



AI-Based Lost & Found System

Revolutionizing campus recovery with computer
vision and intelligent matching.



Anushka Rathour

12200884 | B. Tech. CS & AI



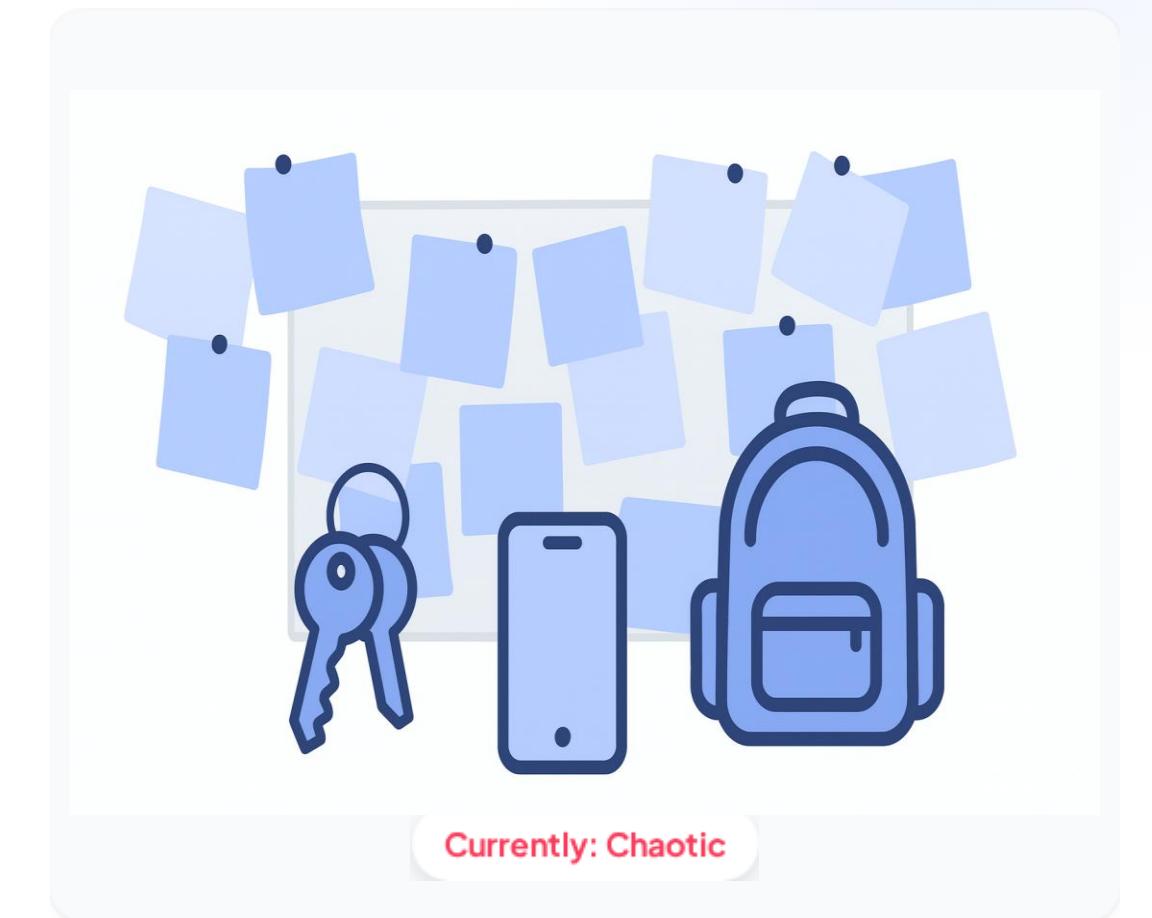
Lost & Found

The Campus Problem

"Have you seen my keys?"

In a bustling university environment, traditional lost and found methods are broken. They rely on:

- 01** **Physical Notice Boards**
Limited reach, cluttered, and often ignored.
- 02** **Unverified WhatsApp Groups**
Spam-filled and lacks privacy or security.
- 03** **Manual Verification**
No way to prove ownership effectively.



