An-Najah National University

Faculty of Engineering and Information Technology

Electrical and Computer Engineering Department

ExpoVerse

PREPARED BY:

Ayman Abu Hijleh

Baha Alawneh

SUPERVISED BY:

Dr. Amjad Abu Hassan

January 21, 2026

Presented in partial fulfilment of the requirements for

Bachelor degree in Computer Engineering.

Dedication

First and foremost, to God be all the praise. We have reached this point in our educational path thanks to his heavenly guidance.

To the person whose wisdom and advice have consistently inspired us. Our Master Muhammad, may God bless him and grant him peace.

To the souls of our brave martyrs. Whose sacrifices have taught us the true meaning patience and motivated us to continue pursuing dreams on behalf of many of them.

To those whose prayers and supplications were the secret of our success. To all those who believed in us, enveloped us with love and encouragement, lifted our spirits, and extended a hand when we felt on the brink of giving up our dear family, friends, and teacher thank you from the depths of our hearts for being an inseparable part of this journey.

Here stands this modest effort, a proof of the love and support that have driven us along the way.

Acknowledgment

We would like to express our sincere gratitude to all these individuals for mentoring and supporting us in completing this project. Our first expression of gratitude and appreciation goes to our supervisor Dr. Amjad Abu Hassan, for his great feedback and assistance during this project. We also extend our heartfelt gratitude to all the teachers in the Computer Engineering department who gave their time for teaching us, working hard to improve our academic production, and recognizing our efforts throughout our university journey until we reached at this point.

Disclaimer Statement

This report was written by ***Ayman Abu Hijleh*** and ***Baha Alawneh*** at the Computer Engineering Department, Faculty of Engineering, An- Najah National University. It has not been altered or corrected, other than editorial corrections, as a result of assessment and it may contain language as well as content errors. The views expressed in it together with any outcomes and recommendations are solely those of Ayman Abu Hijleh and *Baha Alawneh*. An-Najah National University accepts no responsibility or liability for the consequences of this report being used for a purpose other than the purpose for which it was commissioned.

Table of Contents

Contents

Abstract

TEDI-Najah expo at An-Najah National University bring together students, companies, and visitors to showcase academic projects, graduation work, startups, and career opportunities. Despite their importance, these events are commonly managed using manual and disconnected processes, which create challenges in booth organization, participant coordination, information accessibility, and real-time communication. As the number of participants and activities increases, these limitations negatively impact both the organizational efficiency and the overall expo experience.

This project presents **ExpoVerse**, a smart digital platform developed to enhance the planning, management, and interaction of the An-Najah University Expo. ExpoVerse provides a unified digital environment that connects students, companies, visitors, and administrators through a centralized system designed to automate workflows, improve navigation, and support meaningful engagement throughout the event.

The platform defines four main user roles: **Students, Companies, Visitors, and Administrators**, each supported by dedicated functionalities. Students can create profiles, upload CVs, submit projects for approval, collaborate in teams, and present their work through assigned booths. Companies can register their profiles, showcase services or products, publish job opportunities, and interact with student applicants. Administrators manage approvals, booth allocation, scheduling, and overall expo configuration. Visitors can explore projects and companies, interact with content, and navigate the expo using a virtual interactive map.

A key component of ExpoVerse is its **interactive map**, which digitally represents the university plaza and supports multiple booth zones and layouts. The map enables intuitive navigation through zooming, panning, and booth selection, making it easier for visitors to locate projects and companies. The platform also integrates real-time notifications, a chat system, and an AI-powered chatbot that assists users by answering questions related to projects, booths, and expo logistics.

ExpoVerse is implemented using modern web and mobile technologies. The frontend is developed using **React** for the web application and **React Native** for the mobile application, while the backend is built with **Node.js and Express.js**. Data is stored using **MySQL hosted on AWS RDS**, and media files such as images and CVs are managed through **AWS S3**. The system employs secure authentication and role-based access control to ensure data protection and reliable operation.

By transforming the traditional expo into a digital and interactive ecosystem, ExpoVerse improves organization, accessibility, and user experience, supporting An-Najah University's vision for innovation and smarter academic events.

1 Introduction

University exhibitions and career fairs represent essential platforms where academic achievements intersect with industry needs. These events offer students the opportunity to present their projects and research, enable companies to identify potential talent, and allow visitors to engage with the innovative output of academic institutions. Despite their significance, the organization and management of such expos are often handled using traditional approaches that are fragmented, time-consuming, and limited in their ability to support effective interaction among all participants.

In recent years, the increasing adoption of digital technologies in education, alongside the growing focus on employability and industry-relevant skills, has reshaped expectations for university–industry engagement. Students now seek more structured and accessible ways to showcase their work and connect with companies, while organizations aim to streamline recruitment processes and efficiently discover qualified candidates. However, existing expo practices suffer from several limitations, including manual booth assignment, inefficient use of physical space, lack of integrated communication tools, limited engagement beyond the event itself, and difficulties in navigating large venues to locate specific projects or companies.

This project addresses these challenges through the development of **ExpoVerse**, a comprehensive digital platform designed to support project exhibition, company participation, interactive navigation, and user engagement within a single system. The platform supports four distinct user roles—**Students, Companies, Visitors, and Administrators**—each with tailored functionalities. Students are able to create profiles, submit projects, collaborate in teams, and present their work through assigned booths. Companies can create profiles, publish job opportunities, and showcase their services or products. An intelligent booth allocation mechanism is supported by an interactive virtual map with multiple zones, while an AI-powered chatbot provides real-time assistance and guidance to users. Additionally, the platform integrates social engagement features such as feedback systems, short-form content sharing, and real-time communication to enhance interaction throughout the expo lifecycle.

The remainder of this document is organized as follows: Chapter 2 reviews related work in university expo management and digital engagement platforms. Chapter 3 describes the system methodology and overall architecture. Chapter 4 presents implementation details and core functionalities. Chapter 5 discusses system evaluation and performance considerations. Finally, Chapter 6 concludes the report and outlines limitations and directions for future work.

2 Related Work

Although numerous digital platforms exist for university exhibitions, student portfolios, and recruitment, there is currently no single system that fully integrates expo management, project showcasing, corporate participation, interactive navigation, and real-time engagement within one unified platform. Most existing solutions address isolated aspects of the expo experience rather than providing an end-to-end digital ecosystem.

Current platforms typically focus on one primary function, such as job recruitment, portfolio presentation, or event registration. While these tools are effective within their specific domains, they lack the combined functionality required to support large-scale university expos that involve physical booth allocation, project approval workflows, real-time communication, and on-site navigation. As a result, expo organization remains fragmented, relying on multiple disconnected systems and manual coordination.

Due to the absence of a comprehensive and specialized solution, this project does not rely on a direct predecessor system. Instead, ExpoVerse was designed to fill the gap between academic exhibitions and industry engagement by combining the strengths of existing platforms while addressing their limitations. The need for such a system becomes evident when comparing the traditional expo experience with the proposed ExpoVerse platform.

This comparison highlights how ExpoVerse bridges the gaps of traditional expos by transforming fragmented, short-term events into a unified, interactive, and efficient digital ecosystem for all stakeholders:

Aspect	Without ExpoVerse	With ExpoVerse
Expo Organization	Manual coordination, spreadsheets, and physical paperwork	Centralized digital management with automated workflows
Booth Assignment	Manually assigned, error-prone, and difficult to update	Smart booth allocation using an interactive virtual map
Project Exhibition	Physical posters with limited visibility	Digital project profiles accessible before, during, and after the expo
Company Participation	Limited to physical presence and brochures	Digital company profiles, service listings, and job postings
Navigation	Visitors rely on printed maps or asking for directions	Interactive map with zoom, pan, and booth details
Communication	Face-to-face only, no centralized communication channel	In-app chat, notifications, and AI chatbot assistance
Student–Company Interaction	Short, one-time interactions during the event	Extended engagement through messaging and job applications
Feedback & Evaluation	Informal or nonexistent	Structured feedback, ratings, and engagement tracking
Post-Expo Engagement	Ends when the event finishes	Continues digitally after the expo concludes

3 Methodology

3.1 Main Frameworks / Libraries, Tools and Technologies

3.1.1 Main Frameworks / Libraries

Front-End

- ✓ React Native library (*React Native, n.d.*) for the mobile application.
- ✓ React library (*React, n.d.*) for the website.

Back-End:

- ✓ **Express.js framework** (*Express.js, n.d.*): To build a complete back-end REST (Representation State Transfer) API (Application Programming Interface) to serve both the mobile application and the website.
- ✓ **MySQL2** module: For database connection pooling and query execution with promise support.
- ✓ **Bcrypt.js**: For secure password hashing and verification.
- ✓ **JSON Web Token** (jsonwebtoken): For stateless authentication and authorization.

3.1.2 Tools

- **Workspace Tools**
  - ✓ **Visual Studio Code (VS Code)**: Popular code editor customized with extensions for JavaScript, React, and database management.
  - ✓ **Android Studio**: Very popular IDE (Integrated Development Environment) in mobile development, we use it to create virtual devices to build and test the mobile application on them.

- ✓ **Expo Go**: Mobile application for testing the mobile apps written in React Native without building them on physical or virtual devices.

Git / GitHub:

- Git: Open-source version control system to deal with cloud-based platforms such as GitHub and GitLab.

- GitHub: Cloud-based platform for saving and sharing codes.

- ✓ **MySQL Workbench**: Desktop application to manage local or remote MySQL databases.

- ✓ **Postman**: Desktop application (Provides also a website and VS Code extension) to test the back-end APIs and generate documentations for their usage.

Development Tools

- ✓ **Node.js run-environment** (*Node.js, n.d.*): In order to use React and React Native libraries on the front-end side and Express.js framework on the back- end one.

- ✓ **Expo** (*Expo, n.d.*): Production-grade framework that provides helping tools and libraries for making mobile application using React Native library.

- ✓ **Tailwind CSS (Cascading Style Sheets)** (*Tailwind CSS, n.d.*): CSS framework for quickly styling websites and mobile applications.

3.1.3 Technologies

- **Cloud Services**
  - ✓ **AWS (Amazon Web Service)** (*AWS, n.d.*) **MySQL RDS (Relational Database Service)**: Creating a database on AWS Cloud will ease the process of the development between the team members rather than using a local database.

  - ✓ **AWS S3**: AWS service to store the files on the cloud, and it can be helpful in:
    - Reduce the server-side storage; Comparing with the other methods of storing the images either in a folder in the server side or as BLOB (Binary Large Object) in the database itself, using AWS S3 will be better for getting smaller storage size.

- Provide Signing URLs (The URL is changed every small time (15 min – 7 days) based on the user configuration and this will enhance the security.

✓ **Firebase** (*Firebase, n.d.*): Cloud platform that provides several services for the web and mobile applications. It's used to implement:
- Chat system between the users.
- Notification system.

External APIs Integration

✓ **Gmail API** (*Gmail API, n.d.*): To send emails for the users in Email Verification or Forget Password cases.

✓ **Google Gemini AI** (Google AI, n.d.): Large language model API used to implement:
- Intelligent chatbot with intent analysis and entity extraction.
- Dynamic SQL query generation from natural language questions.
- Context-aware responses about projects, booths, companies, and expo information.

Main Local Services:

- ✓ **Expo Image Picker:** Native module for selecting images/videos from device gallery or camera for profiles, projects, and reels.

- ✓ **Multer & Multer-S3:** Middleware for handling multipart/form-data file uploads directly to AWS S3.

- ✓ **React Native SVG:** Library for rendering interactive SVG-based booth maps with zoom and pan gestures.

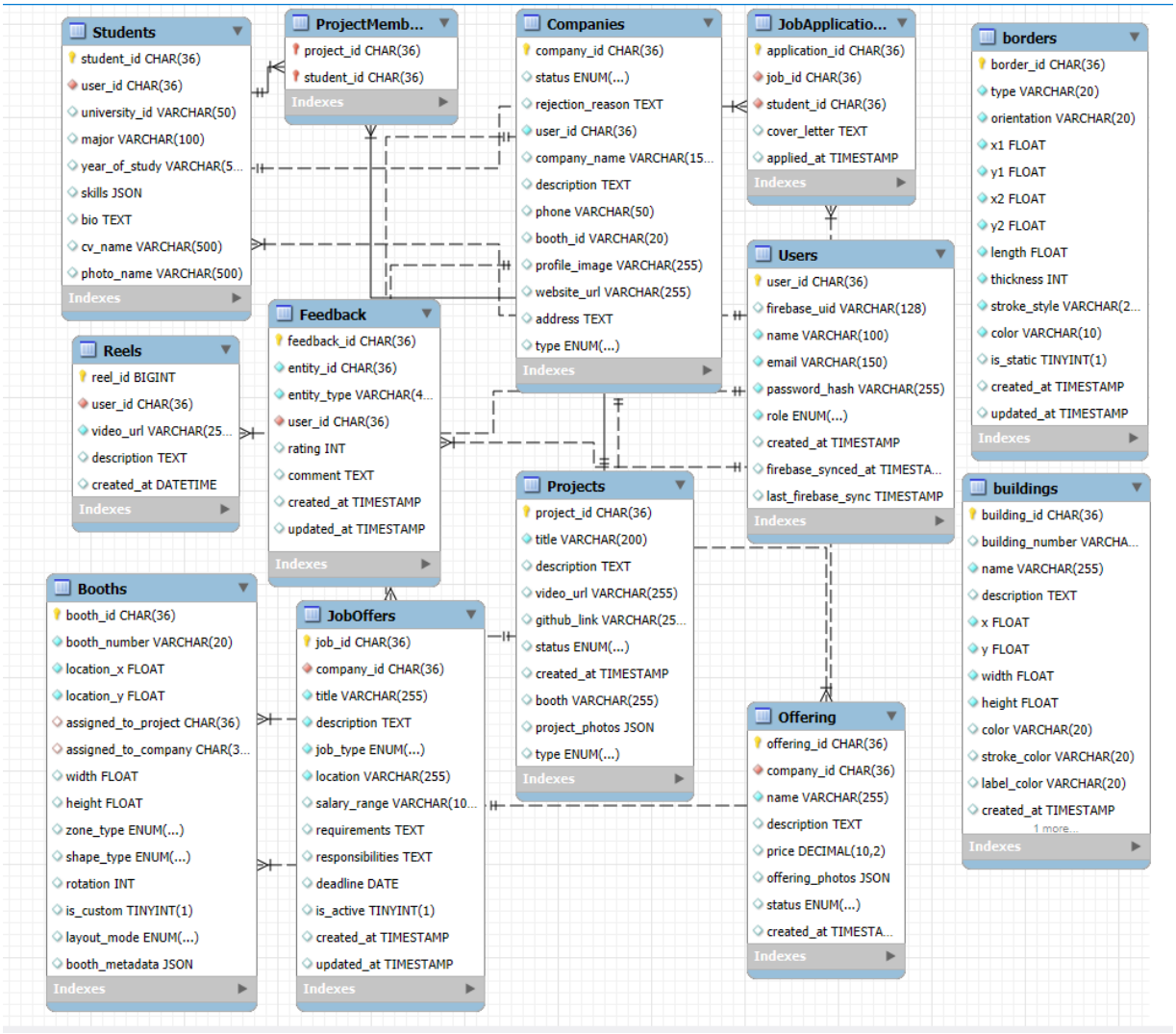
- ✓ **Nodemailer:** Email service for sending verification codes and password reset links via SMTP (Simple Mail Transfer Protocol).

- ✓ **React Native Gesture Handler:** Touch gesture system for interactive map manipulation.

3.2 Database Design

After analyzing the application requirements, a relational database approach was selected due to the clear entity relationships and the need for data integrity, referential constraints, and complex queries involving multiple joins.

Diagram:



Database UML

3.3 Project Architecture

A headless approach was used in this project, by providing signal back-end application that runs on a server and serve multiple front-end ones (Mobile application and Website).

3.3.1 Back-End Architecture

The back-end is followed the REST guidelines and structured using a variation of MVC (Model View Controller) architecture which divides the back-end code into:

- **Models**: Database interaction layer performing CRUD (Create-Read-Update-Delete) operations using MySQL2 with parameterized queries to prevent SQL injection.

- **Controller**: Business logic layer that validates requests, processes data, integrates third-party services, and coordinates between models and routes.

- **Routers**: API endpoint definitions mapping HTTP methods (GET, POST, PUT, DELETE) to controller methods.

- **Other folders and sub-packages** such as Enums, Errors, Middleware, Services, Helpers, etc.

3.3.2 Front-End Organization

Both mobile and web front-ends follow component-based architecture:

- **APIs**: To separate the APIs calls from the views.
- **Components**: To be created once and used many times.
- **Screens** (Mobile) / **Pages** (Website)
- **Other folders and sub-packages** such as: Enums, Services, Utilities, etc.

3.3.3 Authentication and Authorization Mechanism between Client-Server

The authentication and authorization will be done using JWT (JSON Web Token) because of its security and compact size comparing with the Sessions.

3.3.4 Chatbot AI Integration Architecture

The chatbot service uses a multi-layered approach:

Intent Analysis: Gemini AI analyzes user questions to determine intent and extract entities.
Query Classification: Determines if the question requires database access or can be answered from static data (FAQs, expo information).
Dynamic Query Generation: For database queries, constructs SQL statements based on extracted entities and user intent.
Response Generation: Formats database results or static data into natural language responses.

3.4 AI-Powered Chatbot Features

The intelligent chatbot leverages Google Gemini AI for:

• **Intent Recognition:** Classifies user questions into categories (general, projects, companies, booths, jobs, feedback).
• **Entity Extraction:** Identifies key entities from questions (project names, company names, booth numbers, zones).
• **Natural Language to SQL:** Converts natural language questions into SQL queries using a QueryBuilder utility with schema awareness.
• **Context-Aware Responses:** Generates human-like responses based on retrieved data, maintaining conversation context.
• **Out-of-Scope Detection:** Identifies and politely declines questions unrelated to the expo platform.

3.5 Standards and Constraints

3.5.1 Standards

- RESTful APIs standards -RESTful itself isn't a standard-:
  - ✓ HTTPS (Hyper-Text Transfer Protocol Secure) [RFC 2818].
  - ✓ URI (Uniform Resource Identifier) [RFC 3986].
  - ✓ JSON [RFC 8259].
  - ✓ JWT [RFC 7519]: For authentication and authorization as it described in 3.3.3.
- SQL (Structured Query Language) [ISO/IEC 9075].
- Gmail API [RFC 8621]: Used to send emails to the users as it described in 3.1.3.
- CSS [W3C Standard].

3.5.2 Constraints

Resources Constraints

- ✓ AWS S3 storage limits: File size restrictions (10MB for images, 50MB for videos, 5MB for documents).

- ✓ Gemini AI API rate limits: Free tier provides limited requests per minute, requiring request throttling and caching strategies.

- ✓ Database connection pool size: Limited concurrent connections (10 connections) requiring proper connection management.

Quality Constraints

- ✓ **Chatbot accuracy**: AI-generated responses may occasionally misinterpret complex or ambiguous questions, requiring FAQ fallbacks.

- ✓ **Mobile performance:** SVG-based interactive map with 156 booths requires optimization (canvas size 2800×1400px) for smooth pan/zoom gestures on lower-end devices.

- ✓ **Security Constraints:** Password strength: Minimum 8 characters enforced but no complexity.

4 Results

In this software, we included features essential for modern university expo management systems, as discussed in the literature review, by understanding challenges faced by students, companies, and expo organizers.

The platform includes several primary functionalities. First, project exhibition and management allows students to create profiles, submit engineering or science projects with multimedia content, and collaborate in teams. Projects undergo administrator review and approval before becoming eligible for booth assignments, creating a curated exhibition experience.

Second, the interactive booth mapping system provides a fully interactive SVG-based map with 156 booths across multiple zones (Engineering, Science, Sponsor, Service, Standard). Users can pan, zoom, and tap booths to view details. Administrators can assign booths to projects and companies, with visual feedback showing assignments through color coding. A "My Booth" feature helps users quickly locate their assigned space.

Third, the recruitment and job management system enables companies to post job opportunities with detailed descriptions, requirements, and deadlines. Students can browse positions, filter by type and location, and submit applications with cover letters. The system tracks application statuses and provides dedicated screens for companies to manage applications and students to monitor submissions.

Fourth, the AI-powered chatbot leverages Google Gemini AI to provide intelligent assistance. It performs intent analysis and entity extraction, generates dynamic SQL queries for database questions, and provides context-aware responses about projects, booths, companies, and job opportunities while declining out-of-scope questions.

Fifth, social engagement features include a reels system for short-form video content, a feedback system for rating and commenting on projects and companies, real-time chat functionality, and push notifications via Firebase for updates about approvals, applications, and announcements.

Additionally, the platform provides role-based dashboards tailored to each user type with appropriate management tools, analytics, and navigation features.

Shortly, the platform comprises integrated features that improve upon existing expo management solutions by combining project exhibition, interactive mapping, recruitment tools, AI assistance, and social engagement in a unified ecosystem designed to enhance the experience for all stakeholders throughout the expo lifecycle.

5 Discussion

5.1 Mobile Application

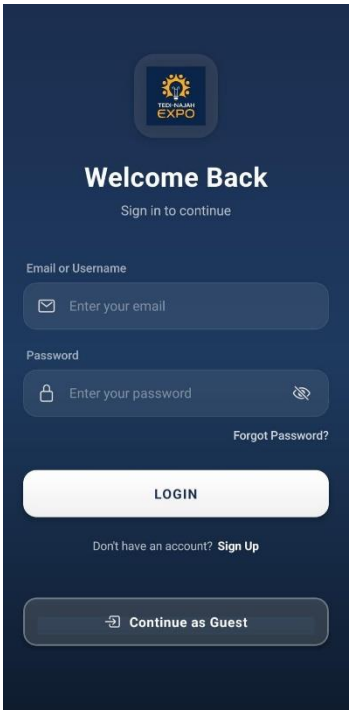
The mobile application provides a comprehensive expo management experience with intuitive navigation and role-specific interfaces. The system supports four user types: Students, Companies, Visitors, and Administrators, each with tailored functionalities while sharing common features for consistency and efficiency. In addition, the application provides a Guest Mode that allows users to browse basic expo features without registration.

5.2 Authentication & Access Flow

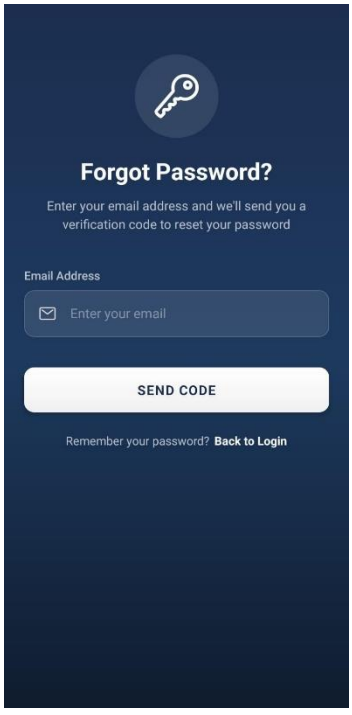
Login Screen

It contains the following:

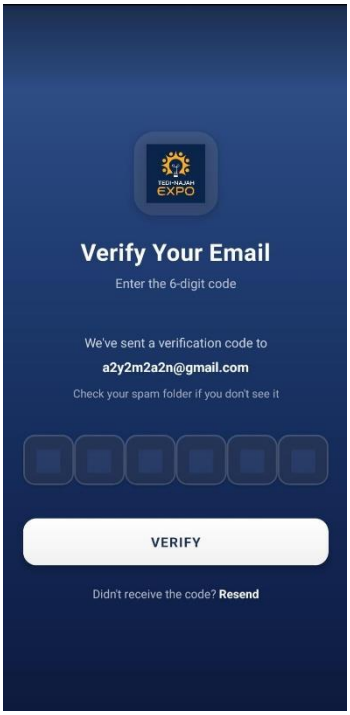
- Email and password credentials.
- Forgot password option that sends verification codes via email.
- Navigation to sign-up for new users.
- Clean gradient background matching the platform's branding.
- Guest Mode: Guest users can explore expo content without creating an account.



