and authentication. Users create an account by providing basic details such as name, contact information, and login credentials.
- **Lost and Found Item Report Submission:-** After successful login, users can submit details of lost or found items through a simple and user-friendly interface. The report

includes item name, category, textual description, images, date of loss or discovery, and location details. This structured data serves as the foundation for further matching and analysis.

- **Data Storage and Management:-**All submitted reports are stored in a centralized database. The system organizes data efficiently, enabling quick retrieval and comparison. Images, text descriptions, and location information are indexed to support real-time matching and scalability as the number of reports increases.

- **Similarity Matching and Analysis:-**Once a report is submitted, the system performs automated matching using text similarity analysis, image comparison, and location-based filtering. Text descriptions are analyzed to identify common keywords,

images are compared for visual resemblance, and geographic proximity is considered to improve match relevance. This multi-parameter matching significantly enhances accuracy.

- **Match Detection and User Notification:-** When the system identifies a potential match between a lost and a found item, it automatically notifies the relevant users through in-app alerts or email notifications

- **Verification and Item Recovery:-**In the final stage, users can verify the matched item details through the platform. Upon confirmation, communication is facilitated securely to arrange item recovery. This step ensures transparency, prevents false claims, and completes the lost item recovery cycle efficiently
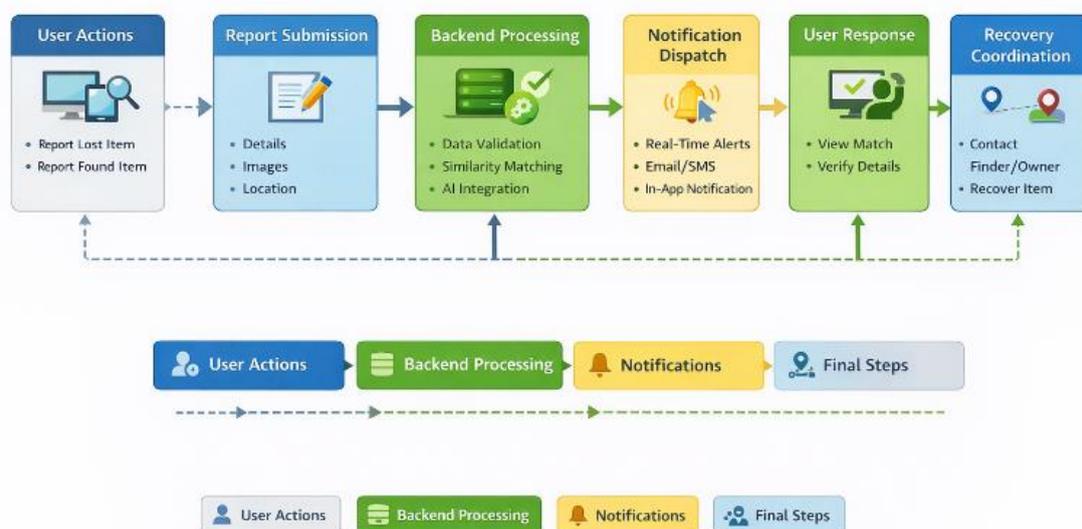

Figure 1 Work Flow Diagram of the Lost and Locate System

2. Results and Discussion
2.1.Results

The Lost and Locate Web Application was successfully developed and tested. The system allows users to register, report lost items, and record found items without errors. Item details such as category,

location, and description were stored correctly in the database. The matching process effectively identified possible matches between lost and found items. Users received notifications when a match was found, which helped reduce the time required to recover items. The admin module worked properly by

monitoring reports and approving matches. Over all the system performed reliably and provided a faster and more organized solution for lost item recovery compared to traditional methods.

2.2.Discussion

The results show that the Lost and Locate Web Application is effective in managing lost and found items through a centralized system. By allowing users to submit structured item details, the system improves the chances of accurate matching compared to manual methods. The automated matching process reduces human effort and saves time, while notifications help users take quick action when a possible match is identified. The admin module adds reliability by verifying reports and preventing misuse of the system. Although the system performs well, its accuracy depends on the quality of information provided by users.
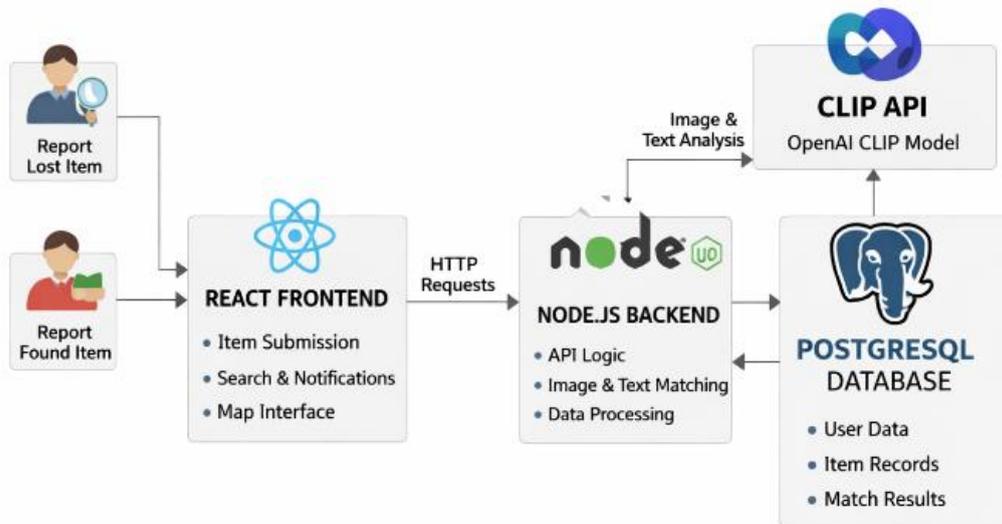
FIGURE 2. Overall system architecture of the Lost and Locate Web Application.

Conclusion

The Lost and Locate Web Application provides an efficient and organized solution for managing lost and found items. By centralizing item reports and automating the matching process, the system reduces the time and effort required to recover lost belongings. User notifications and administrative verification improve reliability and trust in the system. Overall, the application successfully addresses the limitations of traditional lost-and-found methods and offers a practical solution for real-world use.

Acknowledgements

References

Previous studies have explored different approaches to lost and found management systems. Karthikeyan et al. [1] proposed a smart system using image and text matching to improve item identification

accuracy. Sharma and Verma [2] focused on image processing and machine learning techniques to detect and match lost items efficiently. Kumar and Singh [3] introduced a geo location based system to track and manage lost and found items using location data. These works provide a strong foundation for the development of the proposed Lost and Locate system.

Journal Reference Style

[1]. R. Karthikeyan, S. Priyanka, M. Divya, "A Smart Lost and Found System Using Image and Text Matching," International Journal of Computer Applications, vol. 175, no. 22, pp. 15–20, 2020

[2]. A. Sharma, R. Verma, "Lost and Found Item Detection Using Image Processing and Machine Learning," International Journal of Advanced Research in Computer Science, vol. 11, issue 4, pp. 45–50, April 2021.

[3]. P. Kumar, N. Singh, "Geo-Location Based Lost and Found Management System," International Journal of Engineering Research & Technology (IJERT), vol. 9, issue 6, June 2020