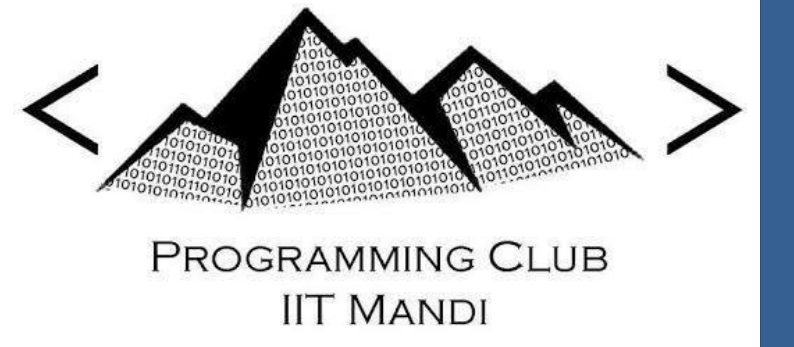


Indian Institute of Technology, Mandi

Vertex: IIT Mandi's One-Stop Campus App

Simplifying Campus Life.
Connecting Students, Faculty & Events in One Place.



Abstract

Vertex is a comprehensive campus app developed for the **Indian Institute of Technology (IIT) Mandi**, aiming to simplify campus life by consolidating essential academic services, campus announcements, and community features into a single, secure mobile application.

The platform streamlines access to

- Lost-and-Found
- Buy/Sell
- Campus maps & mess menus
- Part-time job postings
- Event updates and many more like addressing long standing issues of information delay and fragmentation across campus communications.

Introduction

Managing campus logistics and timely communication has been a challenge at IIT Mandi due to reliance on scattered channels like email and WhatsApp.

These inefficiencies result in missed announcements, cumbersome lost-and-found procedures, and difficulty accessing campus resources.

Vertex was designed to provide a unified dashboard where students, faculty, and staff can interact, discover services, and remain updated, enhancing the overall campus experience.

Methods and Materials

Vertex is developed using **Flutter** for both frontend and backend, with **BLoC**-based state management and Material Design UI. The database leverages **MongoDB** (free tier), with media assets hosted via **Cloudinary**.

User authentication is conducted exclusively via institute email IDs to ensure security and prevent account misuse.

Guest access is supported for limited features during fests and events.

Core features include:

- Secure institute email login
- Auto-expiring lost/found and buy/sell posts with 7-day cleanup
- Centralized mess/cafeteria menus, campus maps, and quick links
- Posts and events feed for campus-wide news and achievements
- Job portal for TA, internship, and campus roles

Results

Deployment of Vertex will be targeted to both **Android (Google Play Store)** and **iOS (Apple App Store)** with automated and manual security checks according to platform guidelines.

Early testing showed improved access speed for announcements and lost/found items, reduced redundant email traffic, and easier discovery of campus resources.

Data is organized into five collections: Users, Posts, Lost Found, Buy Sell, and Job Portal, with encrypted credentials at every step and rigorous guest restrictions for privacy.

Further Discussions

Vertex directly addresses core pain points encountered by students and faculty:

- Delayed communication reduced by centralized notifications
- Efficient management of lost/found and buy/sell items
- Streamlined access to campus data (mess menu, maps, events)
- Security measures including bcrypt-encrypted passwords and feature gating for guests

Further development is planned in collaboration with the KP Club and College Officials, with ongoing feedback from pilot users to refine features and address emerging needs.