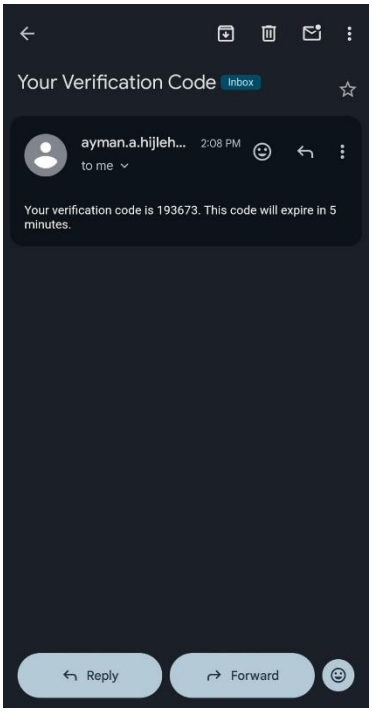
Login Screen



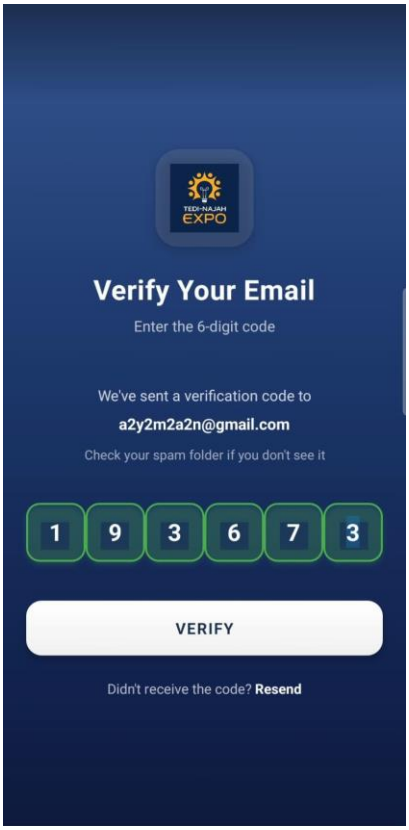
Forgot password -1



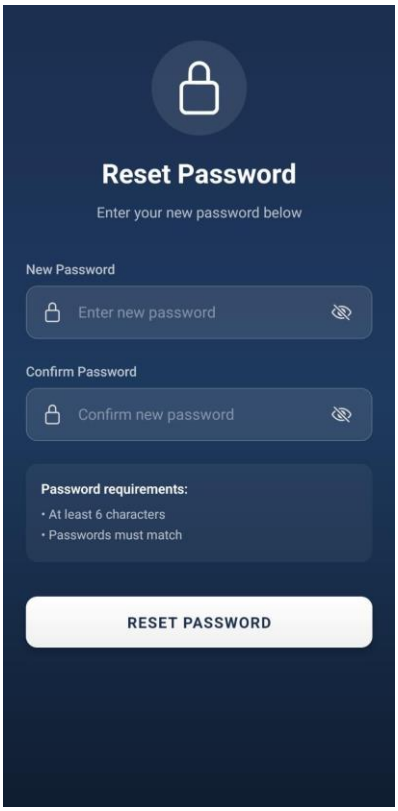
Forgot password -2



Forgot password -3



Forgot password -4

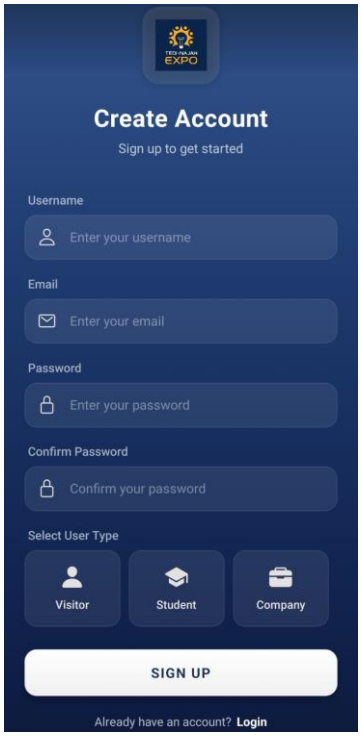


Forgot password -5

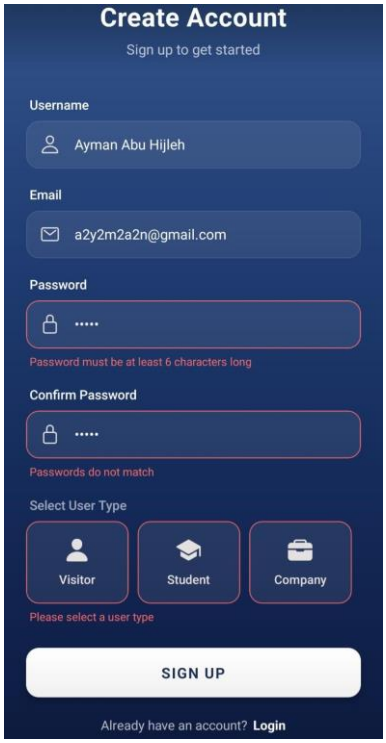
Sign up

The registration process is divided into intuitive steps:

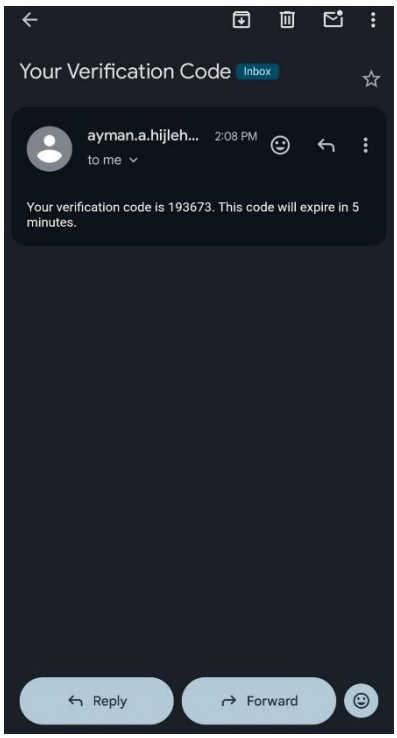
- **First Screen:** Account creation with email, password, username and select user type. Password strength validation ensures secure credentials with real-time feedback.
- **Second Screen:** Email verification where users enter a code sent to their registered email address.



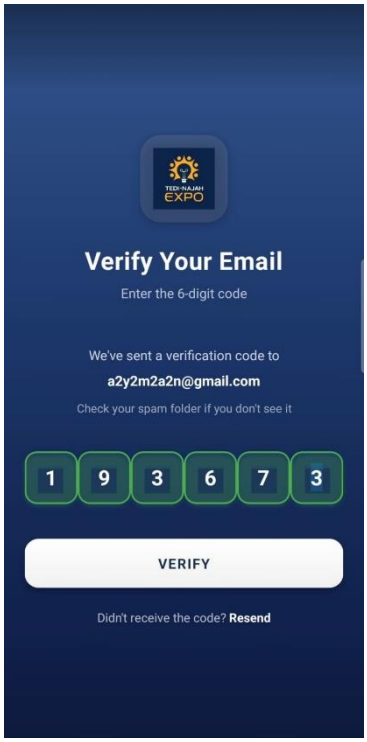
Sign Up - Screen



Password & Type Validations



Email Verification-1

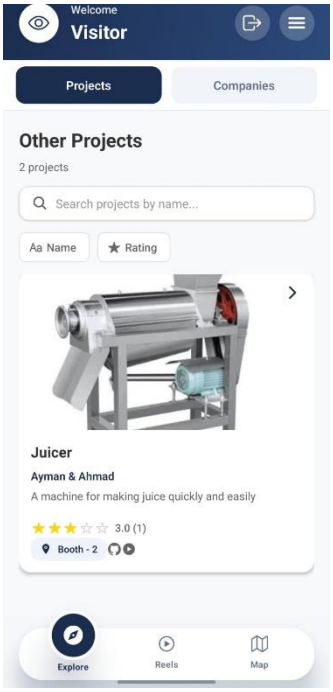


Email Verification-2

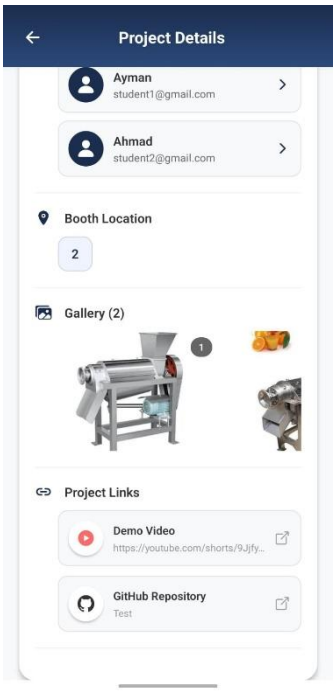
Guest Mode

Guest users can explore expo content without creating an account:

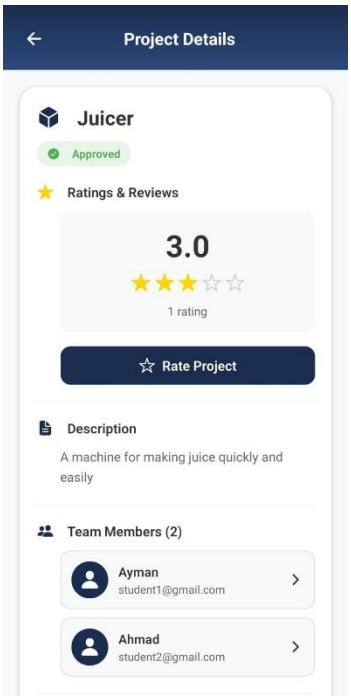
- Browse all approved projects and view details
- Explore participating companies and their offerings
- Navigate the interactive map (read-only)
- View reels: Through Rails, you can go directly to the project location on the map and view project information by clicking on View Booth
- Use of the chatbot
- Limitations: Cannot provide feedback, apply for jobs, use chat, or access personalized features



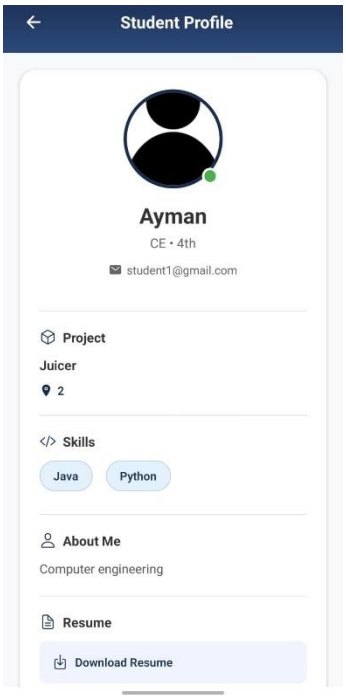
Explore Projects



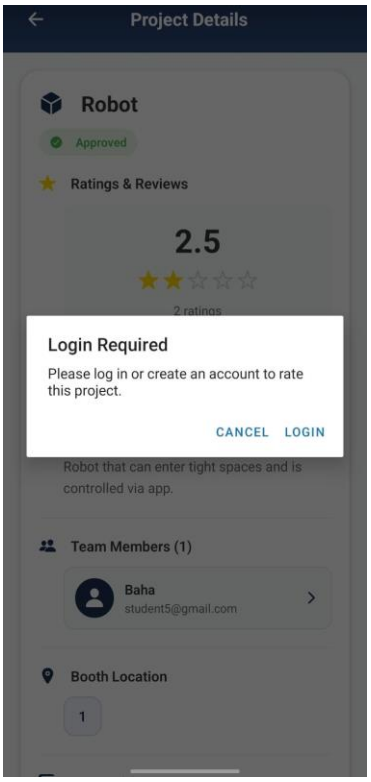
Project Details -1



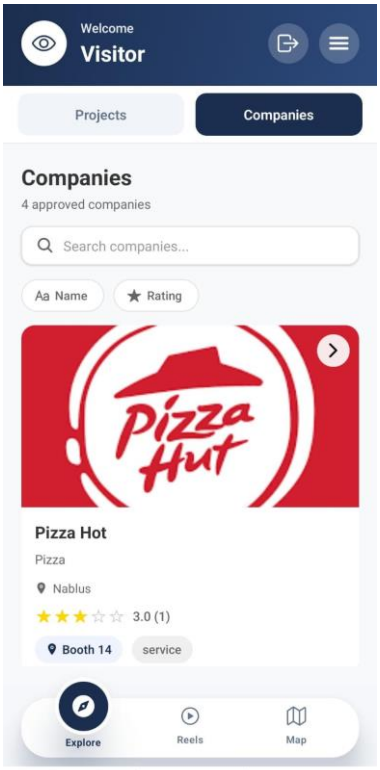
Project Details-2



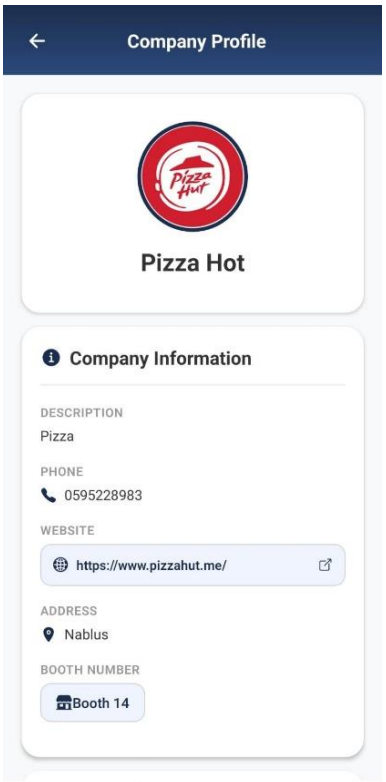
Profile of one of the project members



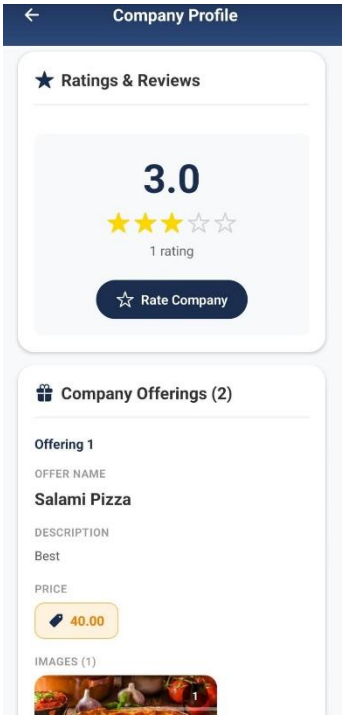
Attempt to voting on project in guest mode



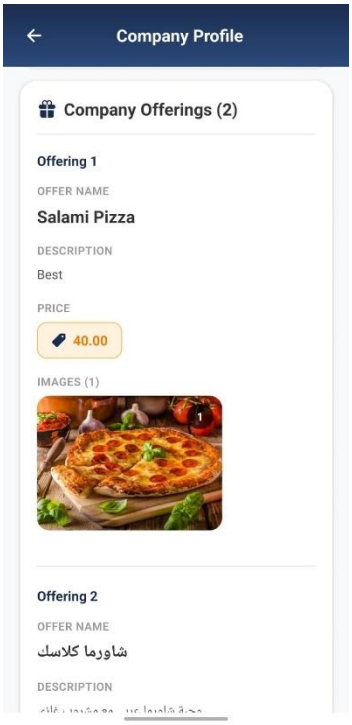
Explore Companies



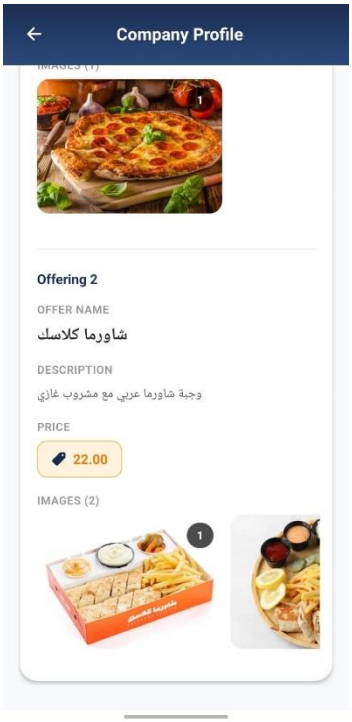
(informations)



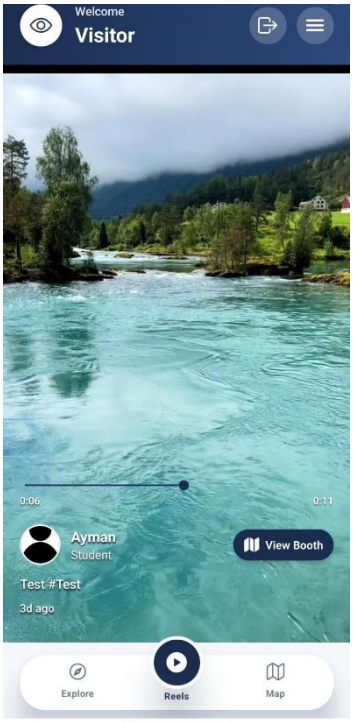
Company Details-2 (Rating of company)



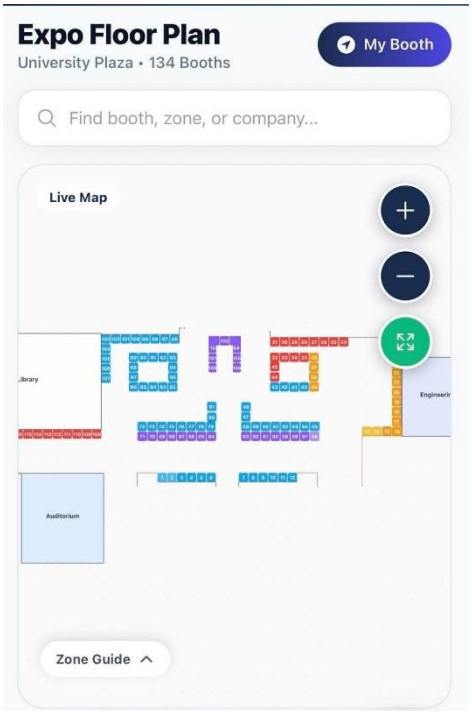
Company Details-3 (Company offerings)



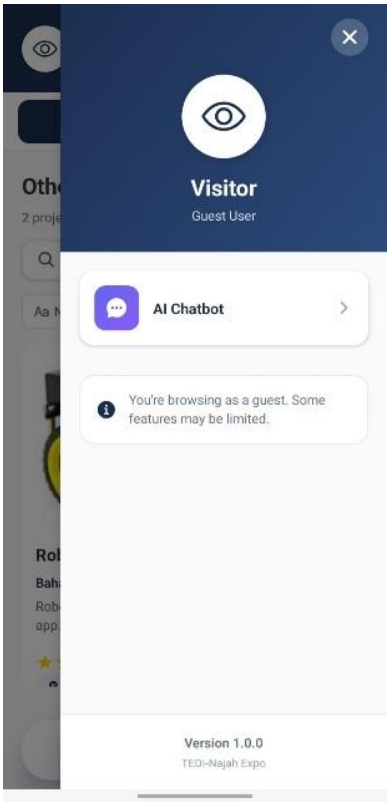
Company Details-4 (Company offerings)



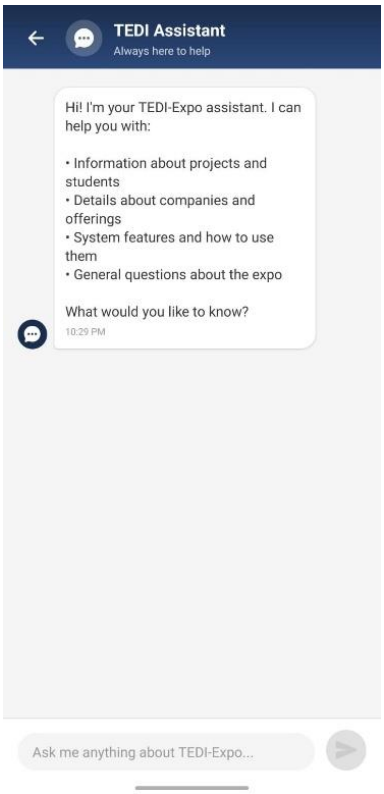
Reels



Map



Menu



Chatbot-AI

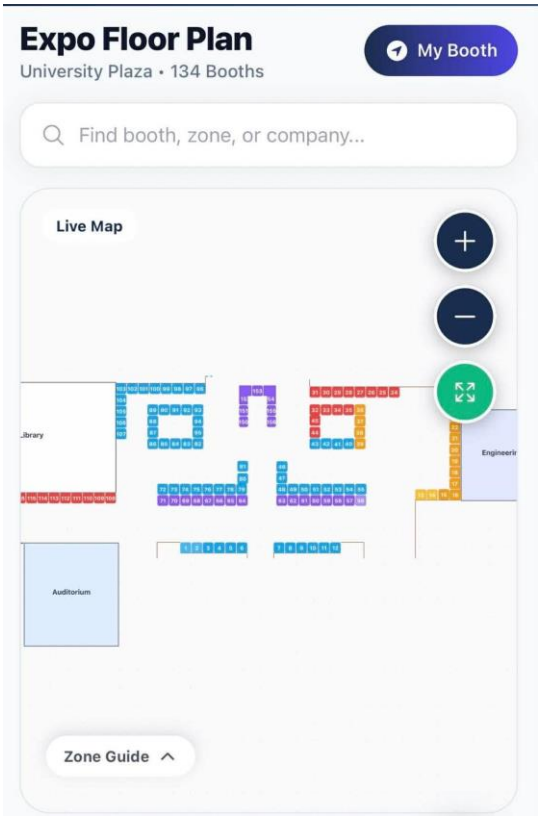
5.3 Shared Features Across All User Roles

The following features are accessible to multiple user types with consistent UI and behavior. They will be described once here to avoid repetition.

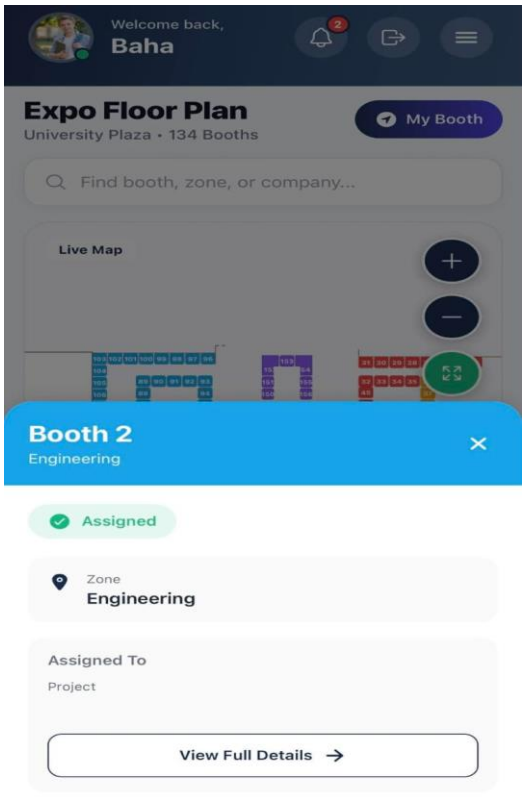
Interactive Map:

A comprehensive navigation tool for the expo floor plan:

- **Booths:** Organized across four specialized zones
  Engineering Zone (Blue): For approved engineering projects
  Science Zone (Red): For approved science projects
  Sponsor Zone (Purple): For sponsoring companies
  Service Zone (Orange): For service-providing companies
- **Interactive Controls**: Pan, zoom, and tap gestures for navigation
- **Booth Details Modal:** Tap any booth to view project or company details



Map



Press on any booth to show detils

Browse Projects:

View all approved student projects:

Project Cards: Display thumbnail, title, student names, and average rating

Filter Options:

Search by project title

Sort by rating or by Name

Project Details View: Tap any card to see:

Full project description

Image gallery with swipeable carousel

Demo link

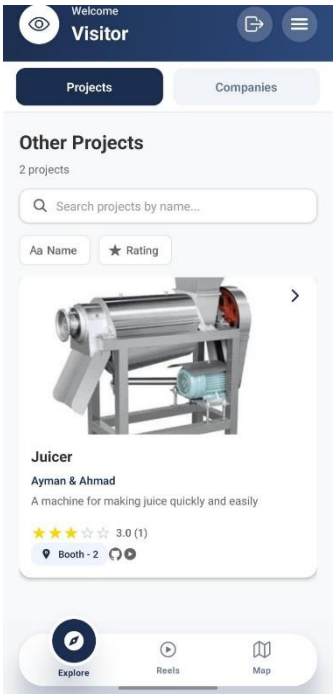
GitHub repository link

Team members

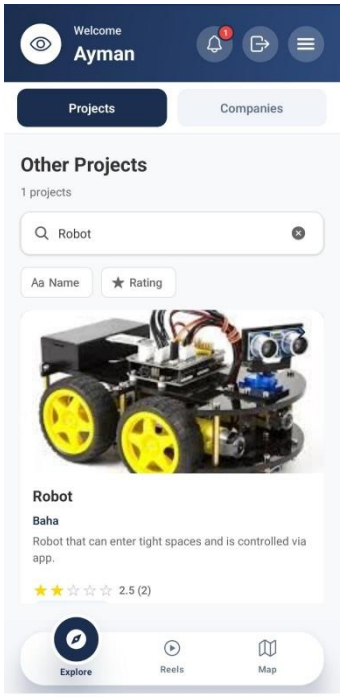
Assigned booth location

Average rating and feedback count

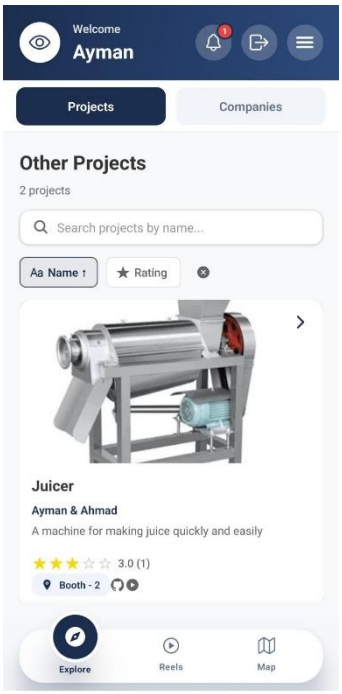
Feedback Section (Authenticated users only): Rate (1-5 stars) and leave comments