Currently: Chaotic

System Objectives

Centralization

Replacing scattered manual logs with a single, unified cloud database accessible 24/7.

Visual AI

Integrating **CLIP ViT-L/14** to allow users to search by image similarity, not just text.

Security

Ensuring data integrity through student ID verification and restricted admin controls.

Technology Stack

Backend Engine

Python FastAPI

High-speed async API handling.

Sentence Transformers

Running the CLIP Model logic.

SQLite

Reliable, serverless storage.

Frontend & UI

HTML5 / CSS3

Semantic structure & styling.

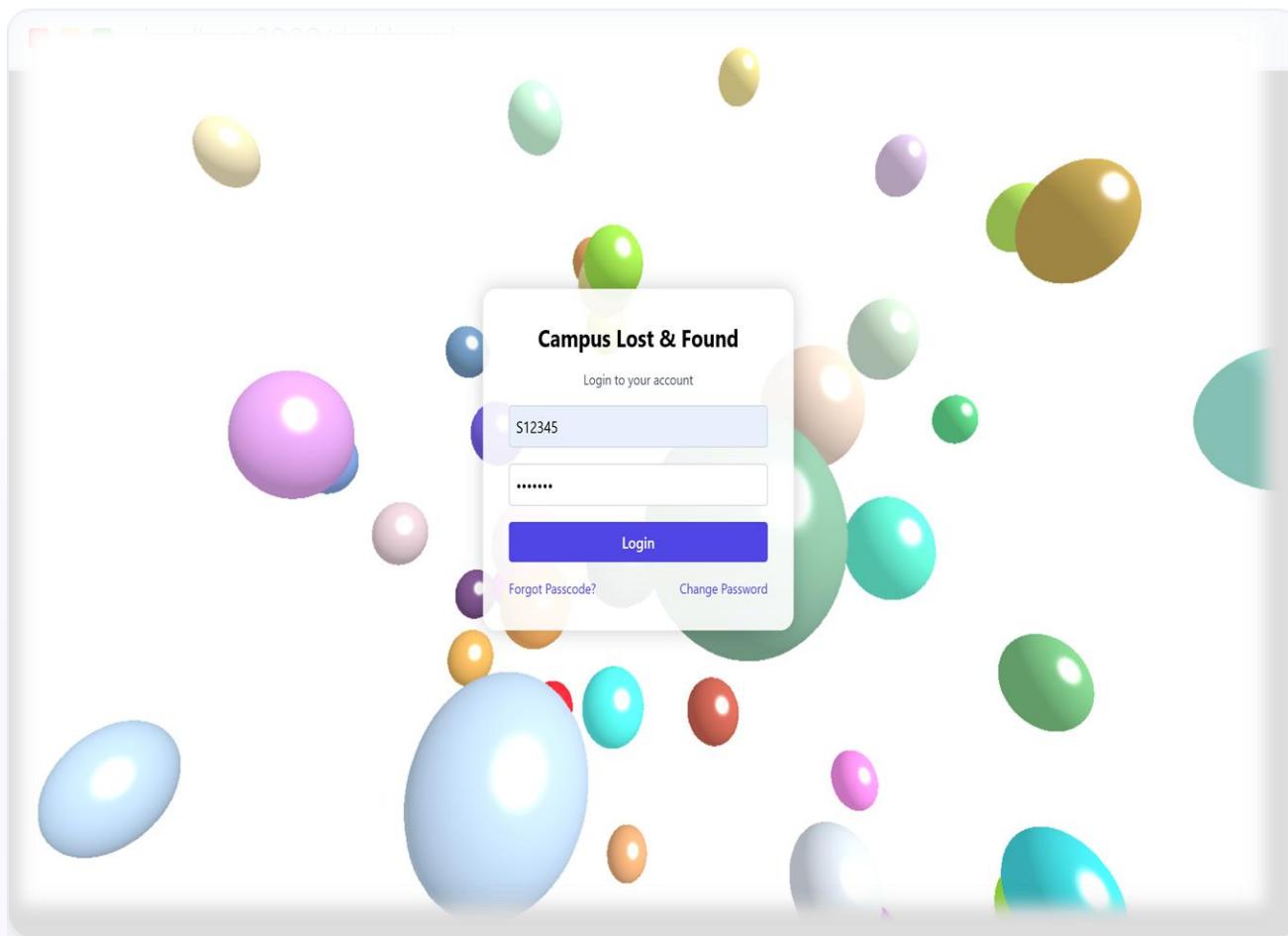
Vanilla JavaScript

Dynamic interactions & AJAX.