Conclusion

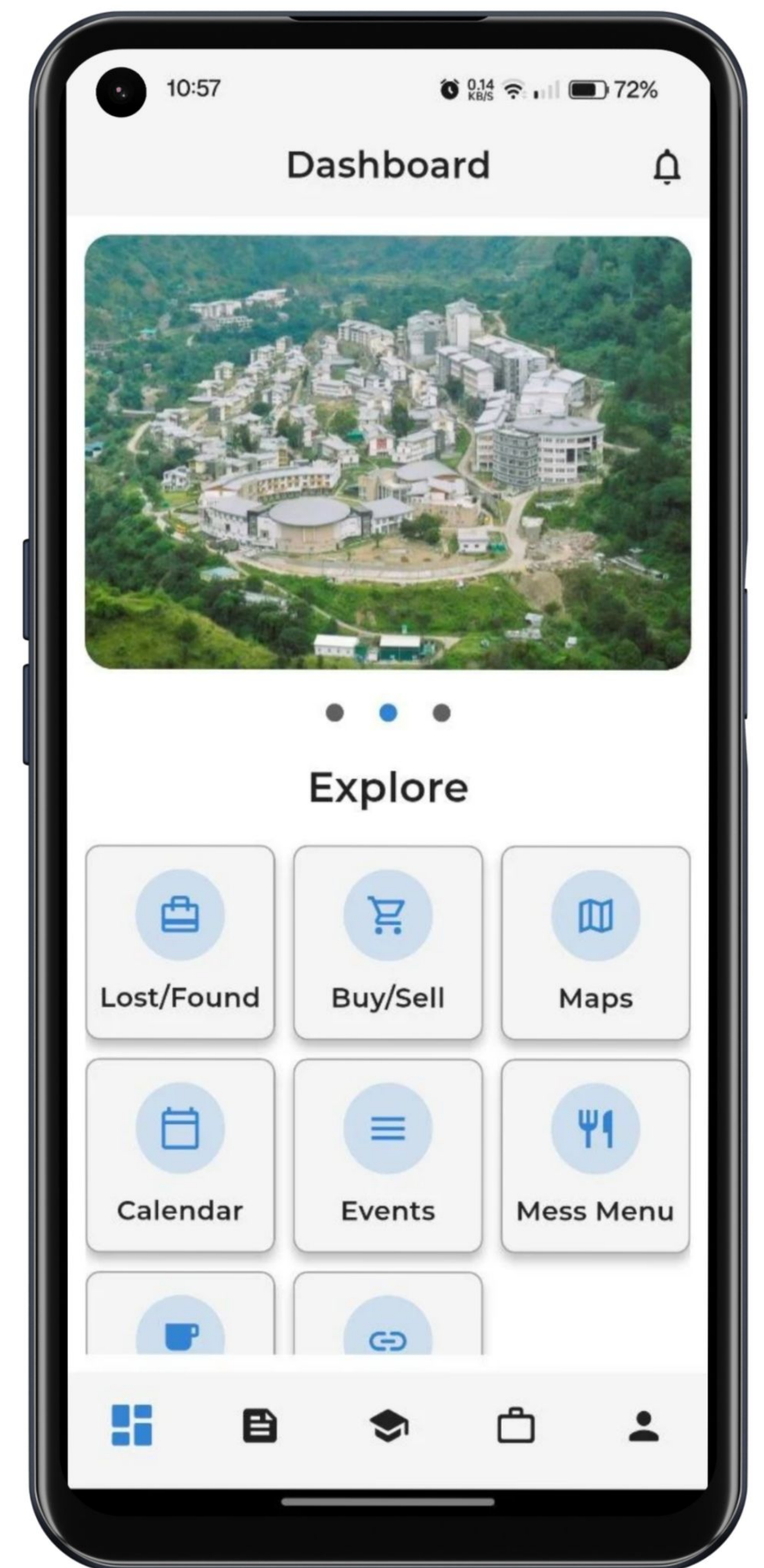
Vertex offers an innovative solution for **IIT Mandi**, transforming campus operations and communications through secure, unified access.

Its modular architecture supports future expansion with a defined team for it, with established mechanisms for updating content, enforcing privacy, and adapting to campus growth.

The platform is ready for phased rollout, with ongoing maintenance and updates led by a designated team.



SCAN THE QR CODE TO GET THE APP!



Contact

Gaurav Kushwaha
Kamand Prompt, IIT Mandi
Email: b23011@students.iitmandi.ac.in
Website: pc.iitmandi.ac.in
Phone: +91 870 70 58345

References

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.