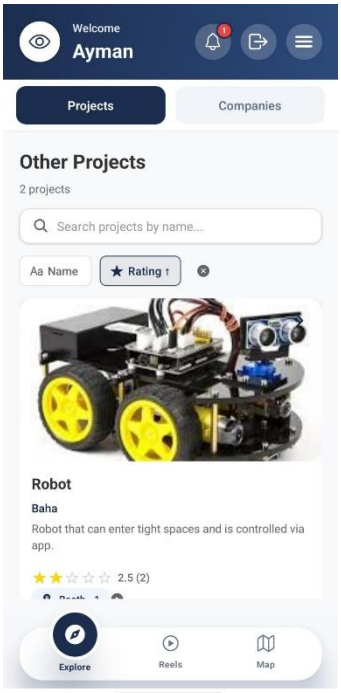
Explore Projects



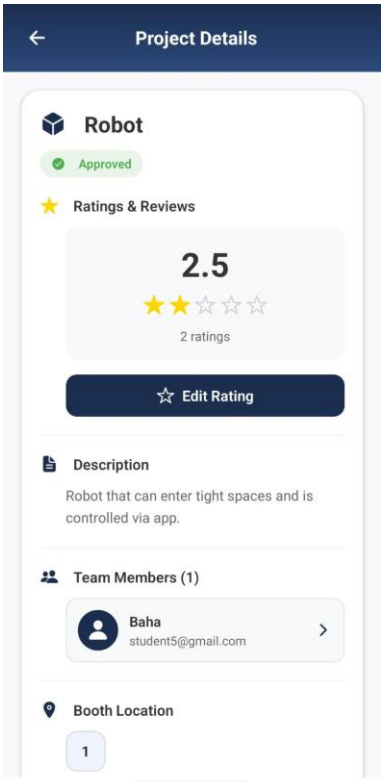
Filter projects by search



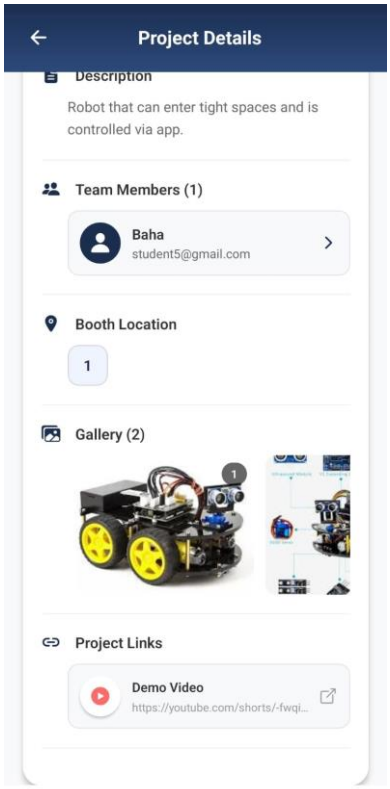
Sorting projects by Name



Sorting projects by Rating



Project Details-1



Projects Details-2

Browse Companies:

Explore participating Companies:

Company Cards: Logo, name, description, Location, Rating of company

Filter Options:

Search by name of company

Sort by rating or by Name

Company Details View: Tap any card to see:

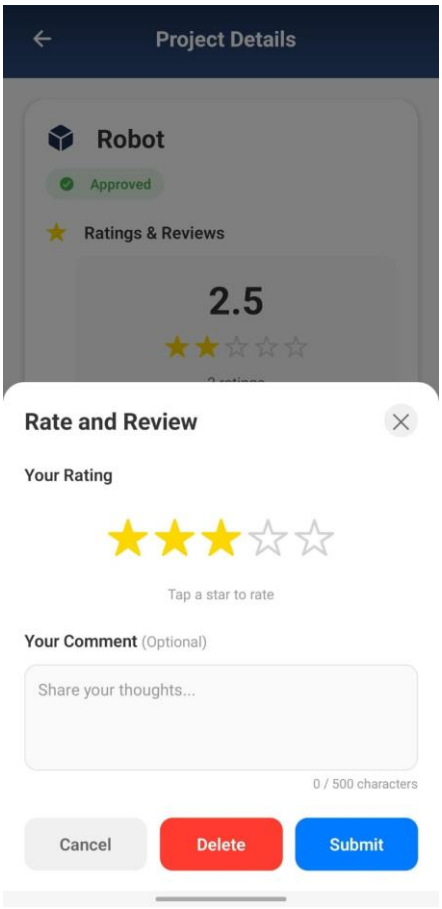
Company information

Assigned booth location

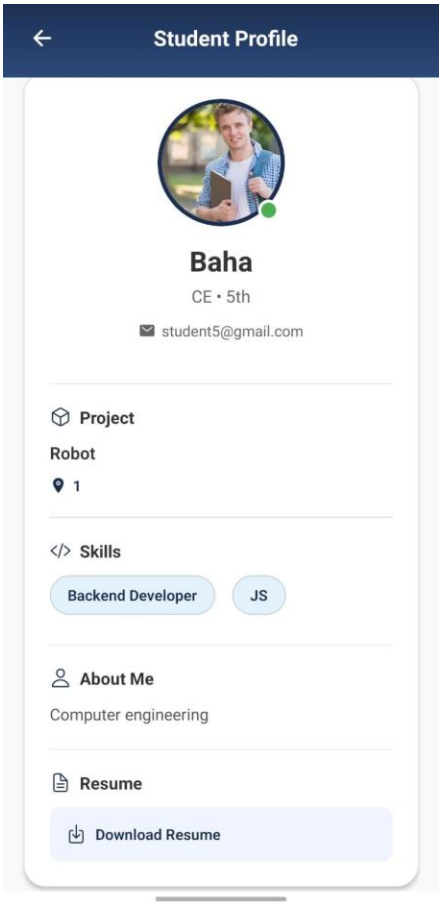
Service offerings with descriptions

Average rating and feedback count

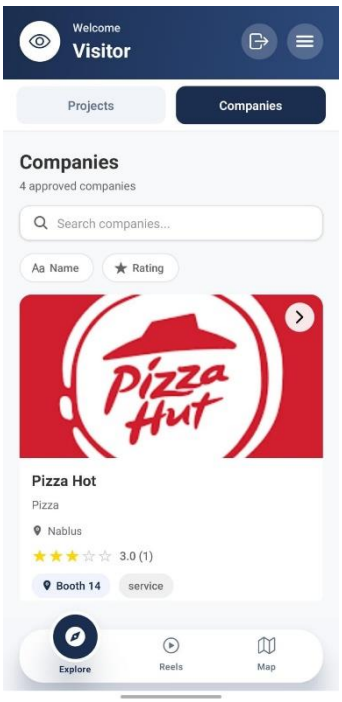
Feedback Section (Authenticated users only): Rate and comment.



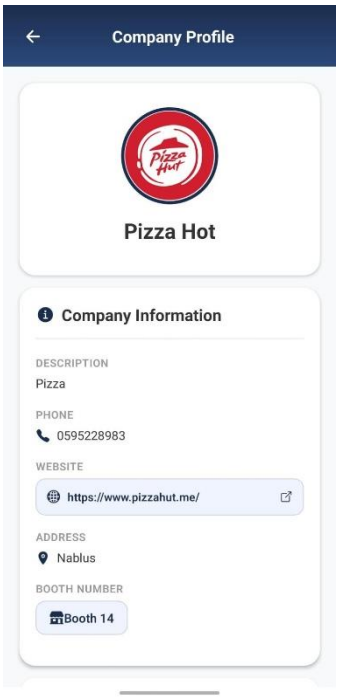
Rating project



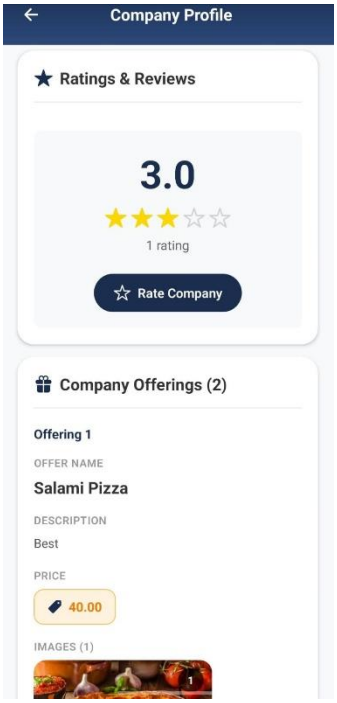
Profile of members of project



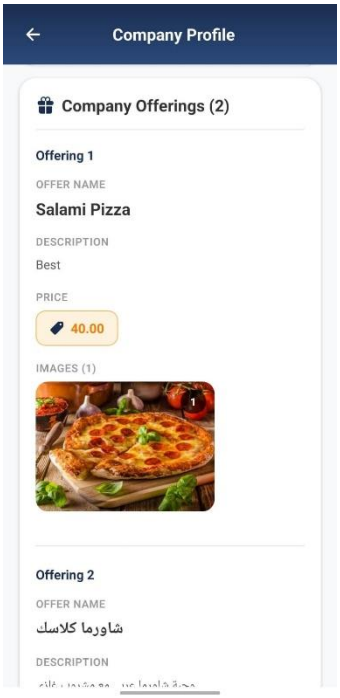
Explore projects



Company profile



Company Rate



Company offerings

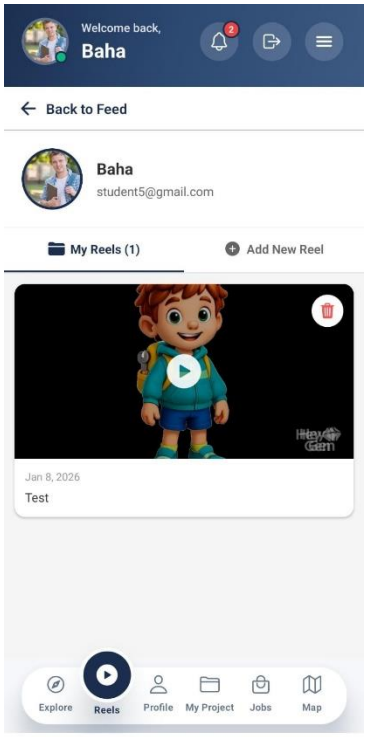
Reels Feature:
Social engagement through short-form video content:

Feed View: Vertical scroll through reels posted by students and companies.
Reel Cards: Display video , title, author name avatar, view booth and (upload reel).

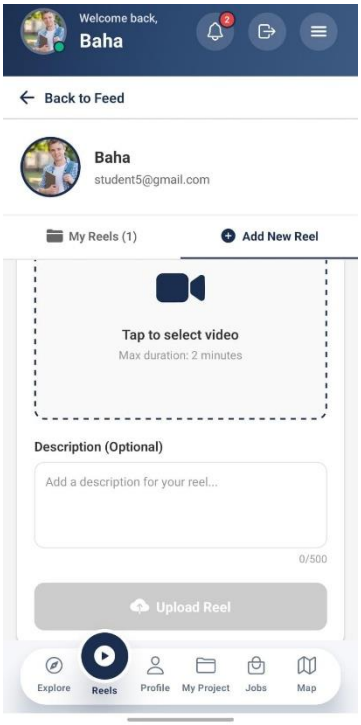
Upload Reel (students and companies only):
select video from gallery
Add description
Upload with progress indicator
My Reels Tab (students and companies only): View and manage posted reels.

Reels from visitor role

Reels from student role



Manage My Reels

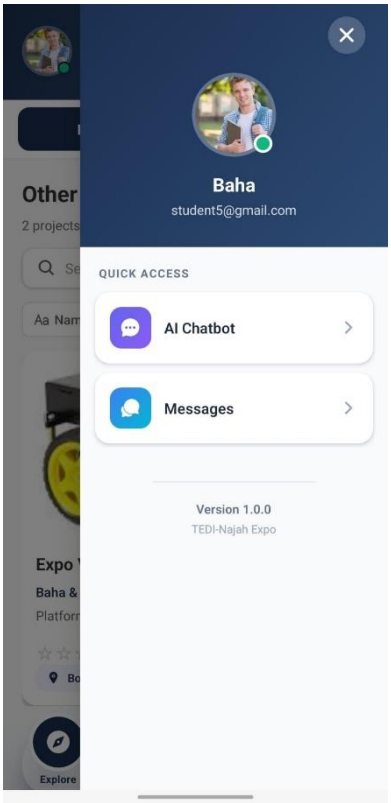


Upload Reels

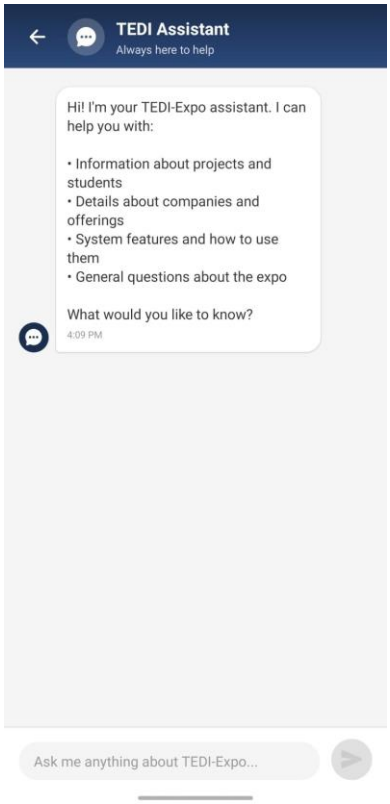
Chatbot Assistant:

AI-powered help system using Google Gemini:

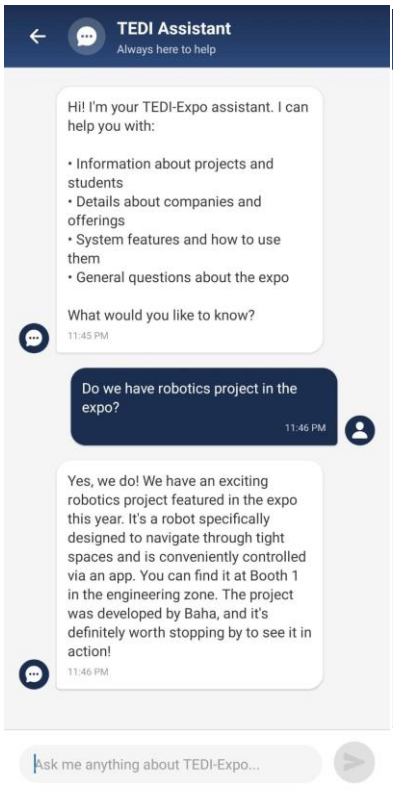
Natural Language Interface: Ask questions in English or Arabic
Intent Recognition: AI analyzes queries and determines appropriate responses
Supported Query Types:
General expo information
Project inquiries
Company inquiries
Dynamic Responses: Fetches real-time data from database
Conversation History: Scrollable chat interface
Quick Suggestions: Common question prompts for easy access



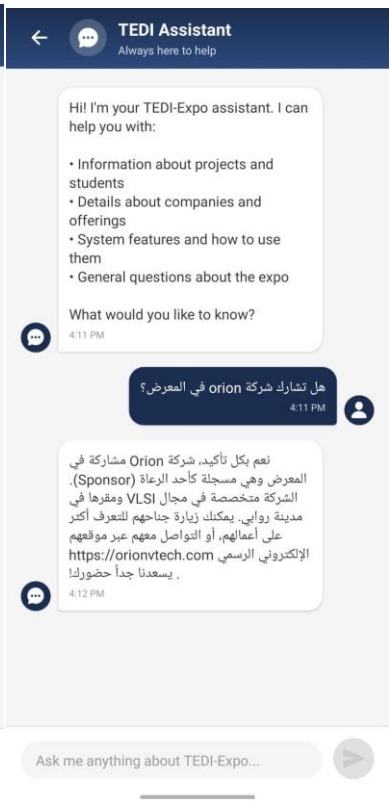
Chatbot Access Menu



Chatbot screen-1



Chatbot screen-2



Chatbot screen-3

Real-Time Chat:

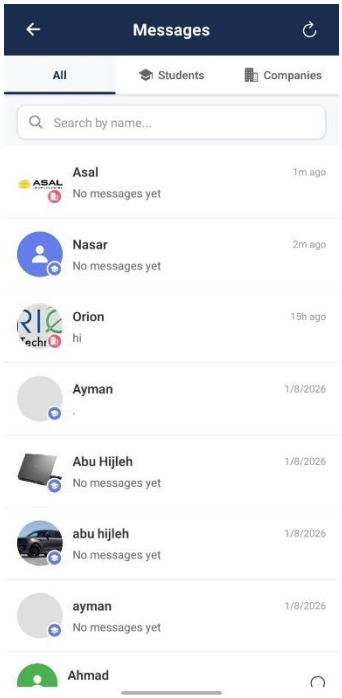
Direct messaging between students and companies:

Chat List:

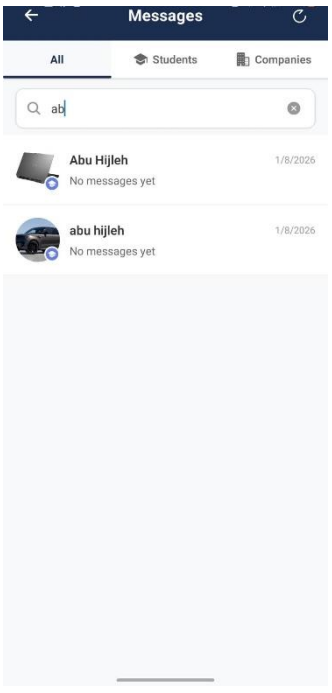
filter according to type
Search for users by name
View all conversations with:
Contact avatar and name
Recent message preview
Timestamp

Conversation Screen:

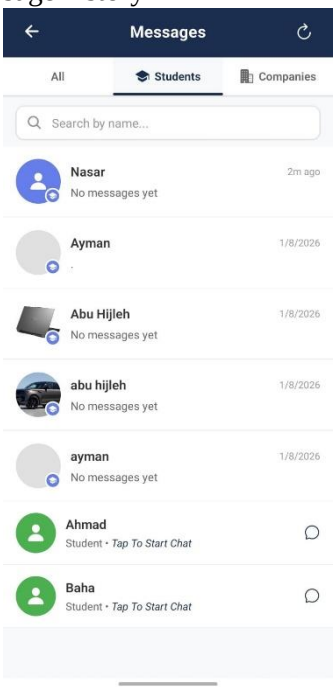
Message bubbles (sent messages on right, received on left)
Real-time message delivery using Firebase
Text input with send button
Voice messages recording and playback
Image sharing and preview
File attachment and download support
Scroll to view message history



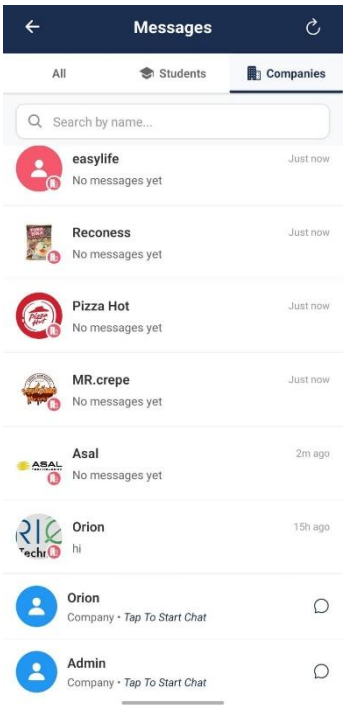
Chat List



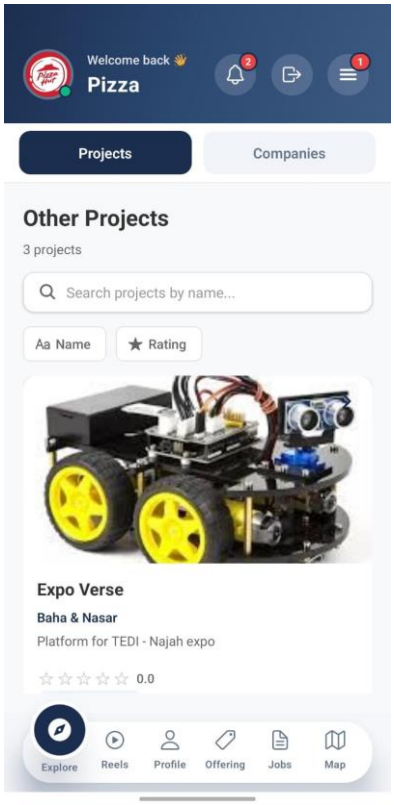
Searching by name



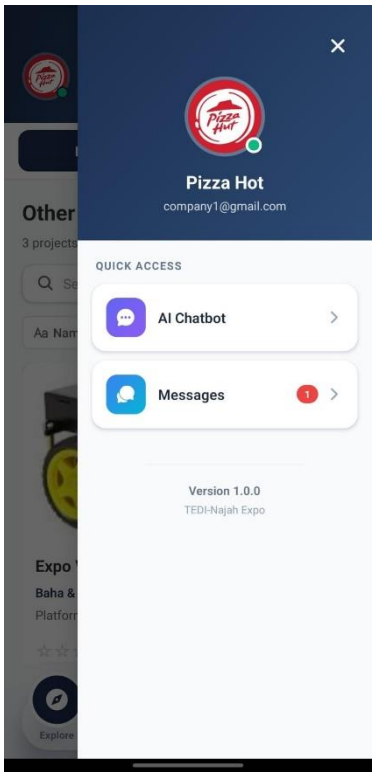
Filtering by type -1



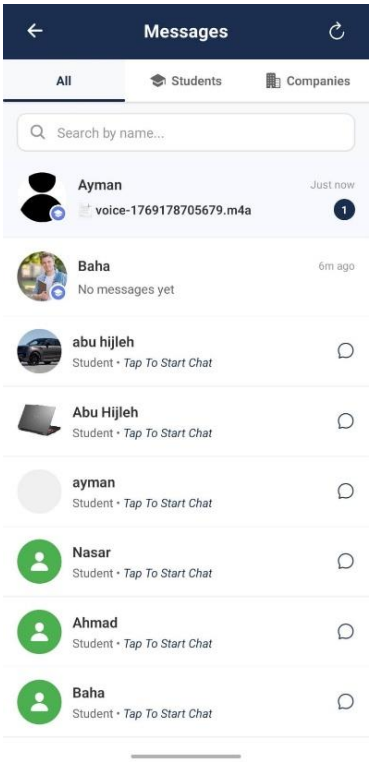
Filtering by type -2



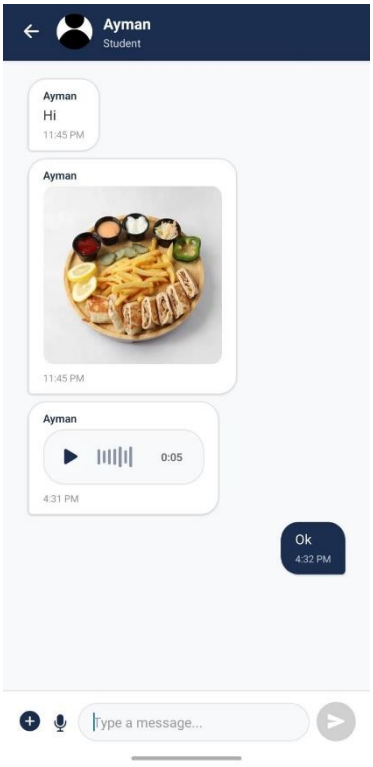
Message notifications-1



Message notifications-2



Message notifications-3



Conversation Screen

Notifications Center:

Stay updated with push notifications via Firebase Cloud Messaging:

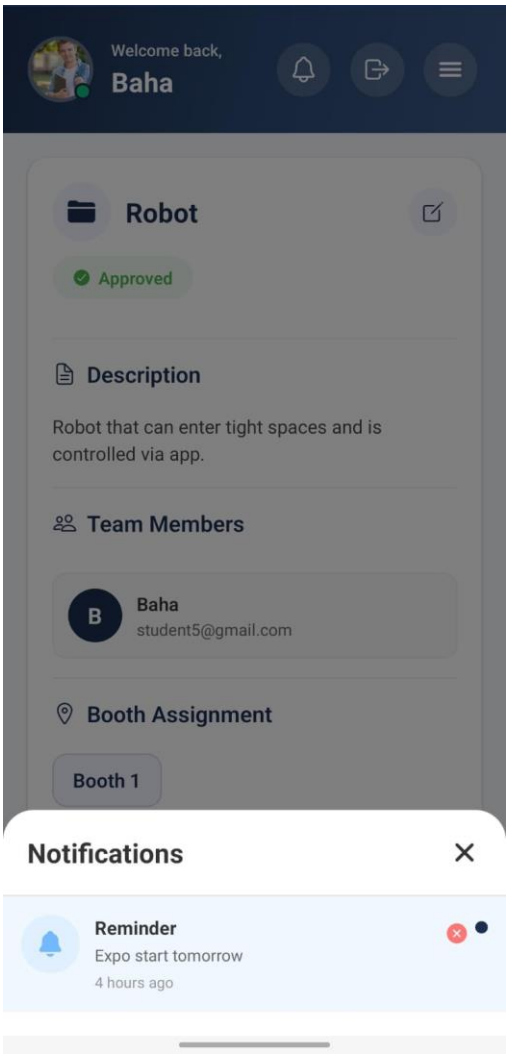
Notification Types:

Project approval/rejection (Students)
Company approval/rejection (Companies)
Booth assignments (Students/Companies)
Admin announcements (All users)

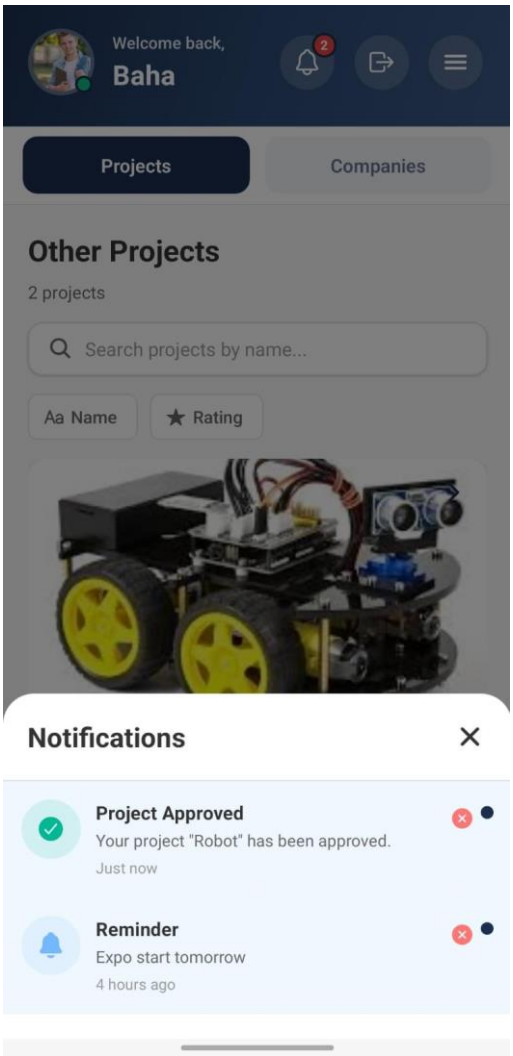
Notification Screen: List of all notifications with:

Icon indicating notification type
Title and message body
Timestamp
Tap to navigate to relevant screen

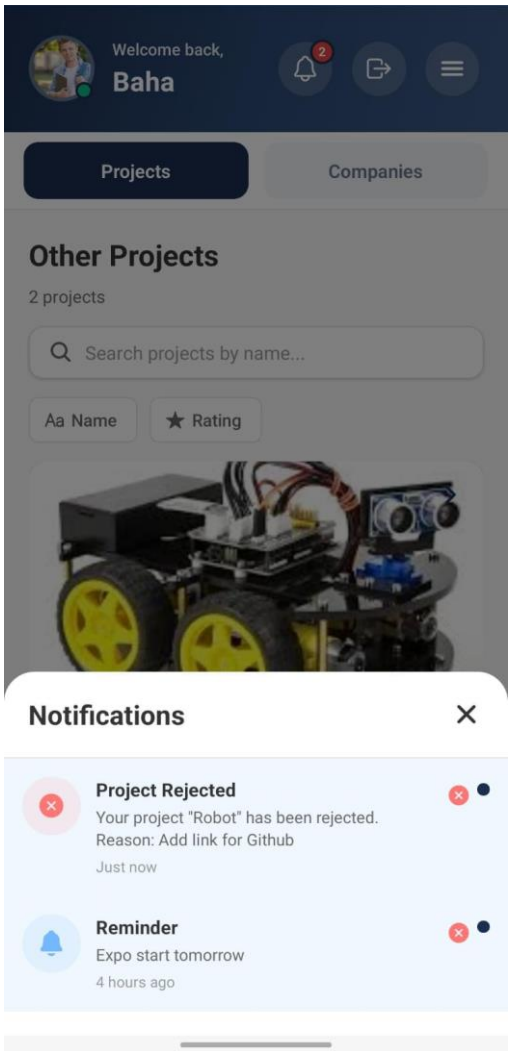
Unread Badge: Counter on navigation icon



Notice to all users



Upon approval of the project



When the project was rejected

5.4 Student-Specific Features

Students have access to all shared features plus specialized tools for project management, job applications, and profile customization.