Jinja2

Server-side template rendering.

System Implementation



```
File Help ← → Q lost and found main.py M X
>4
55  # Serve login page at root
56  @app.get("/", response_class=HTMLResponse)
57  async def root(request: Request):
58      return templates.TemplateResponse("login.html", {"request": request})
59
60  # Handle login and redirect based on role
61  @app.post("/login", response_class=HTMLResponse)
62  async def login(
63      request: Request,
64      student_id: str = Form(...),
65      passcode: str = Form(...),
66      conn: sqlite3.Connection = Depends(get_db),
67  ):
68      role = authenticate_user(student_id, passcode)
69      if not role:
70          return templates.TemplateResponse(
71              "login.html",
72              {"request": request, "error": "Invalid credentials"},
73          )
74      if role == "admin":
75          return RedirectResponse(url="/admin-dashboard", status_code=303)
76      # Student view: load items for index.html
77      items = conn.execute(
78          "SELECT id, title, description, category, location, phone, image_path FROM items ORDER BY id DESC"
79      ).fetchall()
80      return templates.TemplateResponse(
81          "index.html",
82          {"request": request, "student_id": student_id, "items": items},
83      )
84
85  # Student report page (optional direct access)
86  @app.get("/report", response_class=HTMLResponse)
87  async def report_page(request: Request, conn: sqlite3.Connection = Depends(get_db)):
88      items = conn.execute(
89          "SELECT id, title, description, category, location, phone, image_path FROM items ORDER BY id DESC"
90      ).fetchall()
91      return templates.TemplateResponse(
92          "index.html",
93          {"request": request, "student_id": "student", "items": items},
94      )
```

