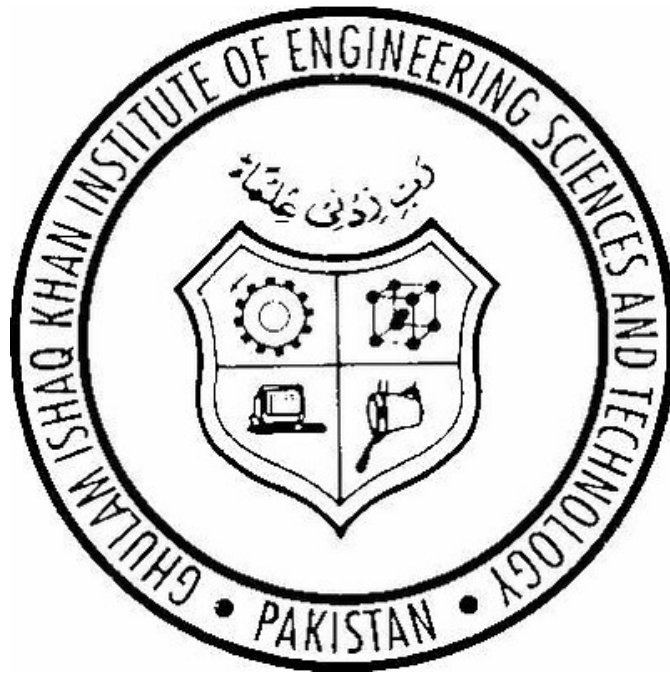


## **Campus Lost & Found System: A Secure Solution for Efficient Item Recovery**



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## Introduction

The **Campus Lost & Found System** is a Flutter-based mobile application designed to assist university students and staff in efficiently reporting, tracking, and recovering lost items.

Traditional lost-and-found methods are often inefficient, lacking organization and transparency, making it difficult for individuals to retrieve their belongings. This application aims to digitize and streamline the process, improving recovery rates and reducing administrative overhead.

## Problem Statement

Universities experience frequent instances of misplaced or lost items, and the current manual processes for recovering them are slow and unreliable. A centralized, real-time digital platform can significantly enhance the efficiency of tracking lost and found items, reducing frustration for students and staff while minimizing the burden on university administration.

## Objectives

- Develop a user-friendly mobile application for reporting and searching lost items.
- Implement a secure, real-time database to manage lost and found records.
- Provide real-time notifications for item matches.
- Ensure privacy and security of user interactions.
- Reduce dependency on physical lost-and-found offices and streamline item recovery.

## Features

### User Features:

- **Report Lost Items:** Submit item details (name, description, category, date, last seen location, images).
- **Report Found Items:** Upload details of found items for easy matching.
- **Item Search & Filters:** Browse/search items by keywords, category, or location.
- **Real-Time Notifications:** Alerts users when a similar item is found.
- **Chat & Contact System:** Secure in-app messaging between finders and owners.

### Admin Features:

- **Manage Reports:** Verify and moderate lost & found listings.
- **Analytics Dashboard:** Monitor lost and recovered item statistics.
- **Location-Based Hotspots:** Identify areas where items are frequently lost.

## Target Audience

- **University Students** who frequently misplace personal belongings.
- **Faculty & Staff** who find lost items in classrooms and offices.
- **Campus Security & Admins** responsible for lost and found management.

## Security Requirements and Planning

- **User Authentication:** Implement secure login with Firebase Authentication (Google login, email/password).
- **Data Encryption:** Ensure encrypted storage of user and item data.

- **Access Control:** Restrict unauthorized access to sensitive information.
- **Secure Messaging:** Implement in-app communication with end-to-end encryption.
- **Privacy Compliance:** Ensure adherence to university data privacy policies.

### **Tech Stack**

- **Frontend:** Flutter (Dart)
- **Backend:** Firebase Firestore (Real-time database)
- **Authentication:** Firebase Authentication
- **Notifications:** Firebase Cloud Messaging
- **Storage:** Firebase Storage (for images)

### **Expected Impact**

- Faster item recovery through real-time reporting.
- Higher success rates in reuniting items with owners.
- Reduced administrative workload for university staff.
- Improved student experience with a reliable lost-and-found solution.

### **Conclusion**

The **Campus Lost & Found System** aims to provide an innovative and efficient approach to lost item recovery. By leveraging real-time notifications, and a user-friendly interface, the system will enhance the management of lost and found items at universities, fostering a more organized and convenient environment.