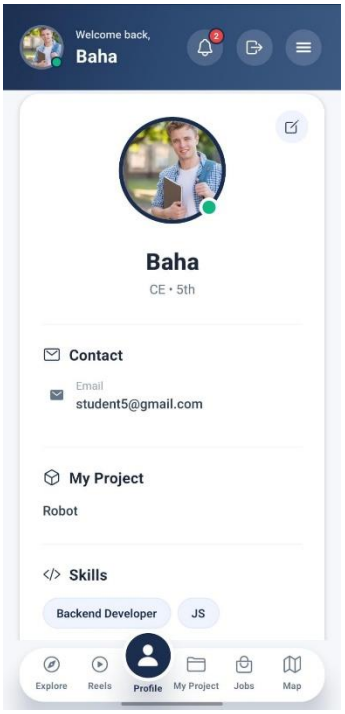
The Bottom navigation bar provides quick switching between main sections:

"**Explore**"-Explore participating companies and browse other projects
"**Reels**" - Social content
"**Profile**"- information of the student
"**My Project**" - Manage project submission
"**Jobs**" - View and apply for opportunities
"**Map**" - Locate booth assignments
"**Chat**" - Direct messaging
"Chatbot" - AI assistance

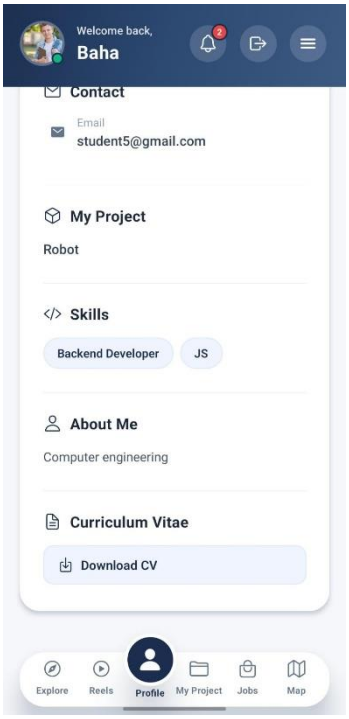
Profile:

Profile summary card:

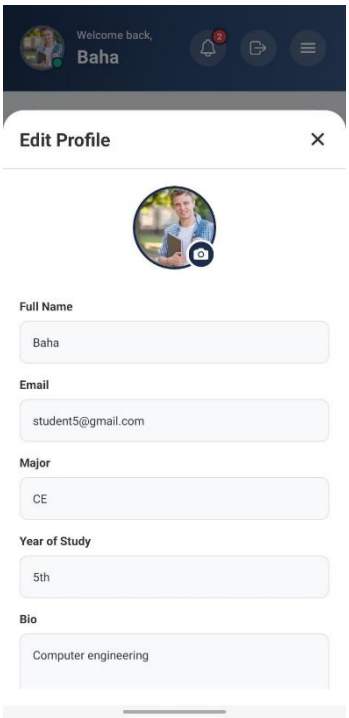
- Photo, name, major, year, CV, skills, and description
- Ability to edit and update profile information



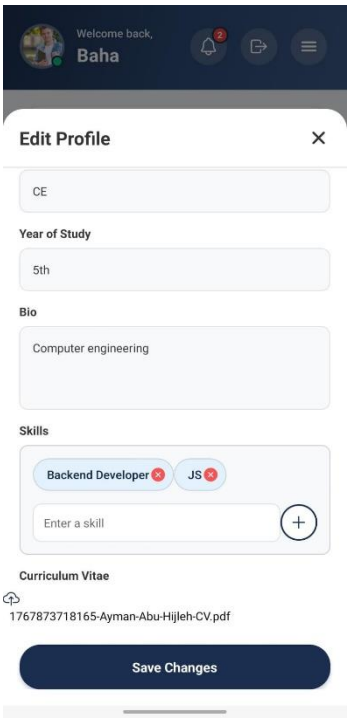
Profile -1



Profile -2



Edit Profile -1



Edit Profile -2

My Project Management

Students can submit and manage one project:

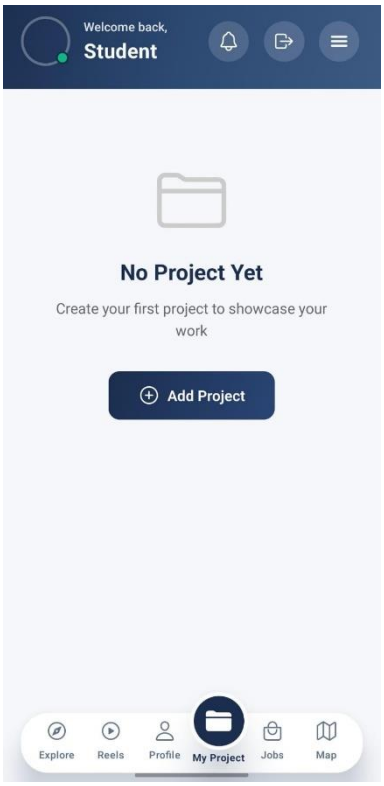
Create New Project:

Basic Information:
Project type selection (engineering/science)
Project title (required)
Description (required)
Team Members(optional)
Multimedia Content:
Upload multiple images
Add Demo URL
Add GitHub repository link

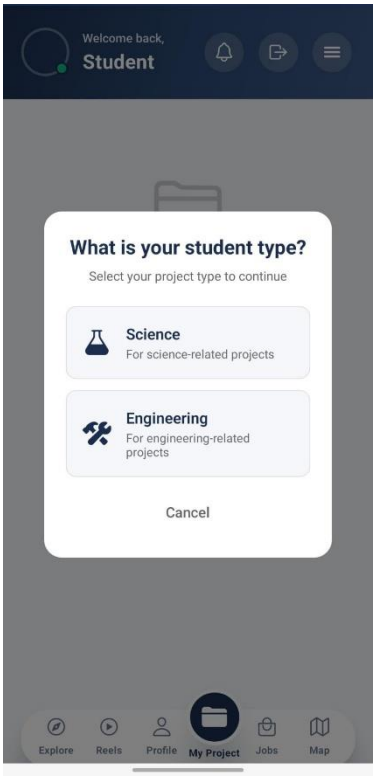
Submission: Submit for admin review

Project Status Tracking:

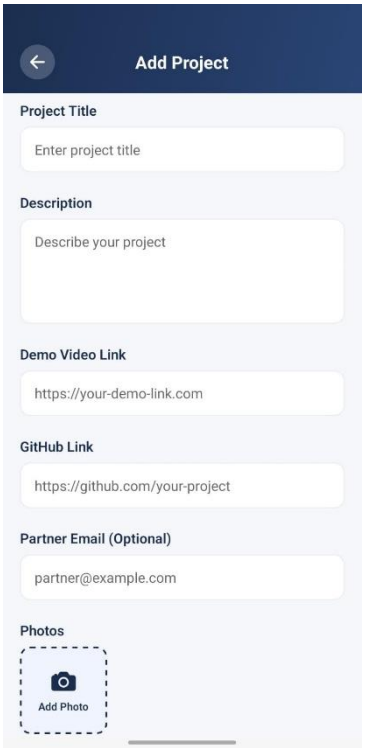
Pending: Yellow indicator, awaiting admin review
Approved: Green indicator, eligible for booth assignment, booth location displayed if assigned
Rejected: Red indicator, admin feedback displayed with rejection reason



My Project



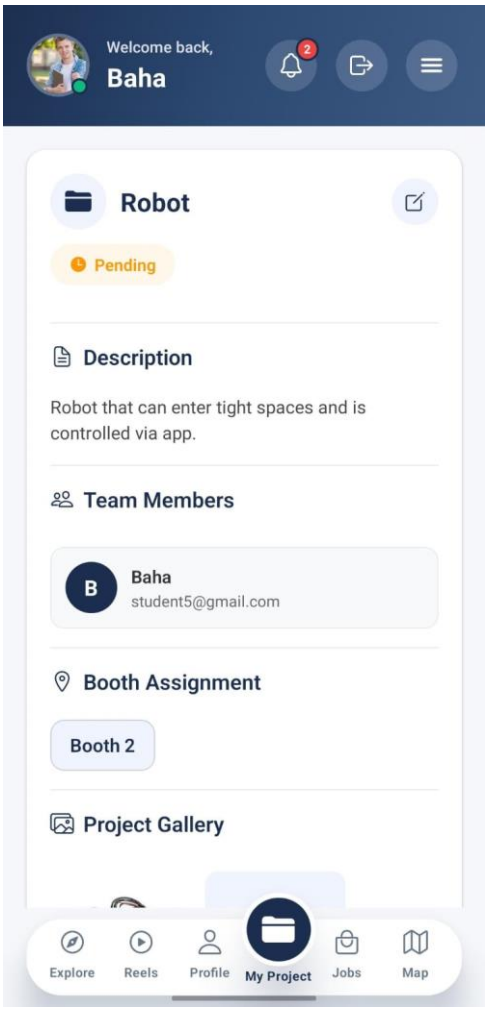
Student Type



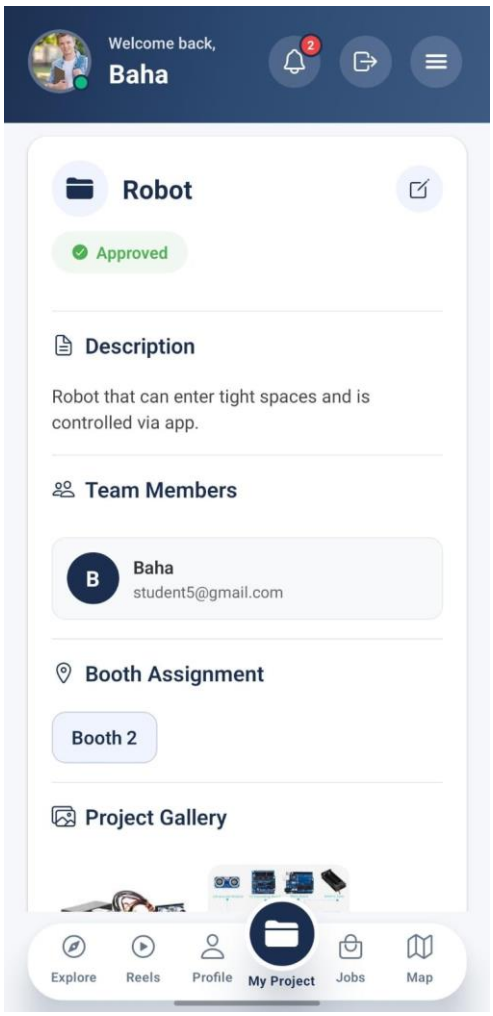
Form to add project

Edit Project:

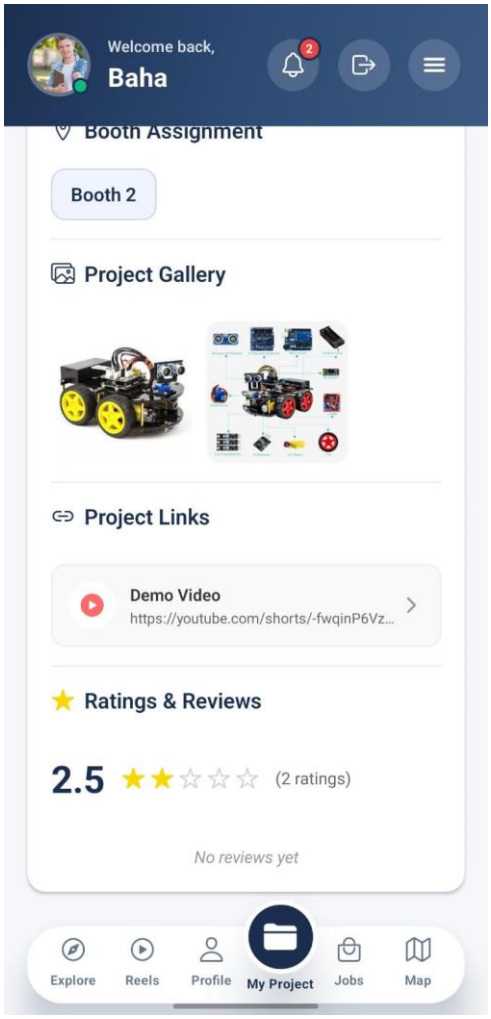
Modify any project information
Add/remove images
Update team members
Re-submit for review if previously rejected
Any modification after admin approval will change the project status back to "Pending" and require re-approval by the admin



Project before admin approval



Project after admin approval-1



Project after admin approval-2

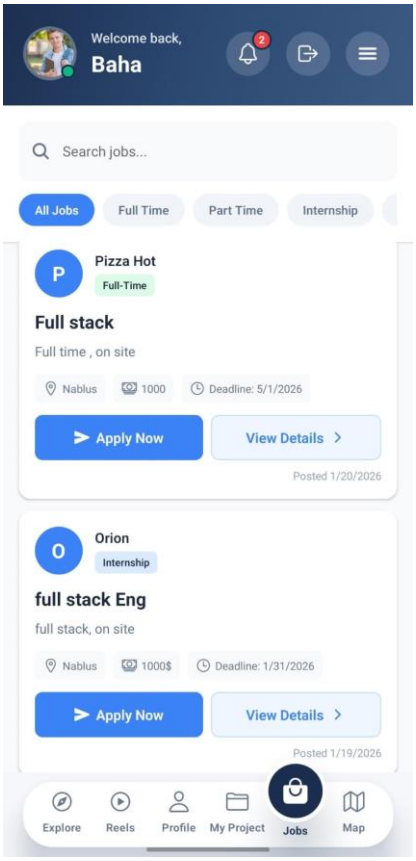
Job Search & Applications

Browse and apply for job opportunities:

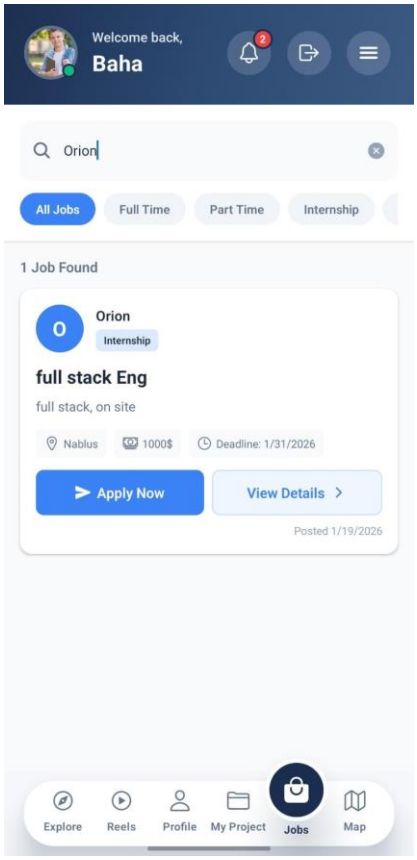
Jobs Screen:

Job Cards: Display company logo, job title, company name, job type badge, location, salary range and deadline

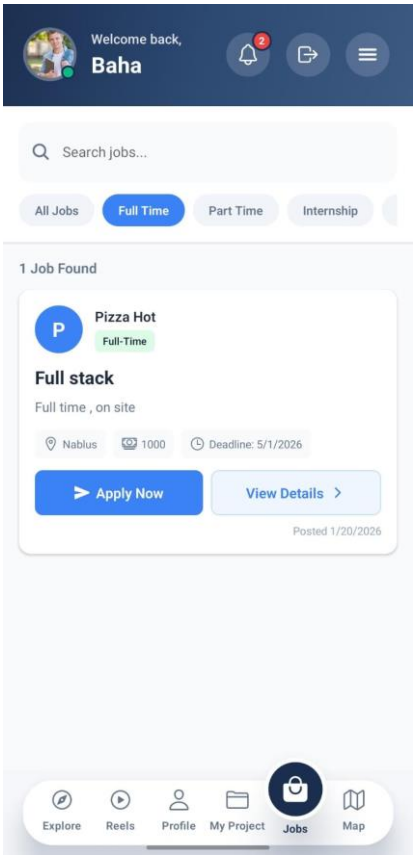
Filter Options:
Search by job title or company name
Filter by job type (full-time, part-time, internship, contract)



All jobs



Job search



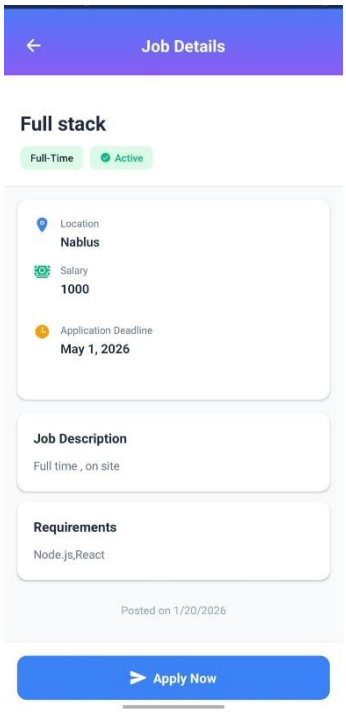
Job filtering

Job Details:

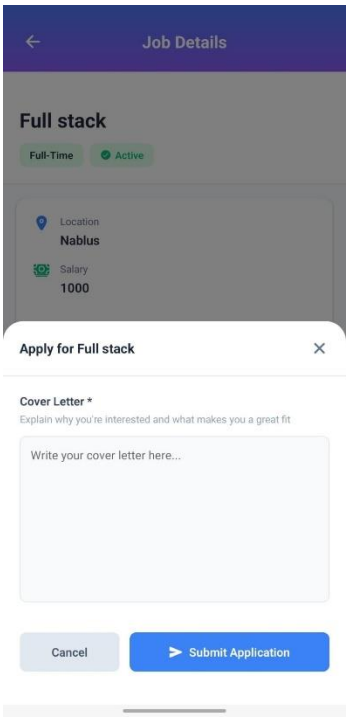
Comprehensive information:
Job title and company name
Job type and location
Salary range
Application deadline
Full job description
Requirements and qualifications
Apply Button: Opens application form

Application Process:

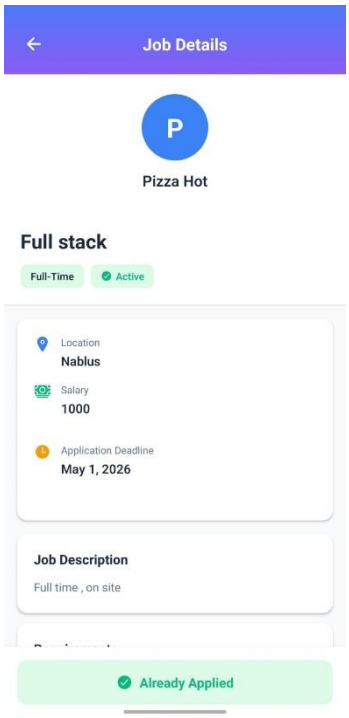
Application Form:
Auto-filled student information
Cover letter text area
Submit button
Duplicate Prevention: Cannot apply twice to same job



Job Details



Apply to job-1



Apply to job-2

5.5 Company-Specific Features

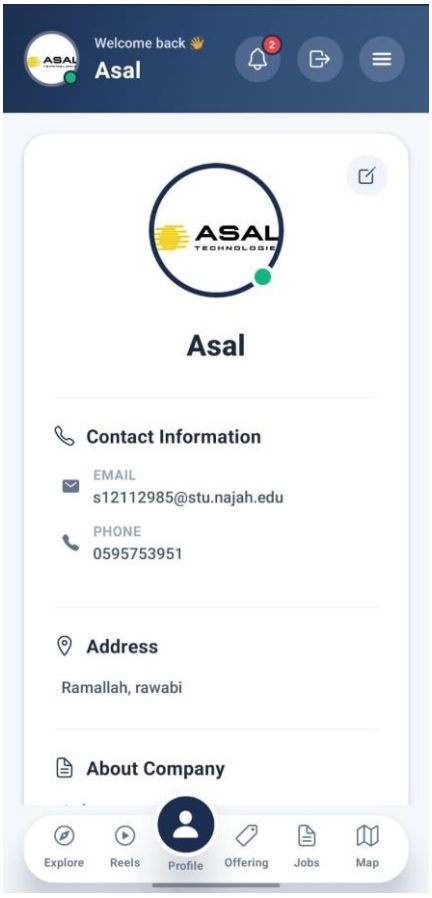
Companies have access to shared features plus tools for managing service offerings, job postings, and recruitment.