System Implementation

Campus Lost & Found Feed

Hello, S12345 Change Password

Search by text... Choose File No file chosen Scores Search Clear

Add Lost / Found Item

Title

Description

Category Lost Location

Phone Number

Image (optional) Choose File No file chosen

Cancel Add Item

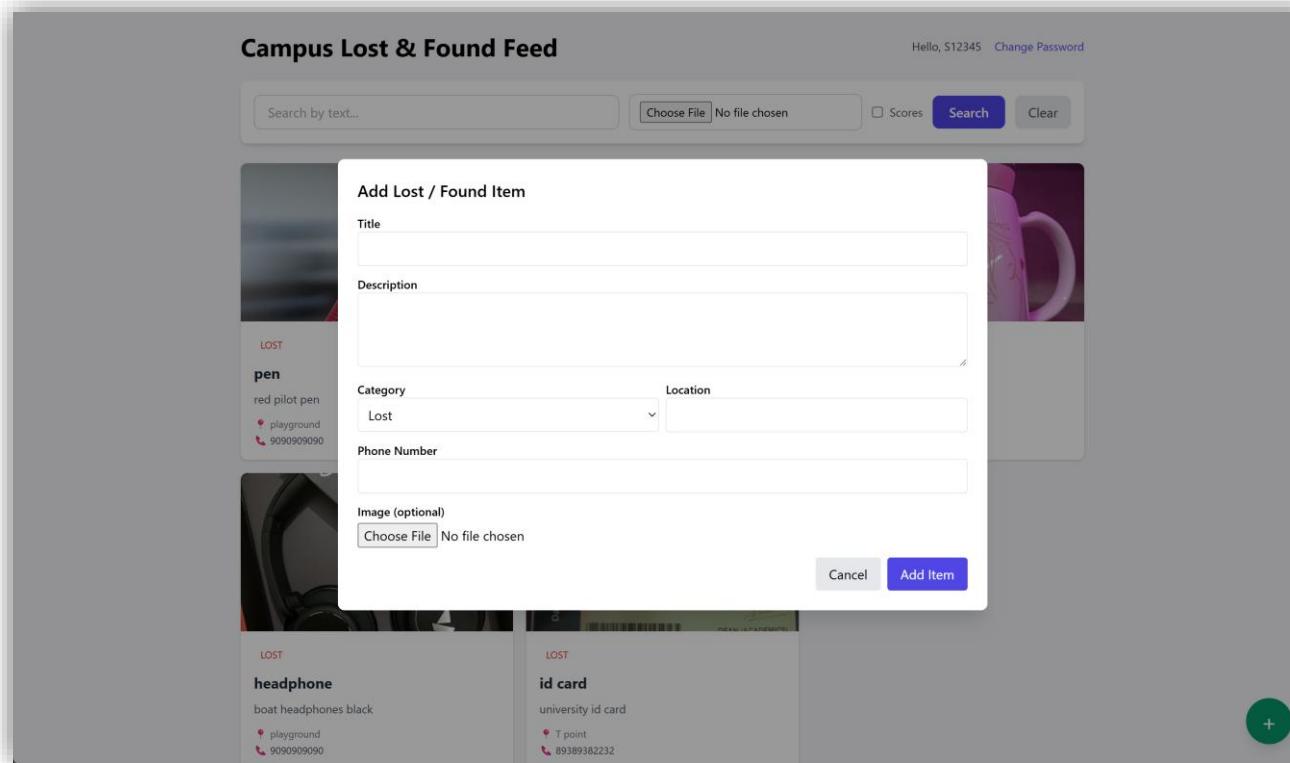
LOST

pen
red pilot pen
playground 9090909090

headphone
boat headphones black
playground 9090909090

id card
university id card
T point 8938938232

+



Campus Lost & Found Feed

Hello, S12345 Change Password

Search by text... Choose File No file chosen Scores Search Clear

LOST

pen
red pilot pen
playground 9090909090

keyboard
black rgb keyboard
student centre 8383838383

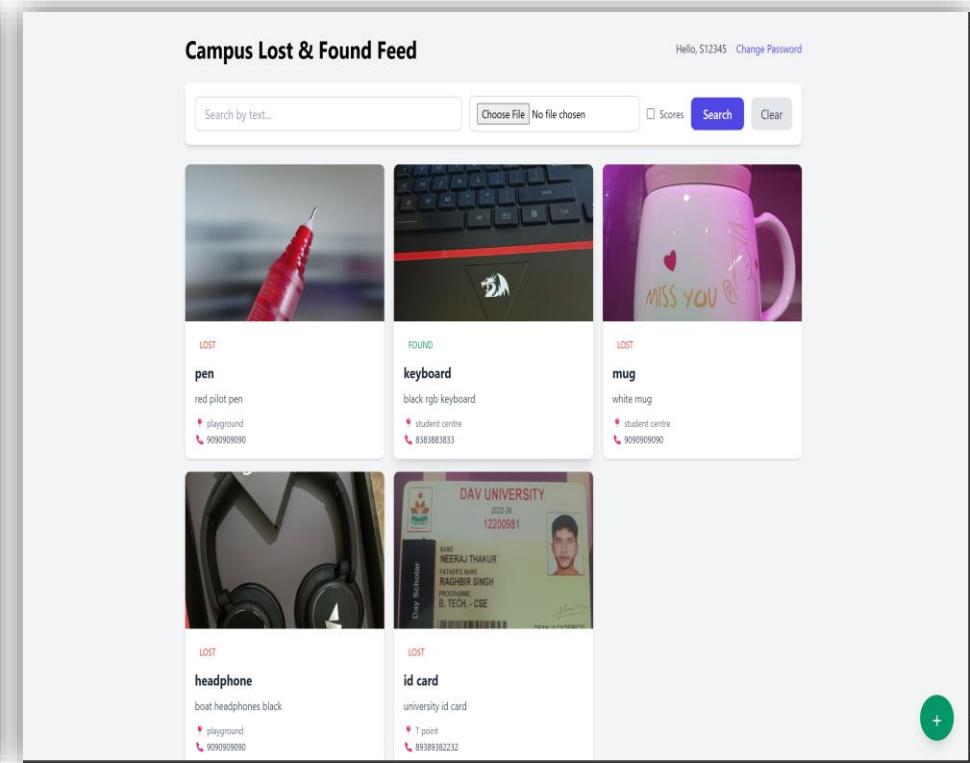
mug
white mug
student centre 9090909090

FOUND

headphone
boat headphones black
playground 9090909090

id card
university id card
T point 8938938232

+



The Brain: CLIP ViT-L/14

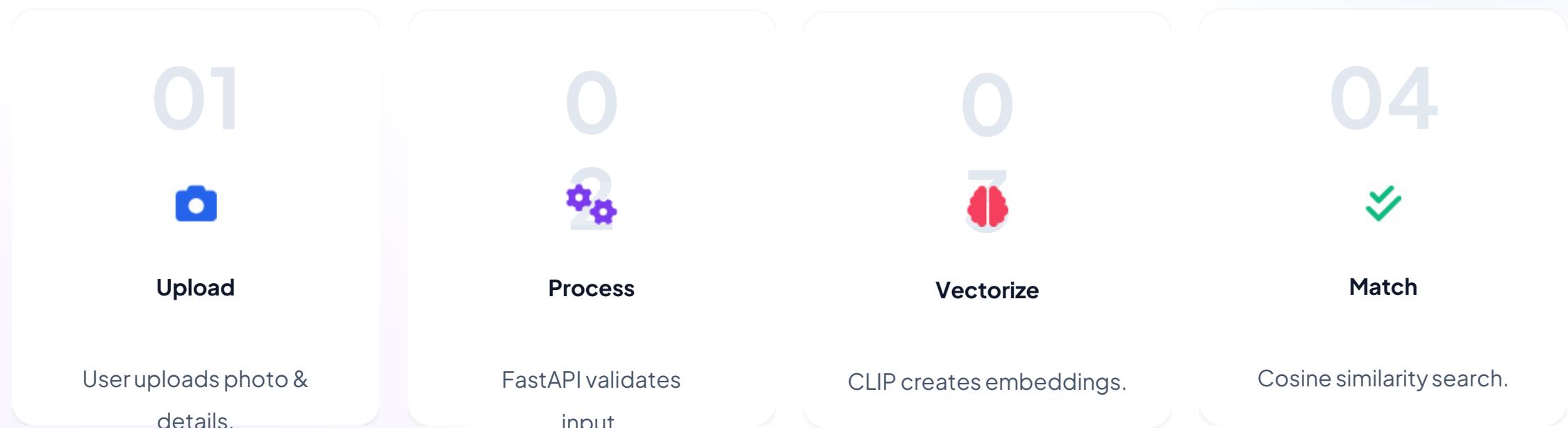
Zero-Shot Learning

We utilize OpenAI's **CLIP (Contrastive Language-Image Pre-training)**. It maps images and text to the same vector space.

Why it matters: If you lose a "Blue Hydroflask" but search for "Water Bottle", the AI understands they are visually related, even without exact keywords.



How It Works



Key Distinctions

Real-World AI

Moving beyond theory. This project bridges the gap between academic Deep Learning concepts and practical, everyday utility tools.

Optimized Architecture

By using **Transfer Learning** (pre-trained weights), we achieve high accuracy without the need for massive computational power or expensive GPUs.

Future Scope

Mobile App

Developing a React Native application for camera-first reporting.

Auto Alerts

SMS/Email notifications when a potential match is found.

Multi-Campus

Scaling the database to PostgreSQL for larger deployments.

Q&A

Thank you for your
attention.



Anushka
Rathour

| B Tech CS & AI
12200884