The Bottom navigation bar provides quick switching between main sections:
"Explore"-Explore participating companies and browse projects
"Reels" - Social content
"Profile"- information of the company
"Offering" - Manage service offerings
"Jobs" - Post and manage job opportunities
"Map" - Locate assigned booth
"Chat" - Direct messaging

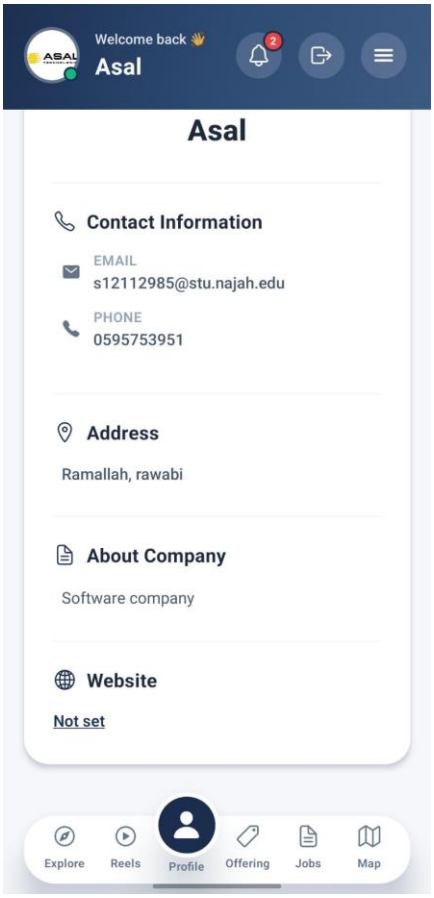
Profile:

Profile summary card:

- Photo, name, phone, address, website and description
- Ability to edit and update profile information



Profile -1

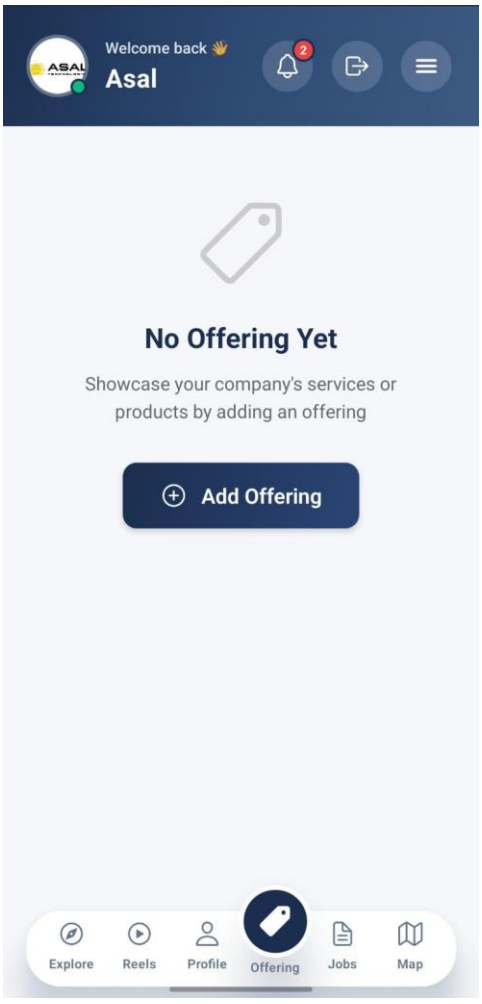


Profile -2

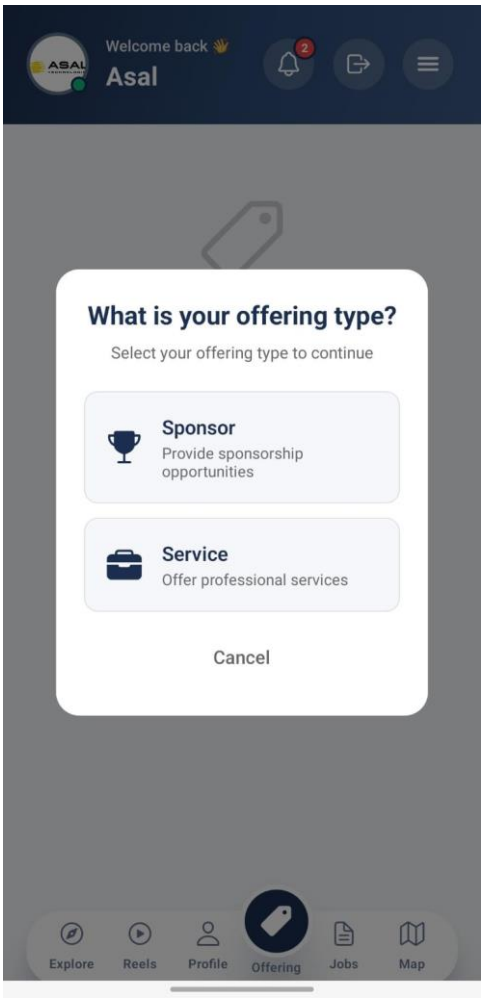
My Offerings Screen:
View all offerings
Create New Offering:

- Category selection (service/sponsor), just for first offer
- Name
- Description
- Price
- Upload multiple images

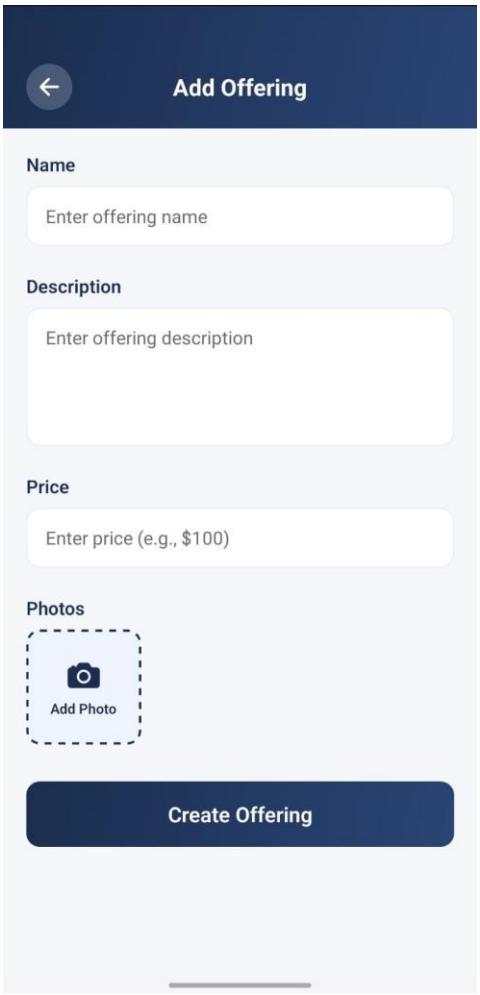
Edit Offerings: Modify pending or approved offerings
Delete Offerings: Remove with confirmation dialog**.**



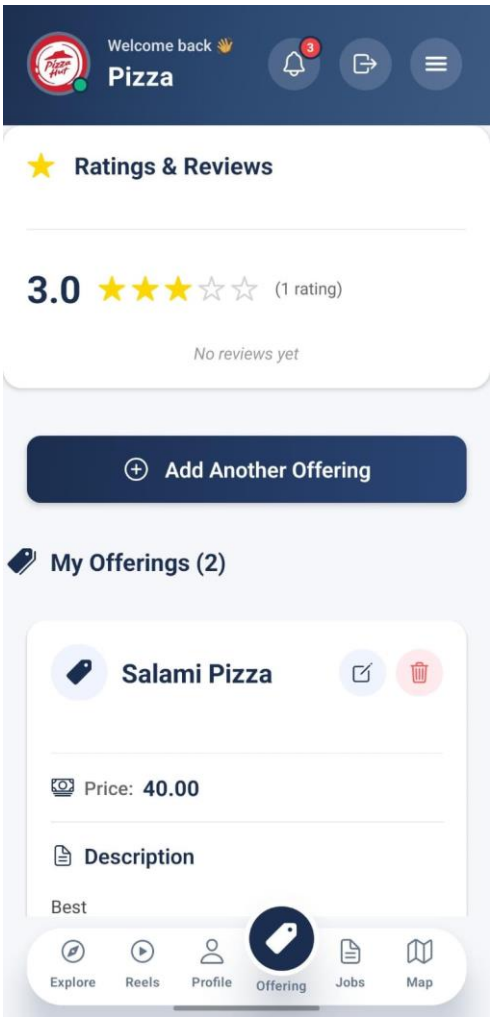
Offerings



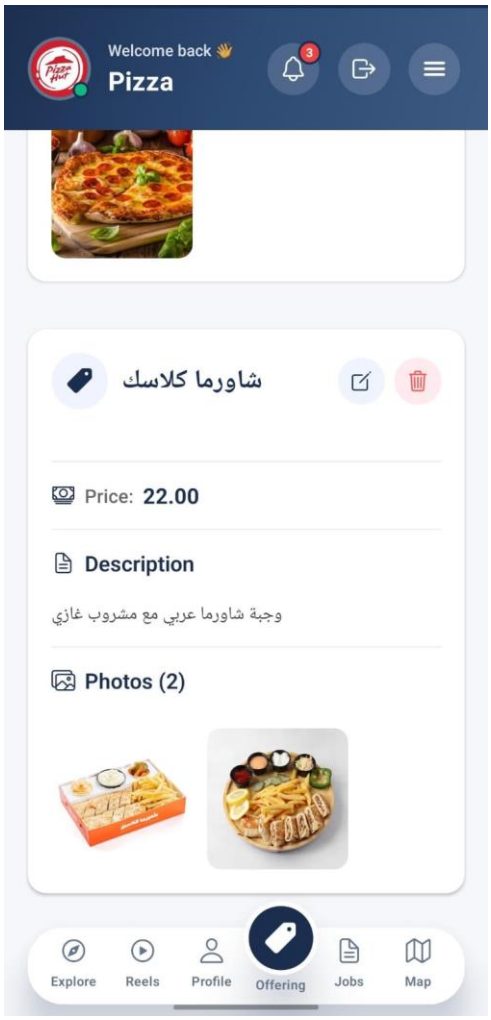
Offering type



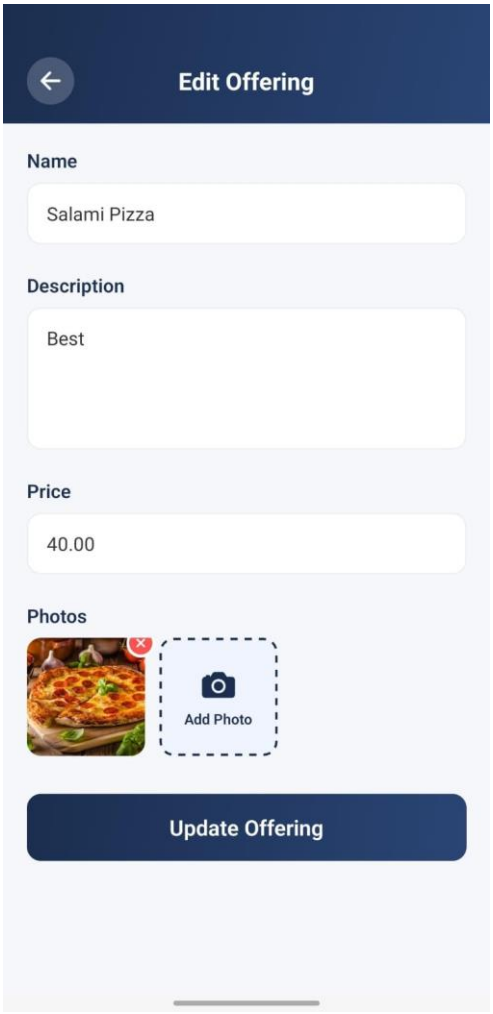
Offering form



View offerings-1



View offerings-2



edit offering

My Jobs Screen:

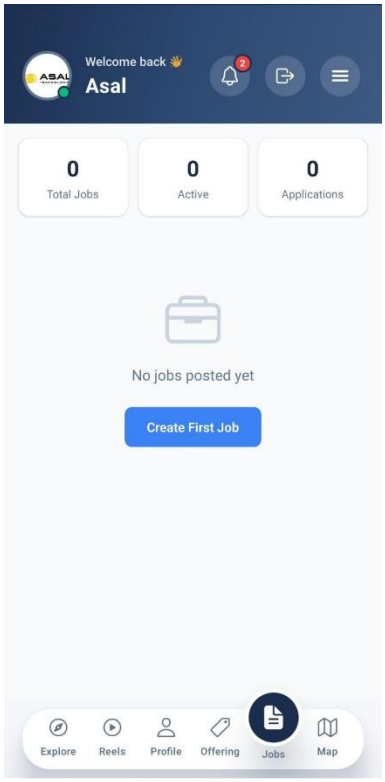
View all posted jobs with statistics (views, applications)
Create Job Posting:
- Job title, Description, Location, Salary range, Requirements, Application deadline
- Work Type (full time / part time)
- Position Type (job / intership)
- Toggle Job Status: Activate/deactivate postings

Edit Jobs: Modify any job details
Delete Jobs: Remove with confirmation
View Applications: Tap job to see received applications

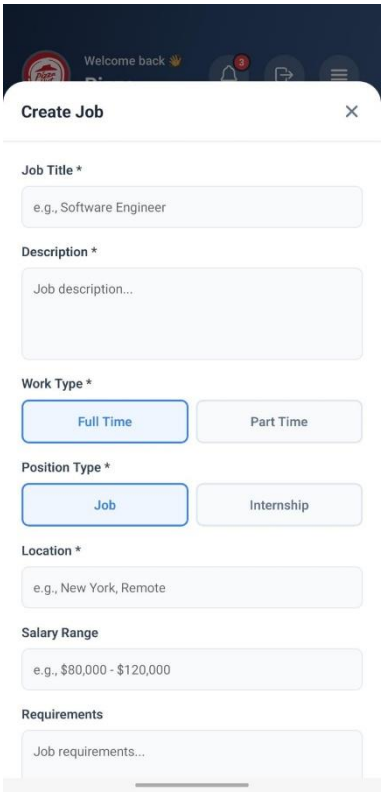
Job Applications Management:

Applications List: For each job, view:

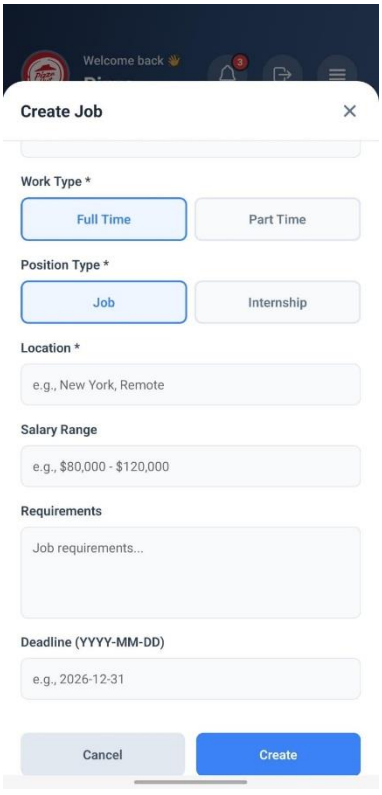
Application Details:
Student avatar, name, major, year
Application date
contact (open conversation)
Cover letter
CV download link



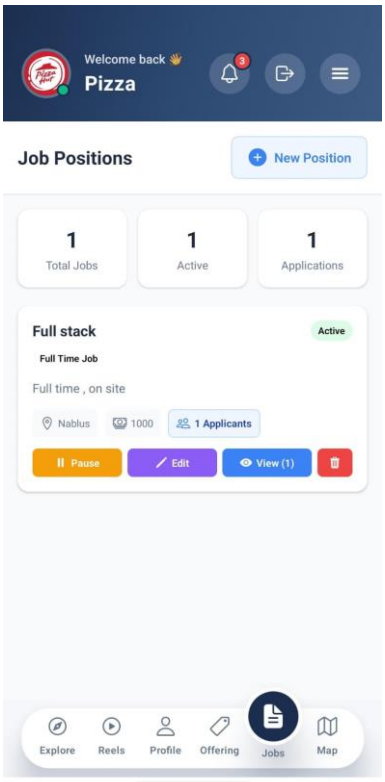
Jobs



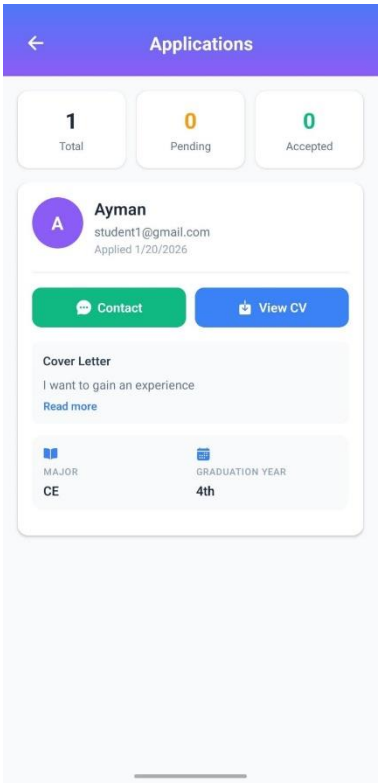
Job form -1



Job form -2



Job card



View Applications

5.6 Visitor-Specific Features

Visitors have similar read-only access to expo content as Guest users, but with additional privileges available through having an account.

Additional capabilities include:

- Receiving system notifications
- Participating in voting on projects

All other browsing and exploration features are the same as in Guest Mode, including viewing projects and companies, navigating the interactive map in read-only mode, watching reels, and using the chatbot.

Limitations remain similar to Guest Mode, except for the added voting and notification features.

5.7 Admin-Specific Features

Administrators have comprehensive oversight and management capabilities across the entire platform.

The Bottom navigation bar provides quick switching between main sections:

"Dashboard" - Detailed statistics and charts

"Projects" - Review project submissions

"Companies" - Review company registrations

"Map " - Booth assignment

"Notify" - Broadcast announcements

Admin Dashboard Home:

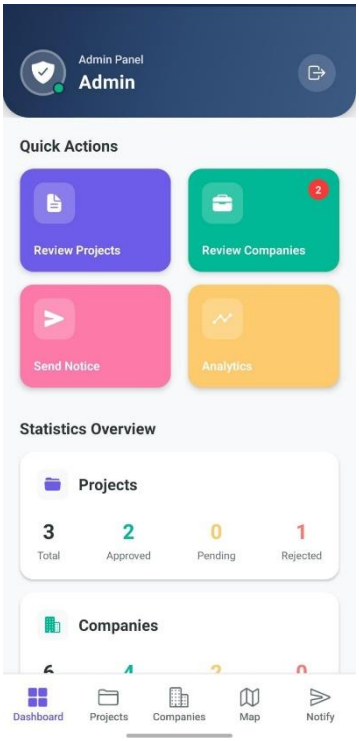
Quick action buttons for common tasks :

- Review Projects
- Review Companies
- Send Notice
- Analytics

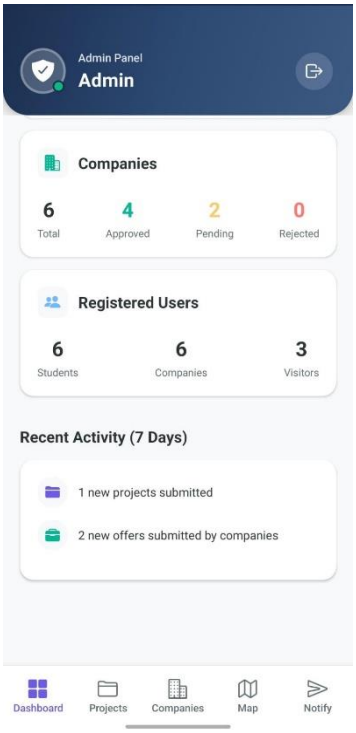
Statistics Overview:

Total counts:

- Students
- Companies
- Registered Users
- Recent activity feed(7 Days)



Dashboard -1

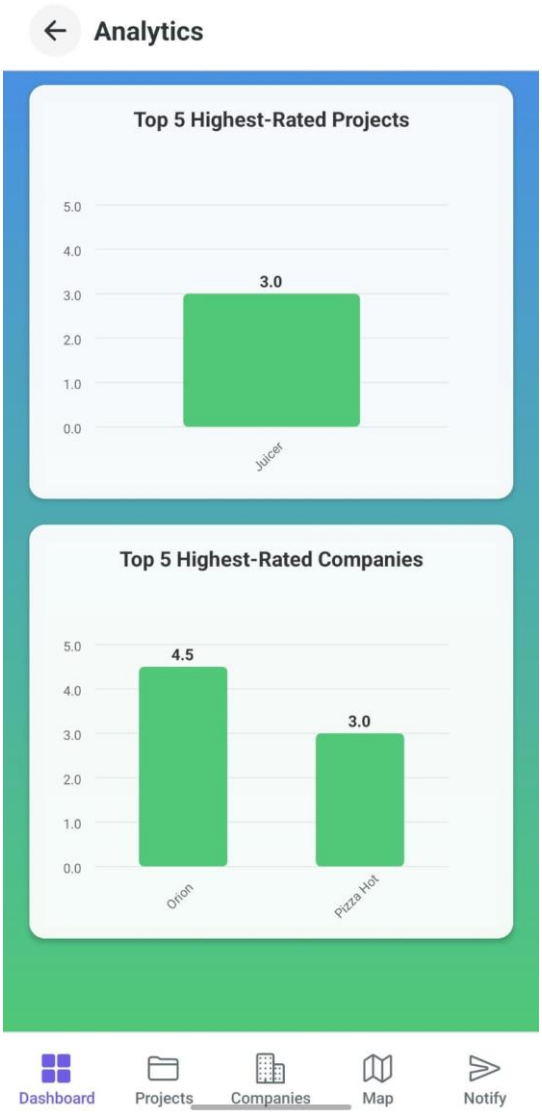


Dashboard -2

Analytics Dashboard:

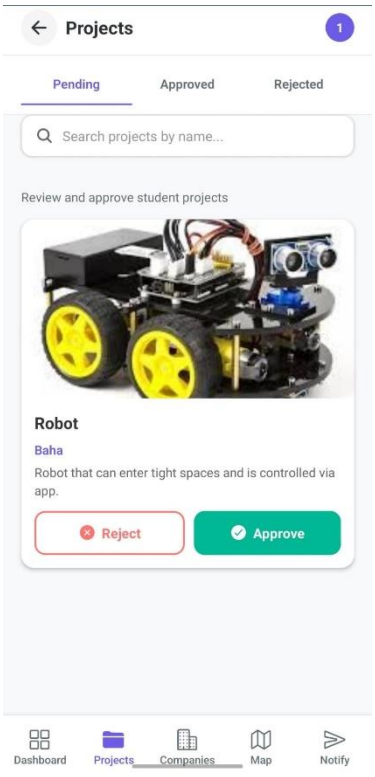
User Registration Trends:
Line chart showing registrations over time
Top 5 projects by average rating
Top 5 companies by average rating.

Analytics -1

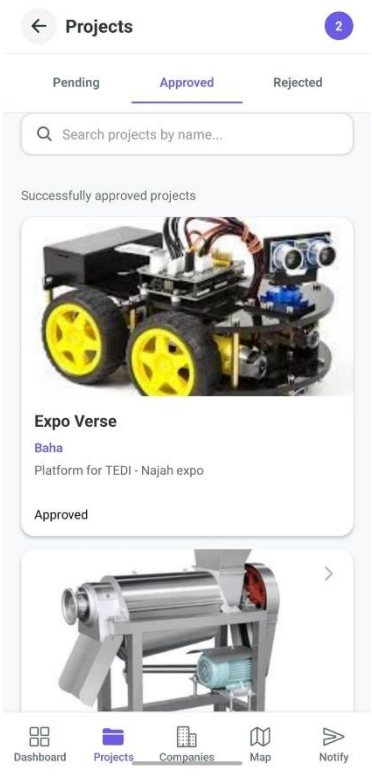


Analytics -2

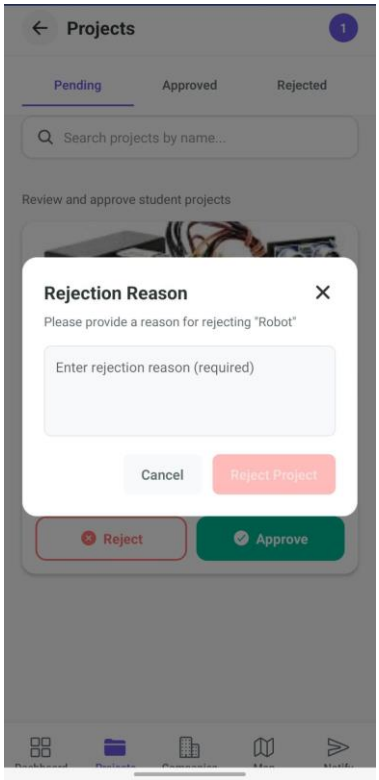
Project Approvals:
Review and manage project submissions:



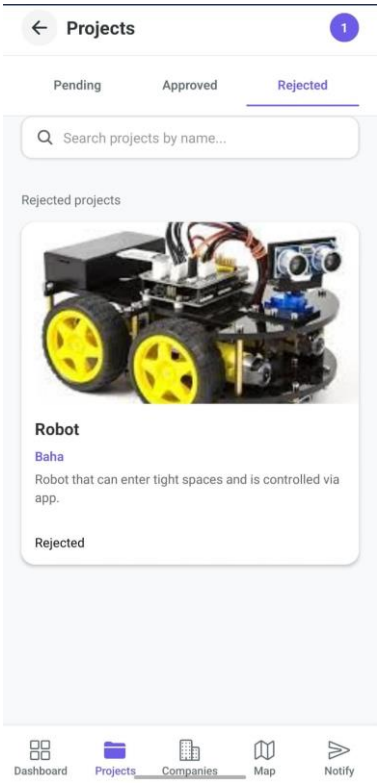
Pending Projects



Approved projects

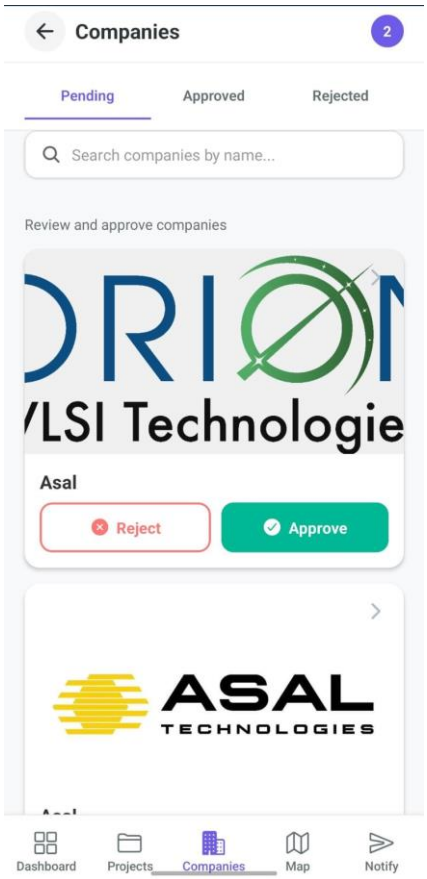


Reject Project

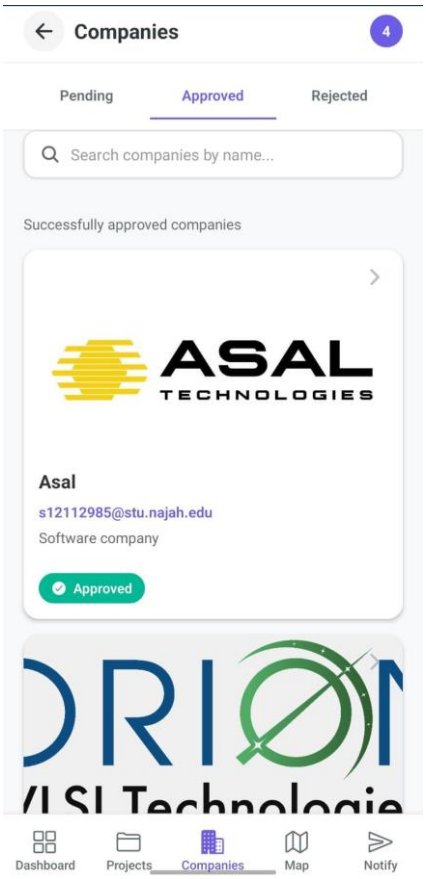


Rejected Projects

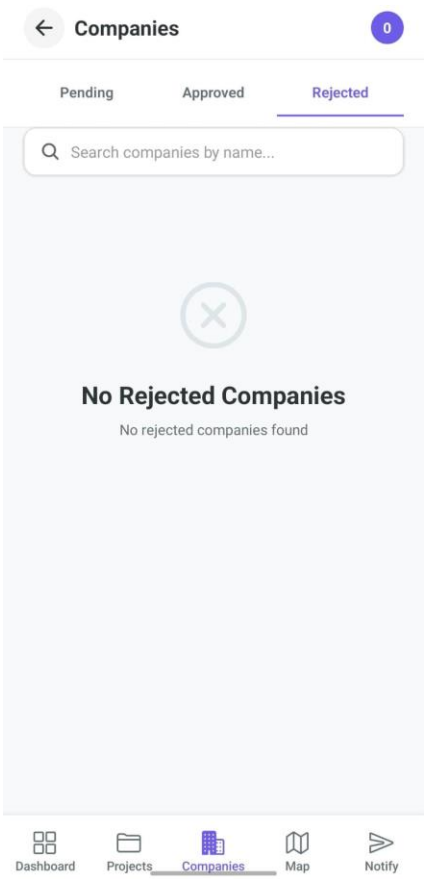
Company Approvals:
Review company registration requests:



Pending Companies



Approved Companies



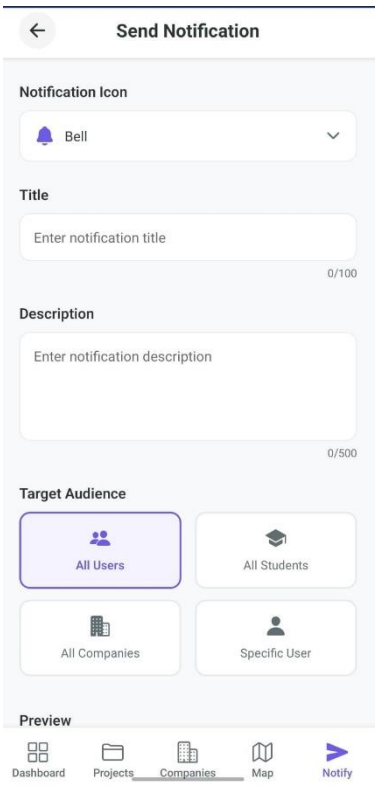
Rejected Companies

Admin Notification Screen:

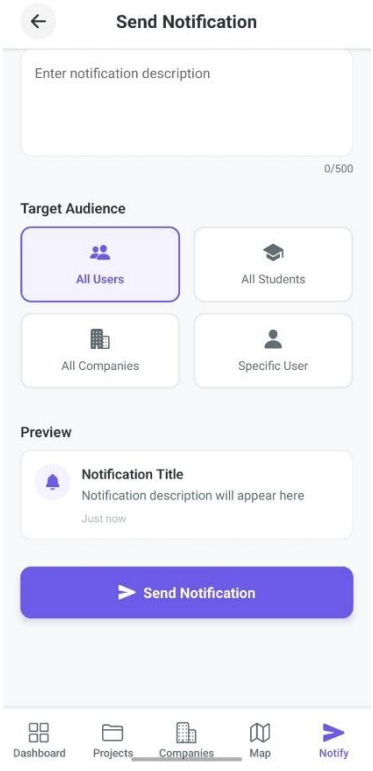
This screen allows the administrator to send system notifications to selected users. Main features include:

Selecting the notification icon type
Entering the notification title
Writing the notification message/body
Choosing the target user category (such as Students, Companies, specifc user, or All users)

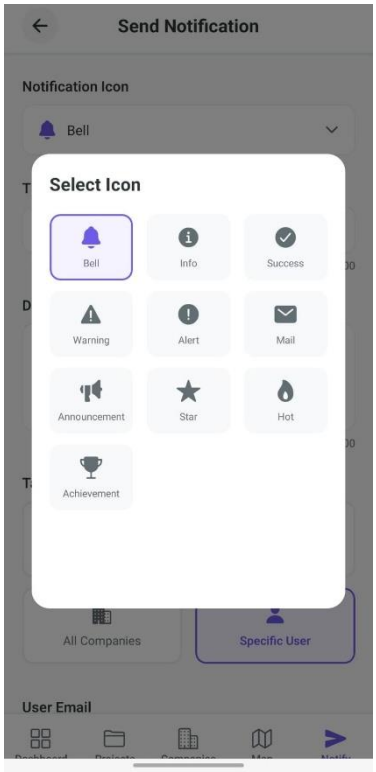
The admin can send notifications to inform users about system updates, approvals, announcements, or important events.
This feature helps improve communication between the system and its users by delivering targeted and timely notifications.



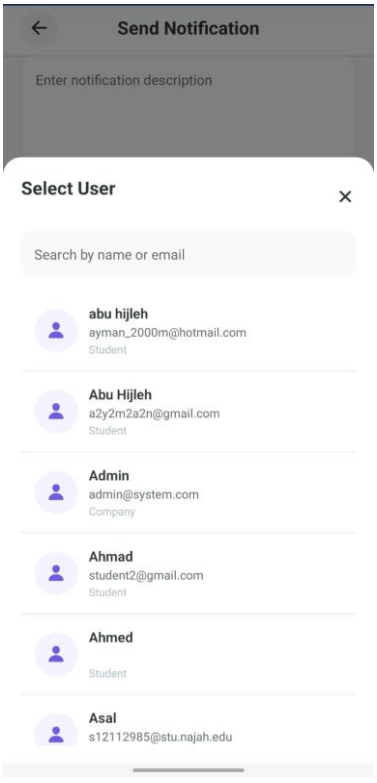
Send Notification -1



Send Notification -2



Send Notification -3



Send Notification -4

Web-Based Interactive Map Feature - Admin GUI

The Interactive Map is an SVG-based visualization system for managing exhibition booth layouts.

Admin Map Modes:

1. Production Mode (Default)

Purpose: Live booth management with real-time database synchronization.

Booth Management:

Create: Click "Add Booth to DB" → specify booth number, zone type, dimensions (meters), shape (rectangle/L-shapes), and position coordinates

Reposition: Drag booths to new locations with automatic grid snapping

View: Click any booth to open details modal showing specifications and assignment status

Delete: Remove unassigned booths via modal dialog

Assignment Management:

Manual Assignment: Click available booth → "Assign Booth" → select project or company from dropdown

Auto-Assignment: Intelligent type-matching algorithm assigns all approved projects and companies to available booths based on zone type (e.g., engineering projects → engineering booths)

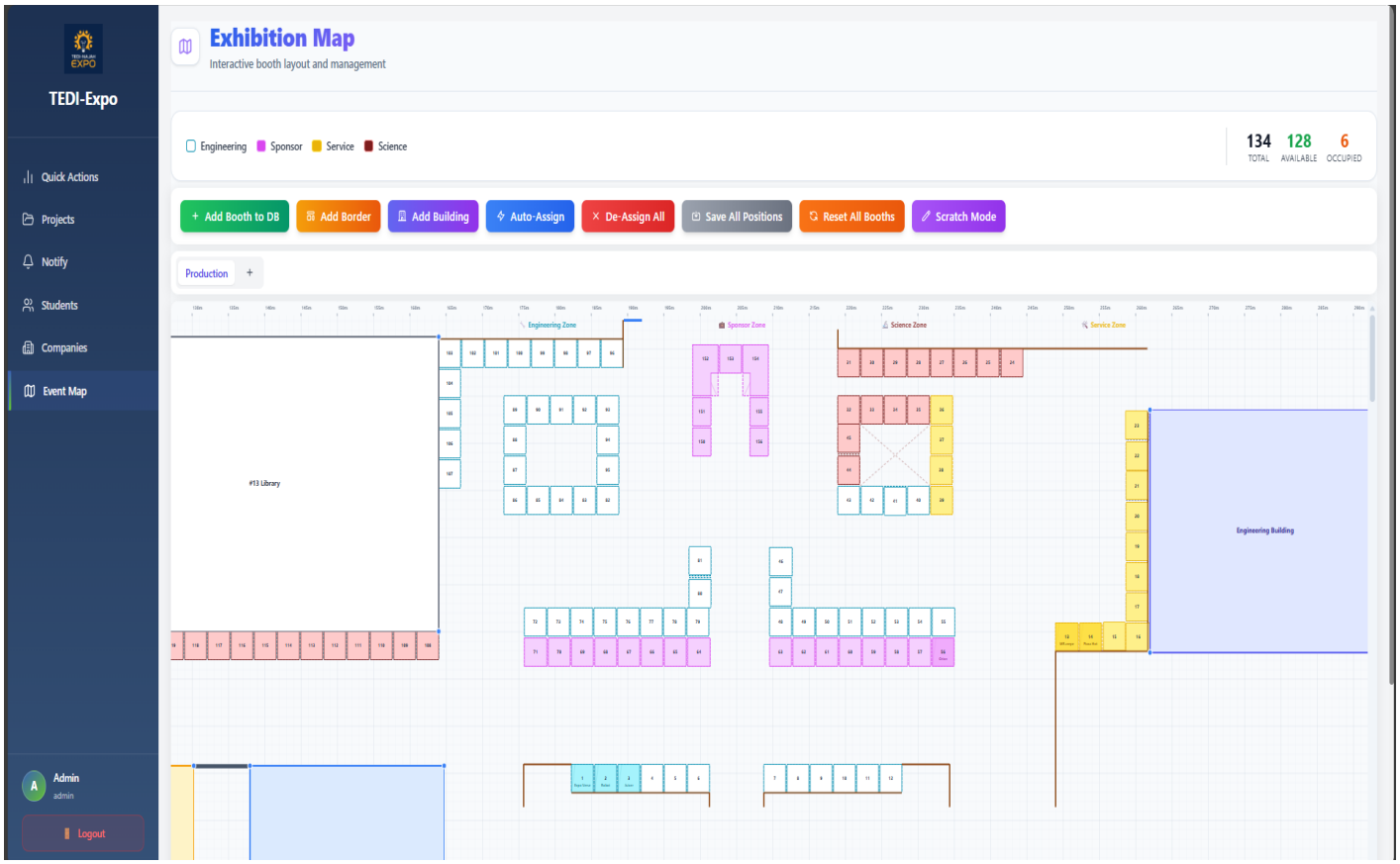
De-assignment: Remove single assignments via booth modal, or bulk-clear all assignments with "De-Assign All"

Infrastructure:

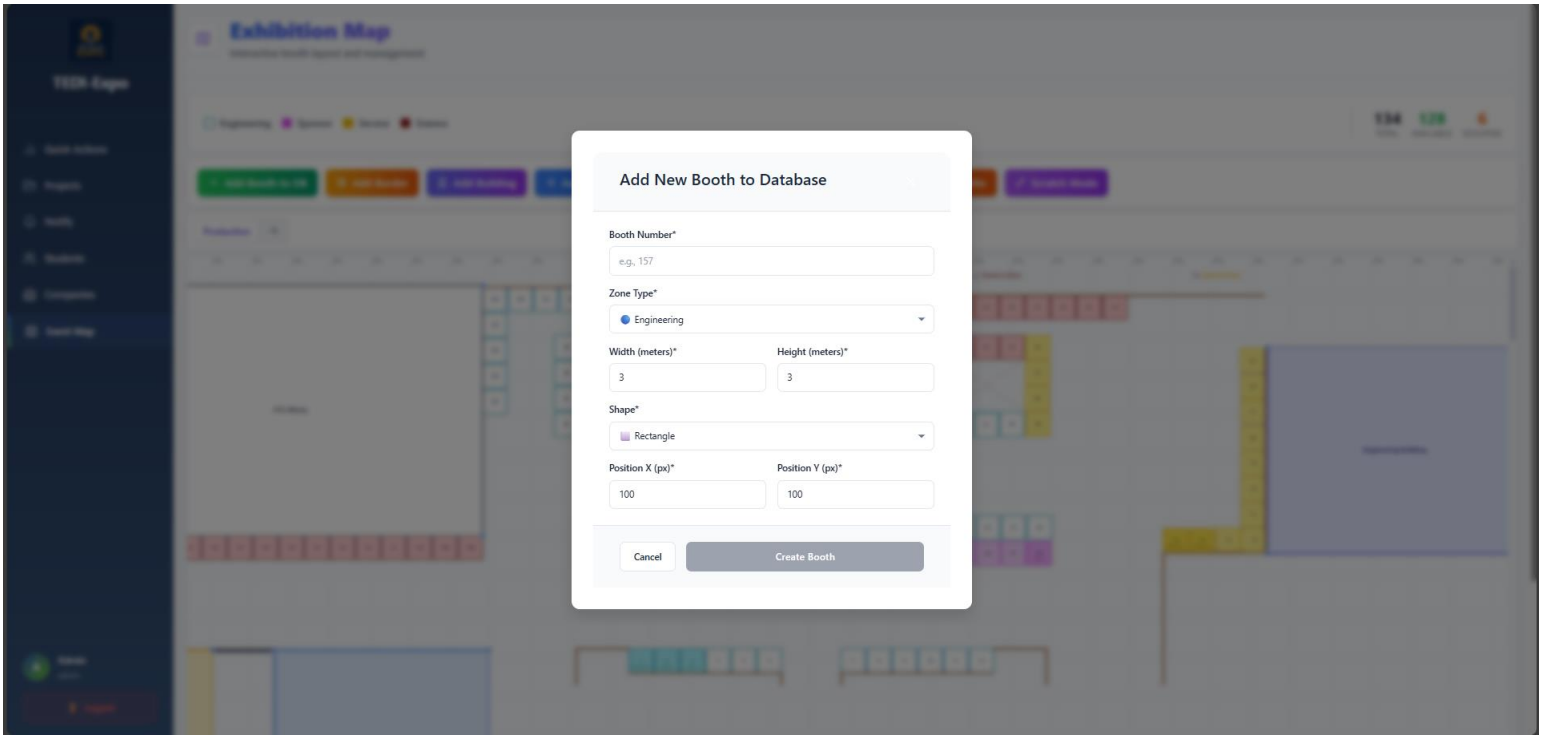
Buildings: Add labeled structures (halls, facilities) with custom dimensions, colors, and positions

Borders: Create structural/decorative lines with configurable thickness, orientation, and styling

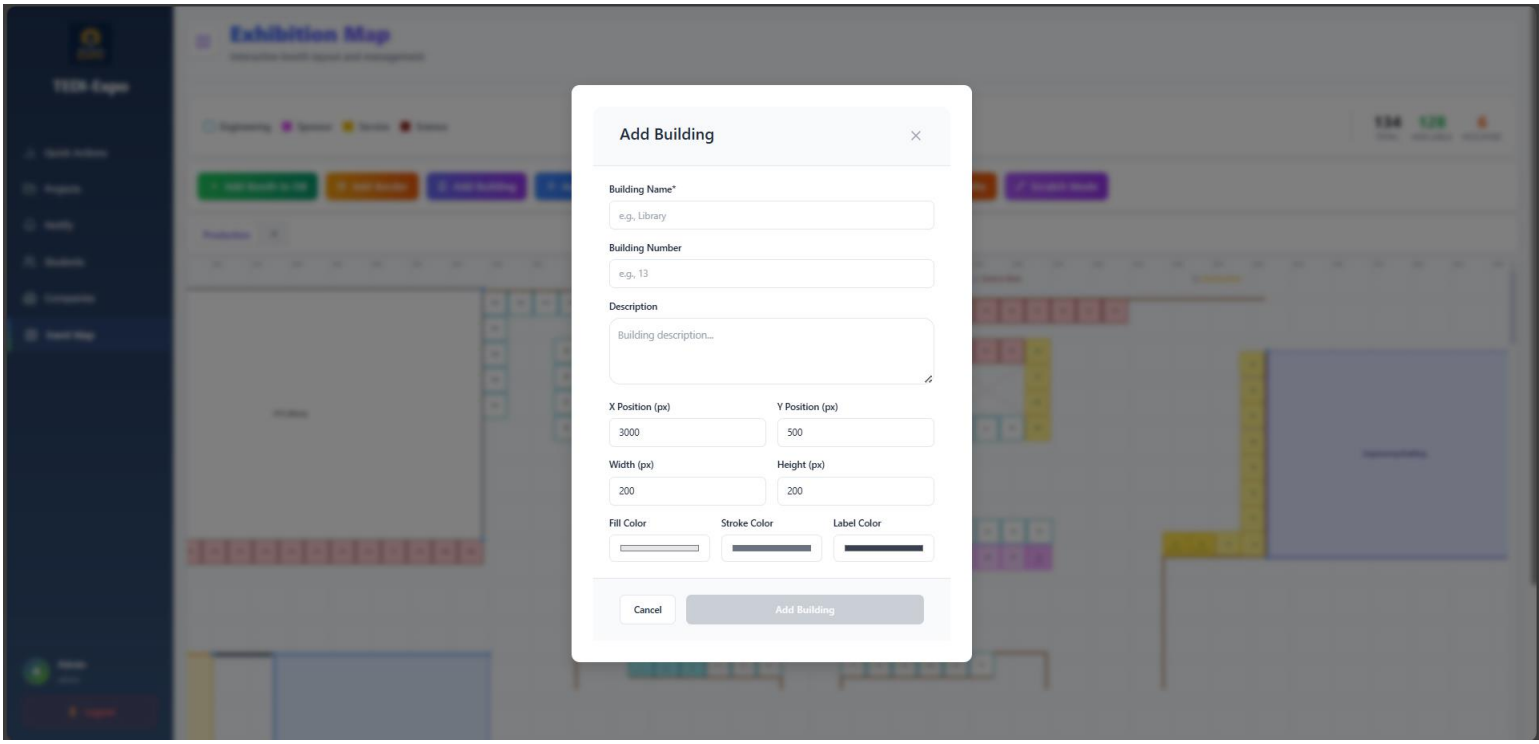
Position Controls: "Save All Positions" to persist bulk changes; "Reset All Booths" to restore original positions



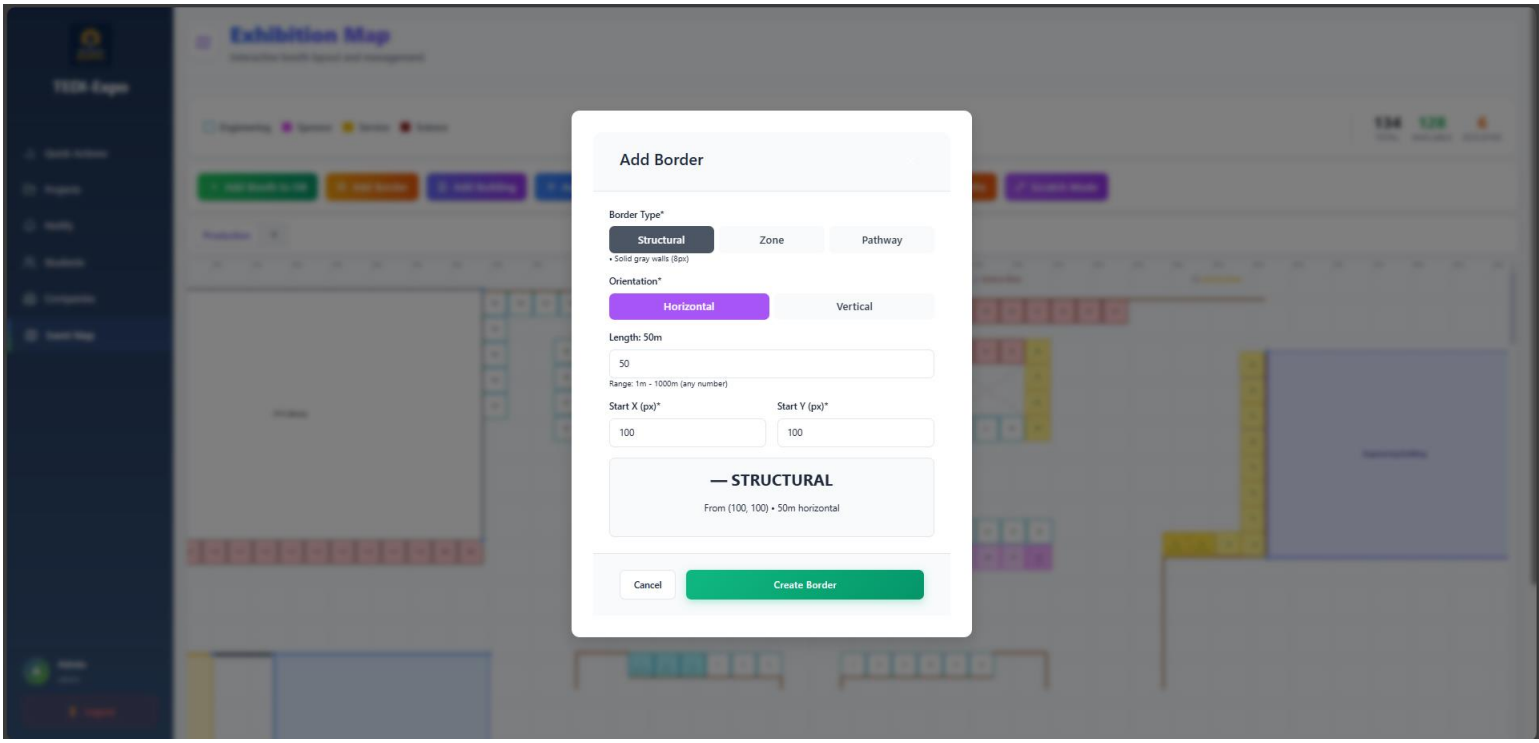
Map -Default Mode



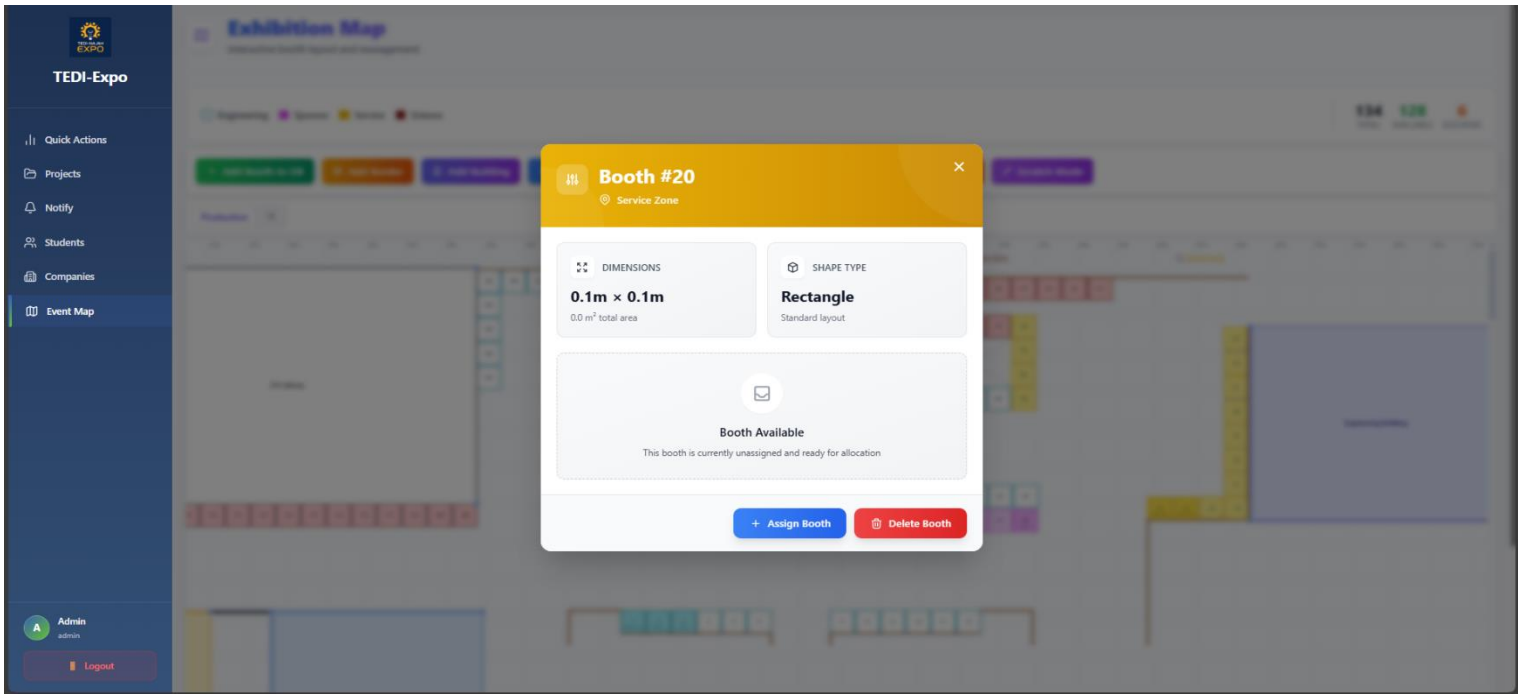
Create new booth



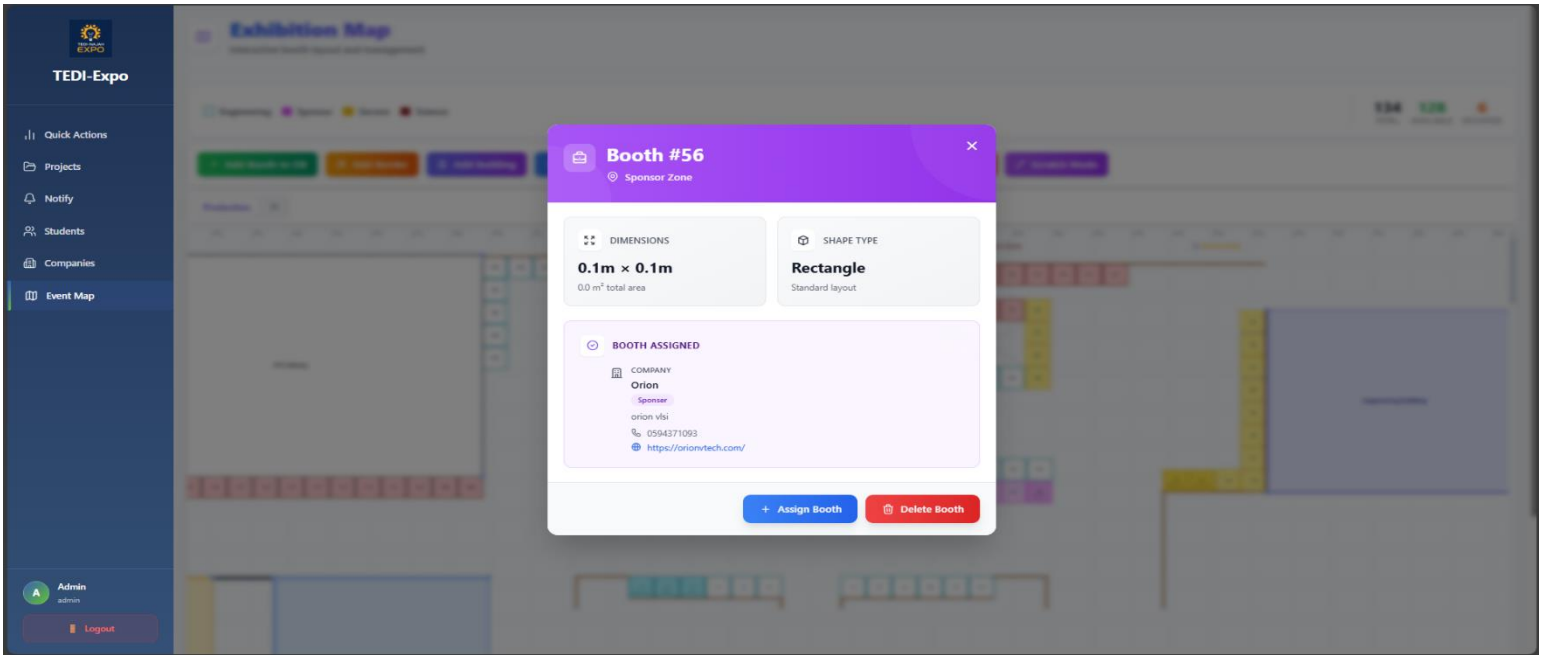
Add building



Add Border



View Booth



View Booth assigned

2. Scratch Mode (Design/Planning)
Purpose: Experimental layout design without affecting production database.

Characteristics:

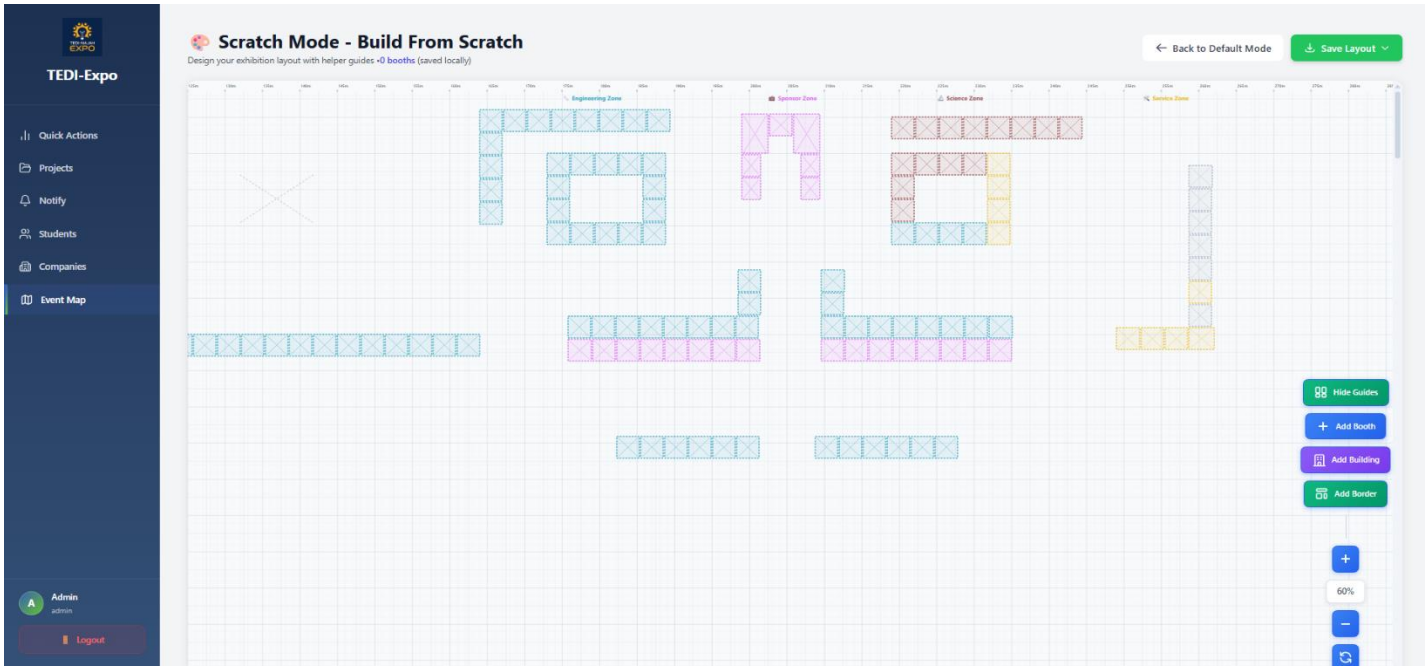
Memory-only operation (no database writes until export)
Visual grid overlay for precise placement
JSON-based import/export for layout portability
Admin Operations:

Design Workflow:

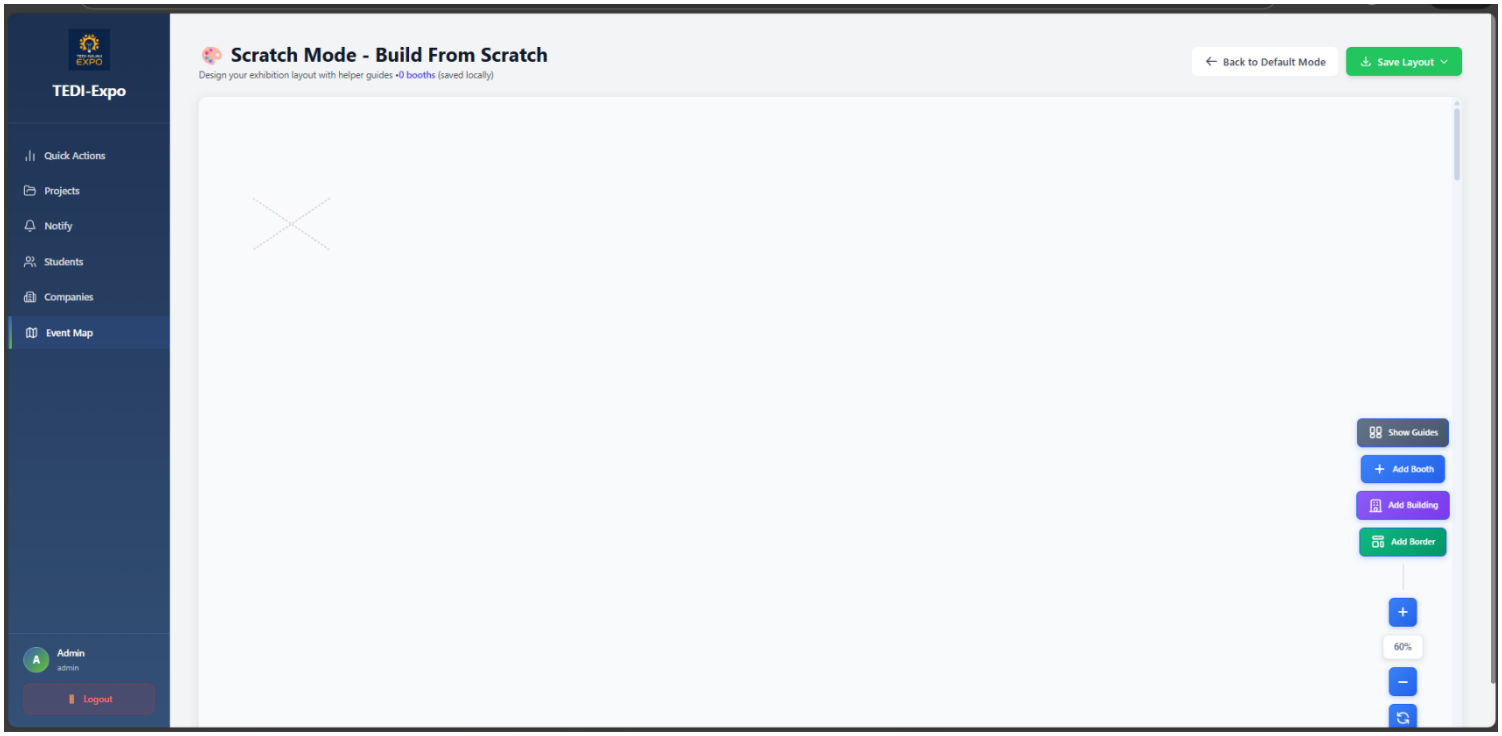
Access via "Scratch Mode" button from Production Mode
Click anywhere on canvas to place booth at clicked coordinates
Auto-generates sequential booth numbers
Configure booth properties in creation dialog

Layout Actions:

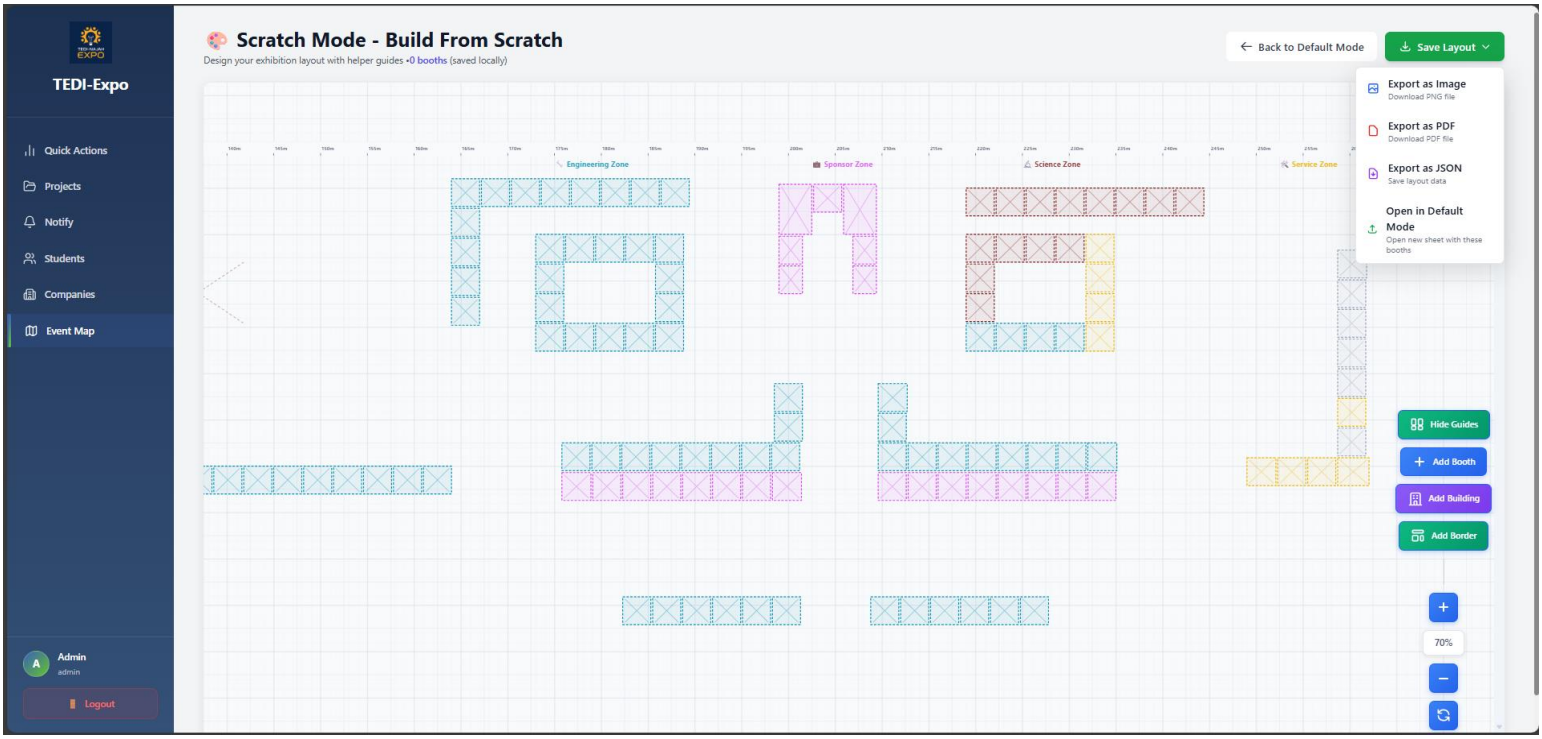
Drag & Position: Move booths freely with grid snapping for alignment
Export Layout: Save entire design as JSON file for backup or sharing
Import Layout: Load previously saved JSON to continue editing
Clear Canvas: Remove all booths to start fresh design
Import to Production: Transfer design to Production Mode as new sheet (requires explicit save to persist)
Use Cases: Test different booth arrangements, experiment with space utilization, preview zone distributions without production impact.



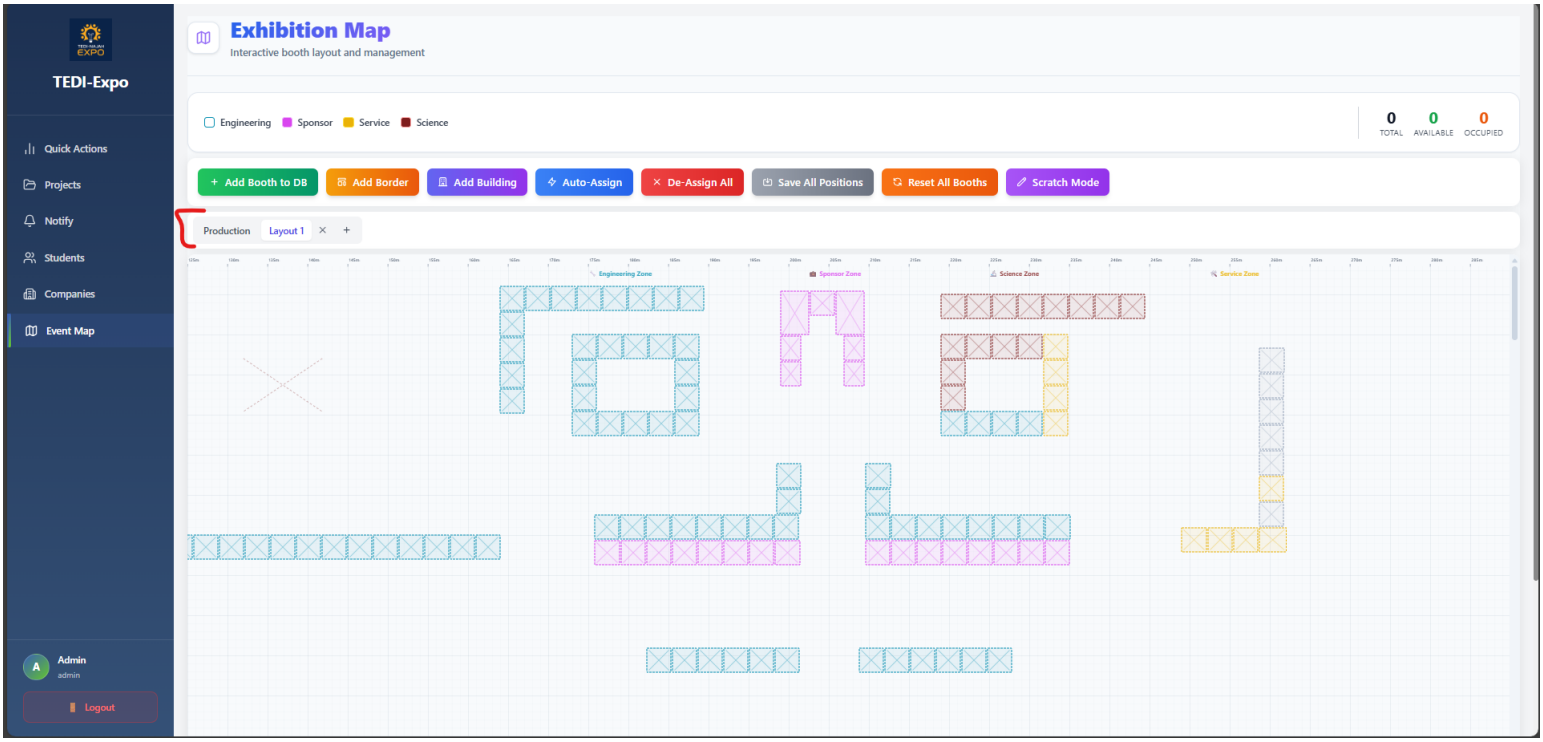
Map in scratch mode



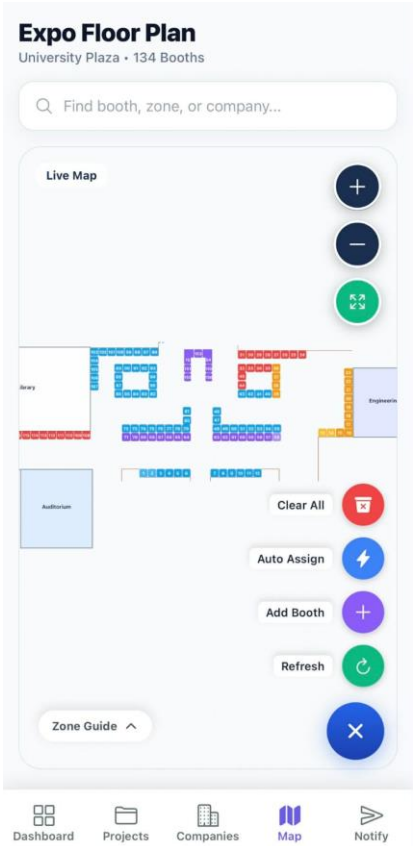
Hide Guides



Save layout after finishing from design

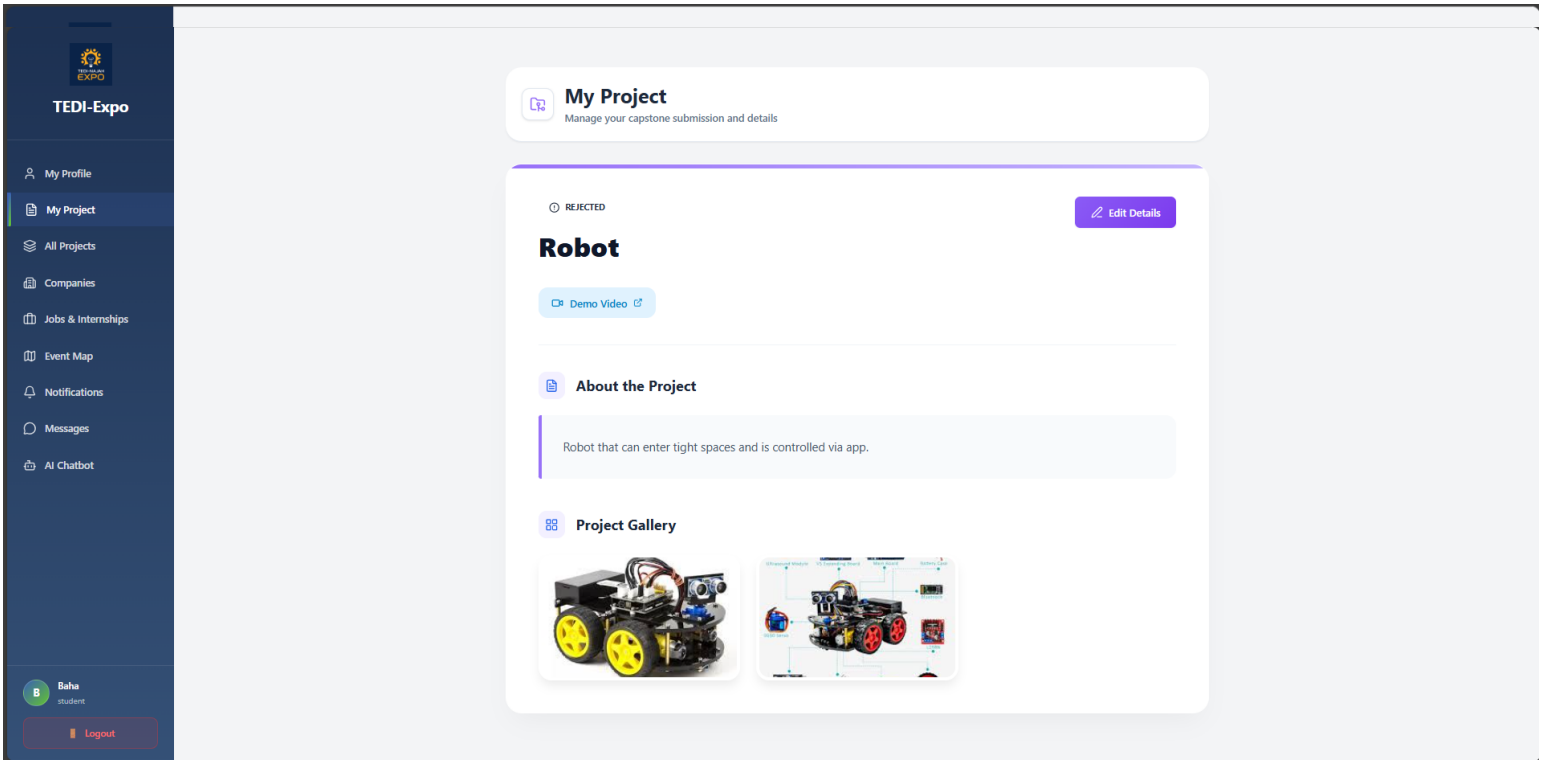


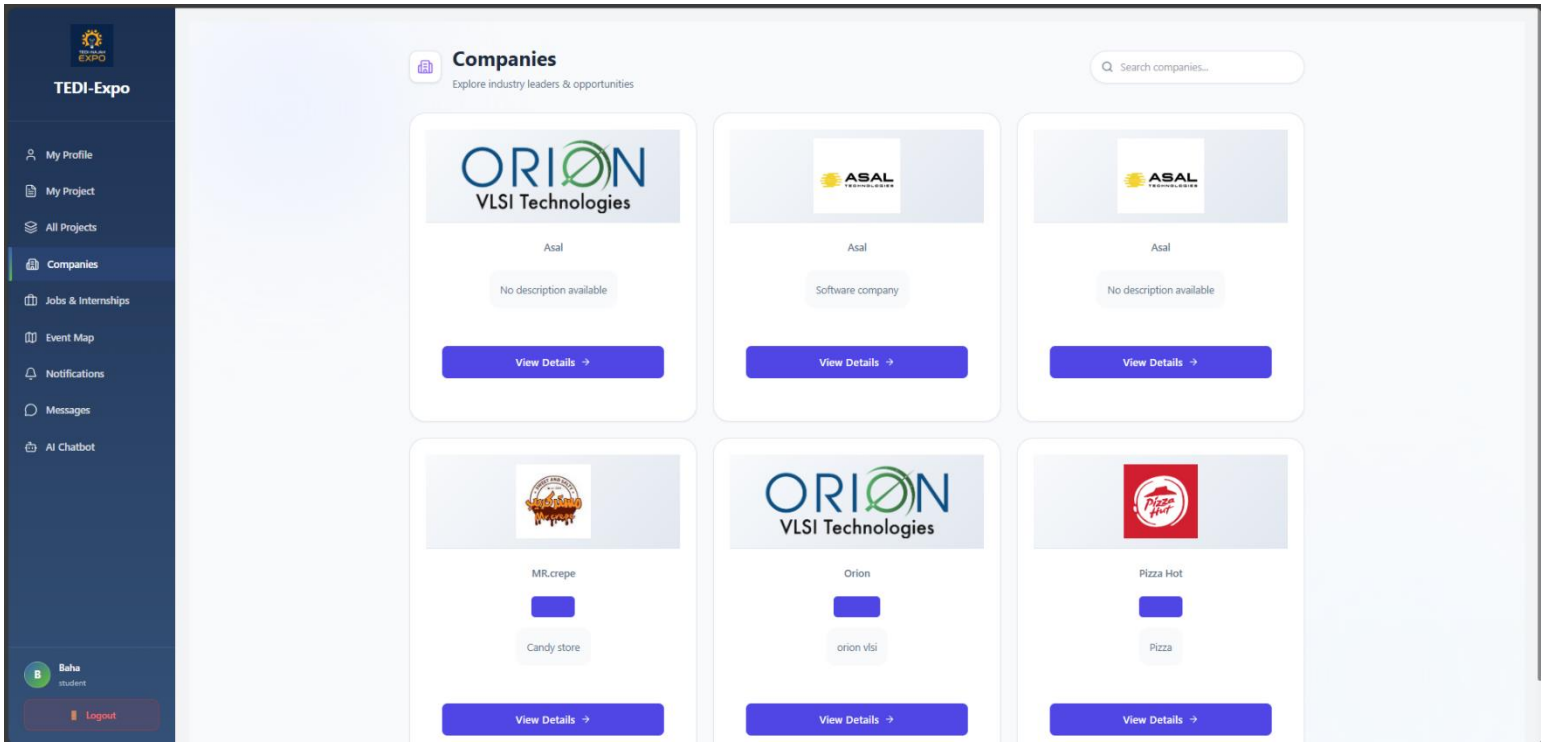
Open another mapn

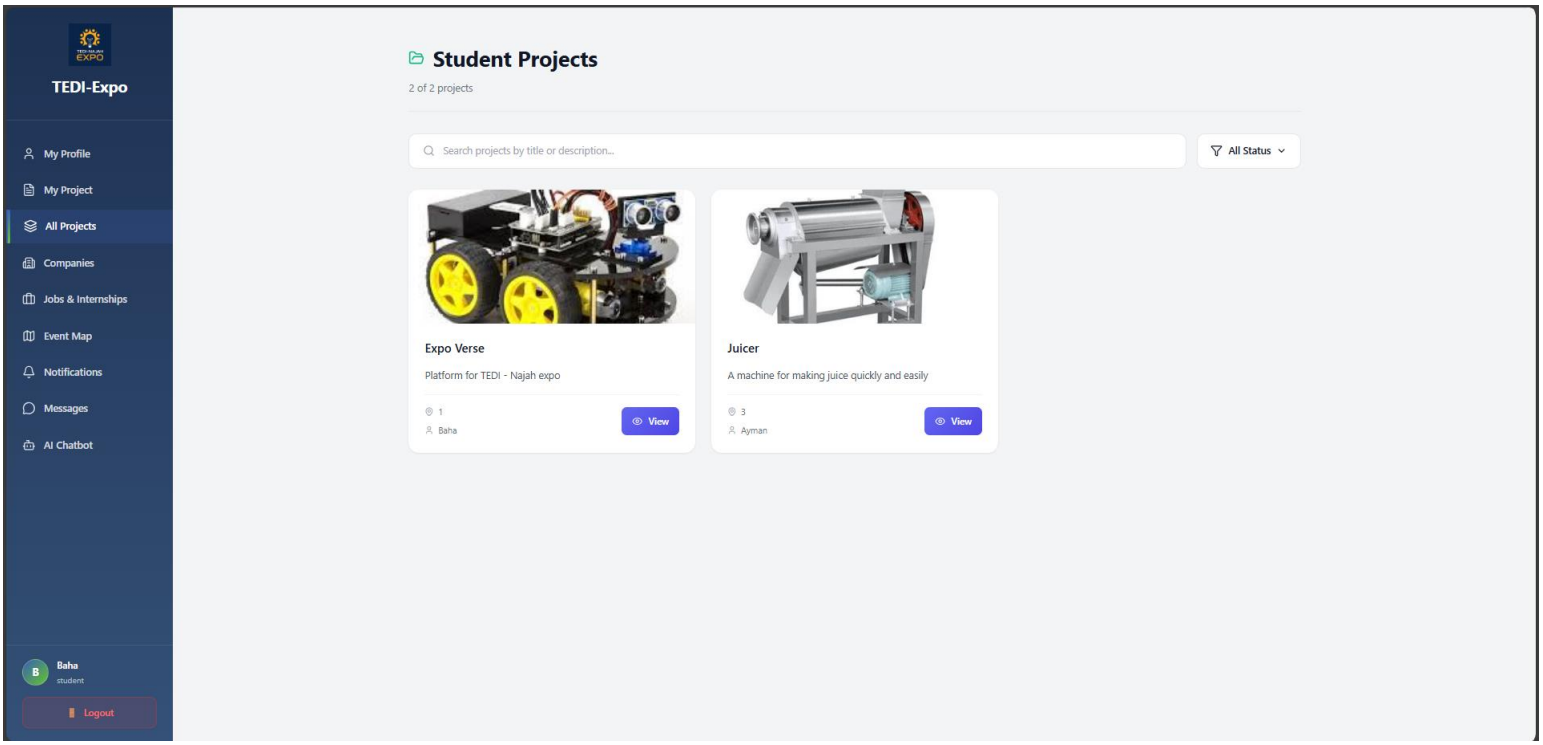


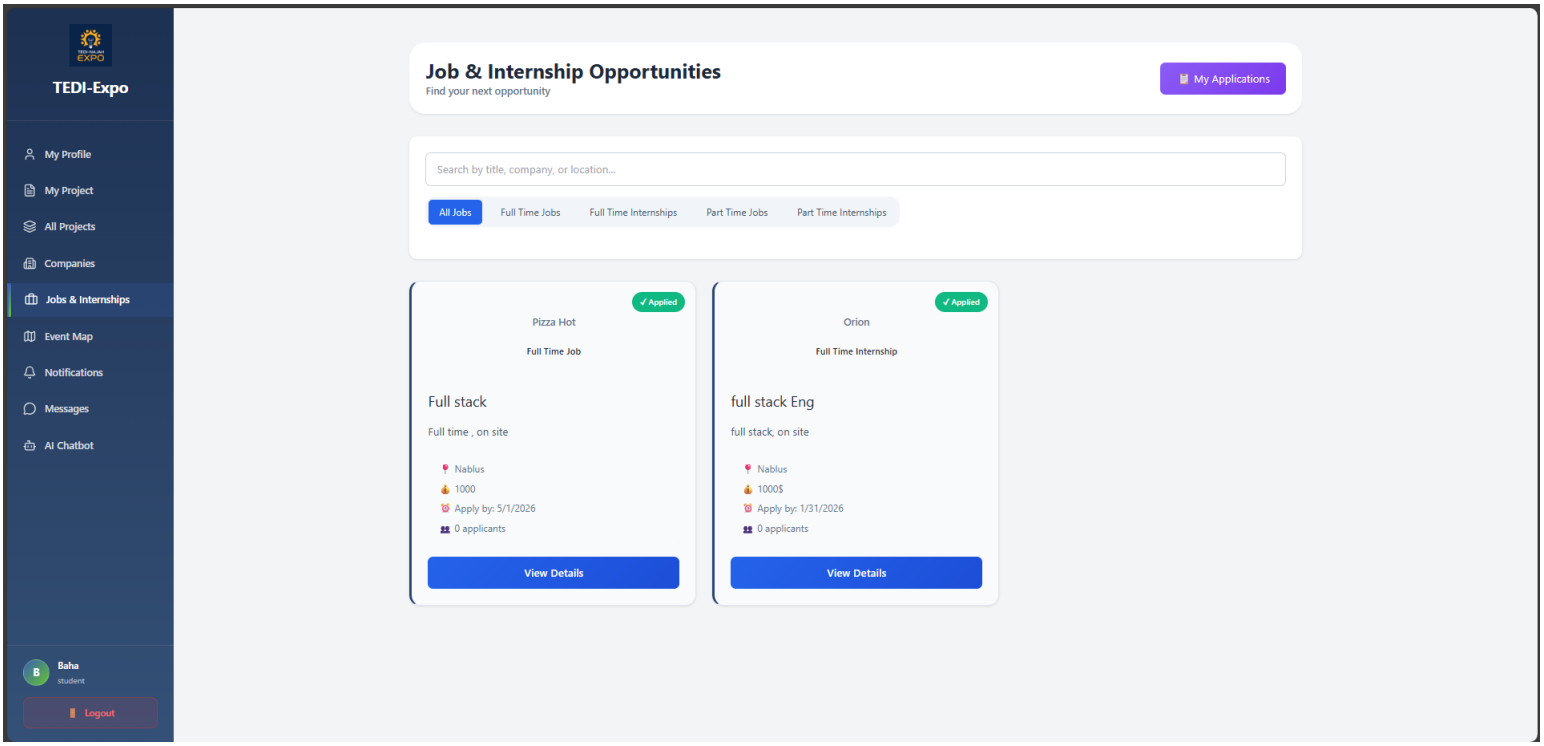
Map on mobile

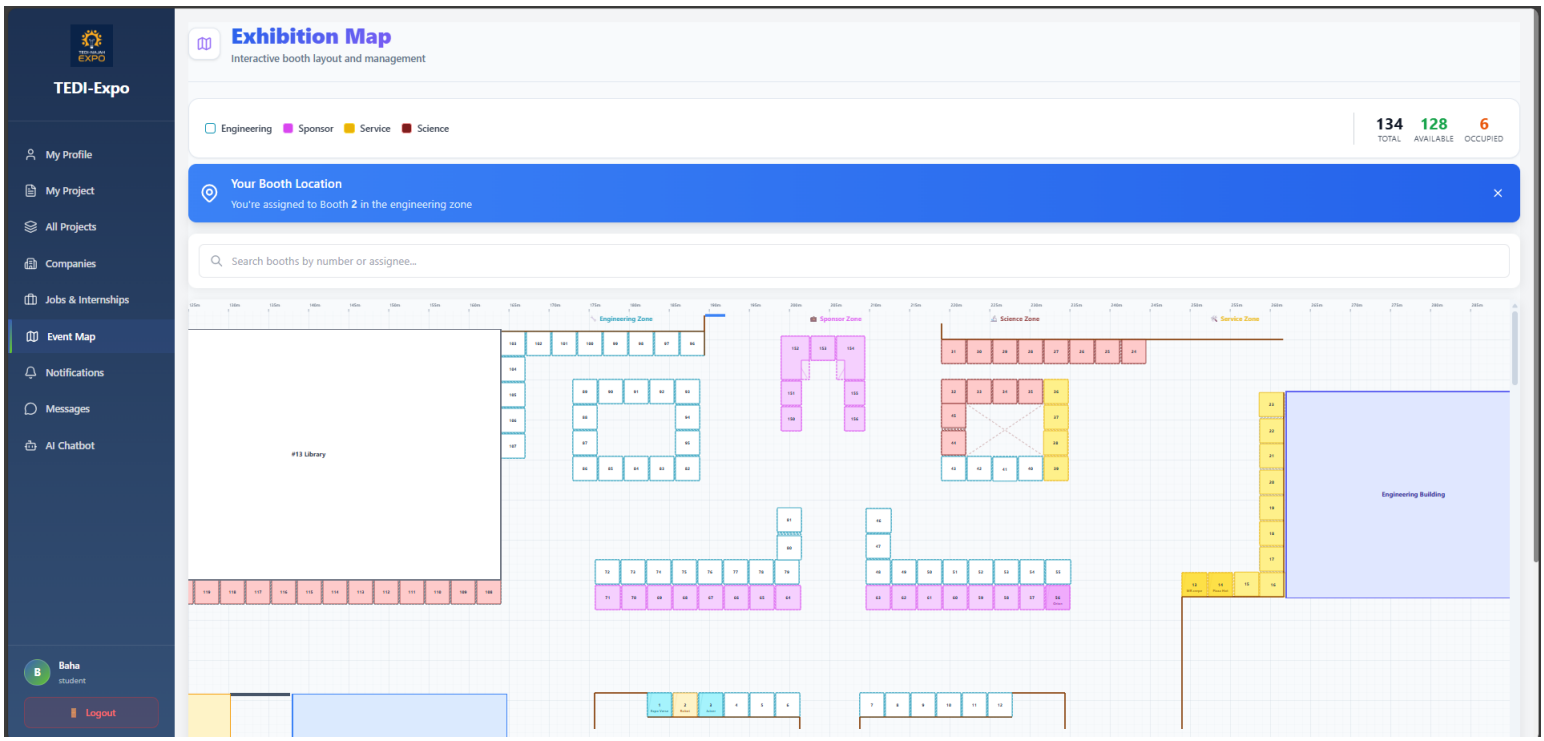
5.8 Sreenshots from Website

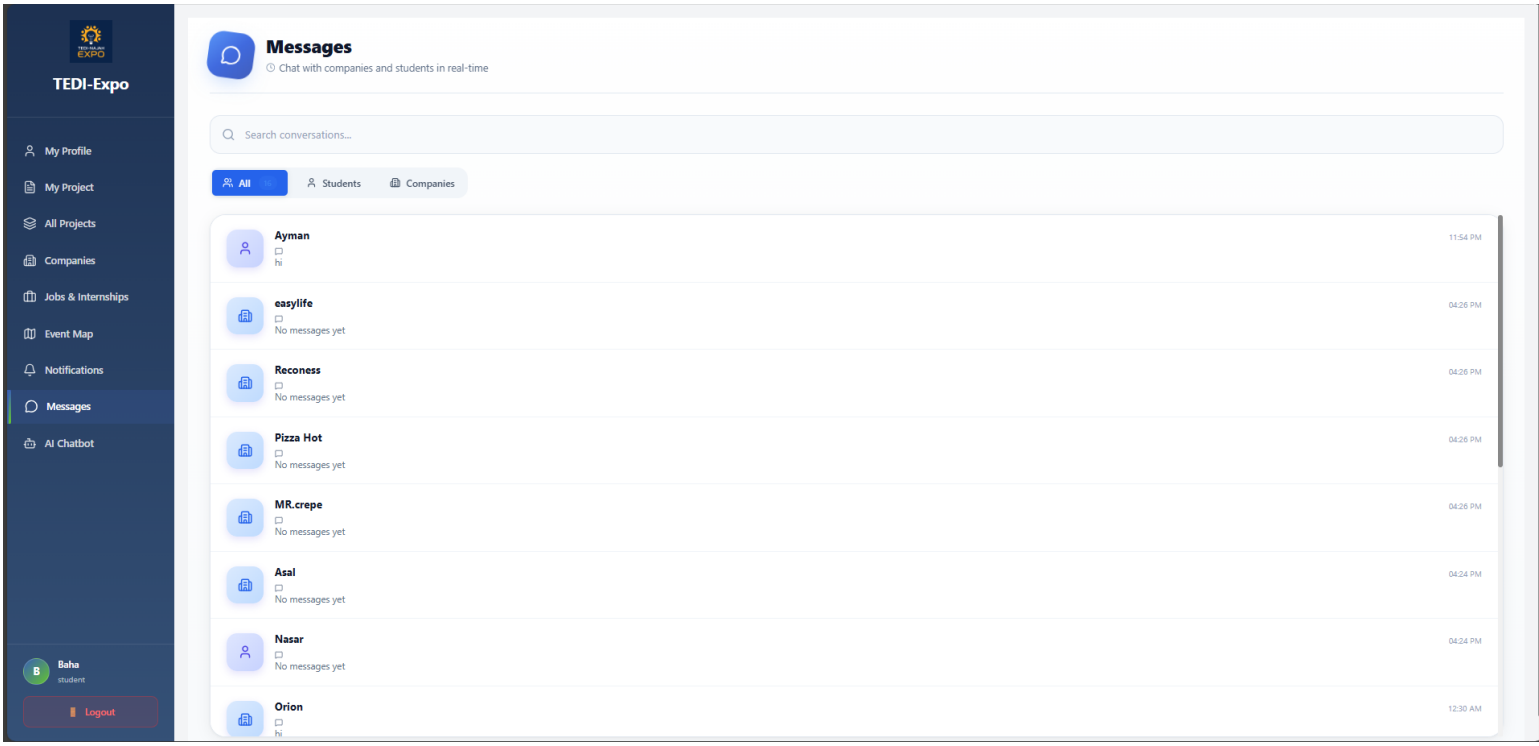


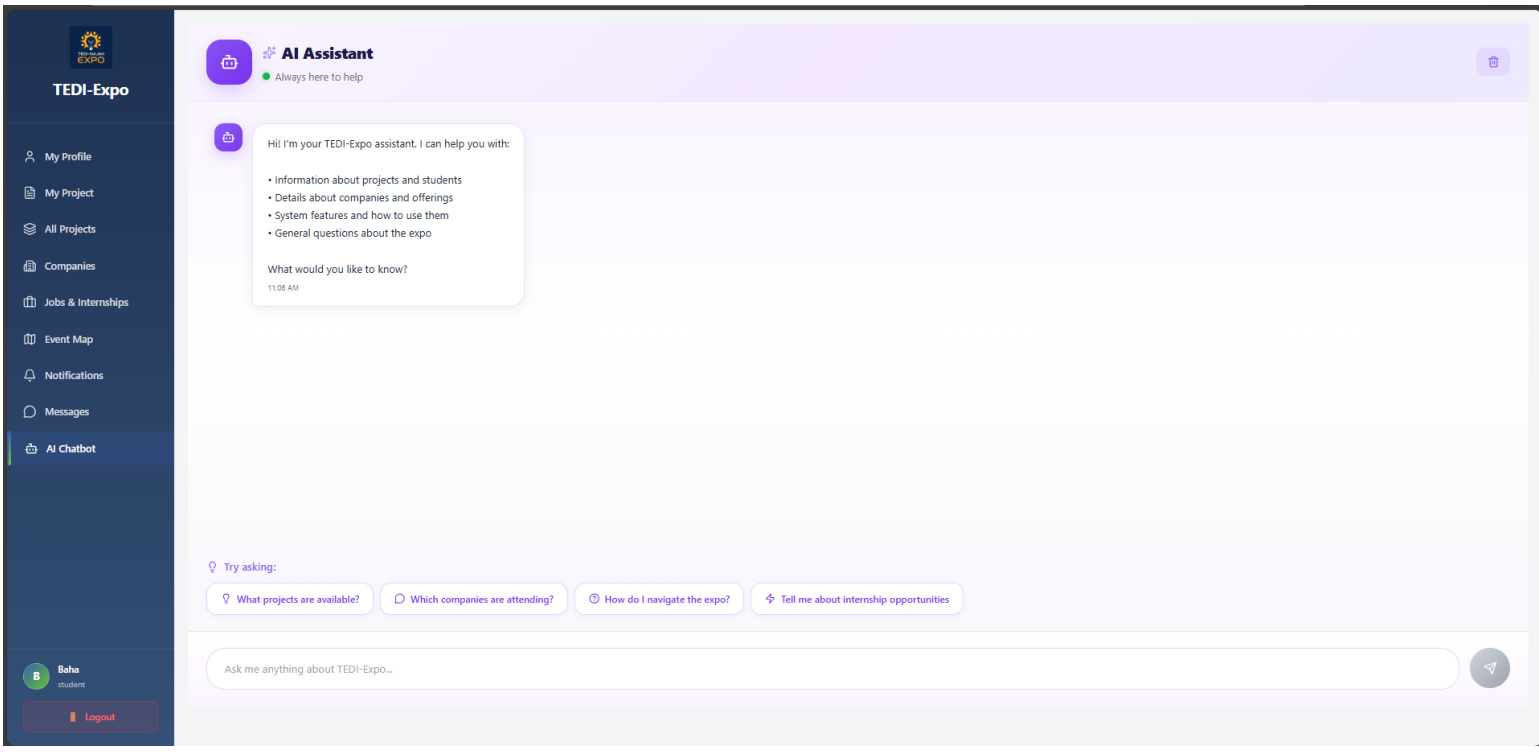

TEDI-Expo
My Profile
My Project
All Projects
Companies
Jobs & Internships
Event Map
Notifications
Messages
AI Chatbot
Baha
student
Logout
Companies
Explore industry leaders & opportunities
Search companies...
Asal
No description available
View Details
Asal
Software company
View Details
Asal
No description available
View Details
MR.crepe
Candy store
View Details
Orion
orion vlsi
View Details
Pizza Hot
Pizza
View Details


TEDI-Expo
My Profile
My Project
All Projects
Companies
Jobs & Internships
Event Map
Notifications
Messages
AI Chatbot
Baha
student
Logout
Student Projects
2 of 2 projects
Search projects by title or description...
All Status
Expo Verse
Platform for TEDI - Najah expo
1
Baha
View
Juicer
A machine for making juice quickly and easily
3
Ayman
View


TEDI-Expo
My Profile
My Project
All Projects
Companies
Jobs & Internships
Event Map
Notifications
Messages
AI Chatbot
Baha
student
Logout
Job & Internship Opportunities
Find your next opportunity
My Applications
Search by title, company, or location...
All Jobs
Full Time Jobs
Full Time Internships
Part Time Jobs
Part Time Internships
Applied
Pizza Hot
Full Time Job
Full stack
Full time , on site
Nablus
1000
Apply by: 5/1/2026
0 applicants
View Details
Applied
Orion
Full Time Internship
full stack Eng
full stack, on site
Nablus
1000$
Apply by: 1/31/2026
0 applicants
View Details


TEDI-Expo
My Profile
My Project
All Projects
Companies
Jobs & Internships
Event Map
Notifications
Messages
AI Chatbot
Baha
student
Logout
Exhibition Map
Interactive booth layout and management
Engineering
Sponsor
Service
Science
134
TOTAL
128
AVAILABLE
6
OCCUPIED
Your Booth Location
You're assigned to Booth 2 in the engineering zone
Search booths by number or assignee...
#13 Library
Engineering Building


TEDI-Expo
My Profile
My Project
All Projects
Companies
Jobs & Internships
Event Map
Notifications
Messages
AI Chatbot
Baha
student
Logout
Messages
Chat with companies and students in real-time
Search conversations...
All
Students
Companies
Ayman
hi
11:54 PM
easylife
No messages yet
04:26 PM
Reconess
No messages yet
04:26 PM
Pizza Hot
No messages yet
04:26 PM
MR.crepe
No messages yet
04:26 PM
Asal
No messages yet
04:24 PM
Nasar
No messages yet
04:24 PM
Orion
hi
12:30 AM


TEDI-Expo
My Profile
My Project
All Projects
Companies
Jobs & Internships
Event Map
Notifications
Messages
AI Chatbot
Baha
student
Logout
AI Assistant
Always here to help
Hi! I'm your TEDI-Expo assistant. I can help you with:
• Information about projects and students
• Details about companies and offerings
• System features and how to use them
• General questions about the expo
What would you like to know?
11:06 AM
Try asking:
What projects are available?
Which companies are attending?
How do I navigate the expo?
Tell me about internship opportunities
Ask me anything about TEDI-Expo...

6 Conclusion, Recommendations and Future Work

We created this platform to bridge academic innovation and industry opportunity through a unified digital ecosystem. The platform integrates project exhibition with approval workflows, interactive booth mapping with 156 booths across specialized zones, recruitment and job management, AI-powered chatbot assistance, social engagement features (reels, feedback, chat, notifications), and role-based dashboards for all user types.

We recommend that developers carefully evaluate cloud storage solutions based on pricing, security, and scalability before committing. Implement server-side file validation including MIME type verification to prevent malicious uploads. Design database schemas with proper indexing and connection pooling from the start. Finally, implement comprehensive error handling and logging mechanisms, particularly for AI integrations where response quality may vary.

Future work focuses on three main areas: First, enhancing the virtual map by implementing live location tracking and path guidance to improve visitor navigation and overall user experience. Second, generating QR codes to enable quick and seamless booth access, reducing waiting time and simplifying visitor entry. Finally, providing API access for third-party integrations with university systems and career platforms to support system scalability, professional networking, and recruitment processes.

7 References

Handshake (n.d.), Retrieved from https://www.joinhandshake.com/

Portfolium (n.d.), Retrieved from Portfolium - Wikipedia

Eventbrite (n.d.), Retrieved from https://www.eventbrite.com/

React Native (n.d.), Retrieved from https://reactnative.dev/

React (n.d.), Retrieved from https://react.dev/

Express.js (n.d.), Retrieved from https://expressjs.com/

Node.js (n.d.), Retrieved from https://nodejs.org/en

Expo (n.d.), Retrieved from https://expo.dev/

Tailwind CSS (n.d.), Retrieved from https://tailwindcss.com/

AWS (Amazon Web Services) (n.d.), Retrieved from https://aws.amazon.com/

Firebase (n.d.), Retrieved from https://firebase.google.com/

Google AI (n.d.), Google Gemini API, Retrieved from https://ai.google.dev/

MySQL (n.d.), Retrieved from https://www.mysql.com/

Bcrypt.js (n.d.), Retrieved from https://www.npmjs.com/package/bcryptjs

JSON Web Token (n.d.), Retrieved from https://jwt.io/

Multer (n.d.), Retrieved from https://www.npmjs.com/package/multer

Nodemailer (n.d.), Retrieved from https://nodemailer.com/

React Navigation (n.d.), Retrieved from https://reactnavigation.org/

Axios (n.d.), Retrieved from https://axios-http.com/

Vite (n.d.), Retrieved from https://vitejs.dev/