

# 1. Introduction

In the modern digital era, information about events is scattered across multiple platforms, making discovery, tracking, and management inefficient. During my internship, I worked on, a full-stack web application aimed at solving this problem by providing a **centralized event discovery and management platform**.

The project integrates **frontend development, backend APIs, authentication mechanisms, database management, and automation using web scraping**, making it a comprehensive real-world application aligned with industry practices.

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## 2. Objective of the Project

The primary objectives of the project are:

- To design a **centralized platform** for discovering and managing events
  - To automate event data collection using **Python-based web scraping**
  - To implement **secure authentication** using Google OAuth 2.0
  - To develop a scalable **MERN-based full-stack architecture**
  - To follow **industry-level security and Git version control practices**
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## 3. Problem Statement

Event-related information is often:

- Distributed across multiple websites
- Manually collected and updated
- Lacking proper dashboards and analytics

This results in inefficiency for users, marketers, and businesses.

LOUDERWORLD addresses this problem by **automating data collection** and **presenting it through a unified web interface**.

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## 4. Scope of the Project

### Included in Scope

- Web-based event discovery system
- Google OAuth authentication
- Backend APIs for event and lead management
- Python scraper using Playwright
- Secure environment variable handling

## Excluded from Scope

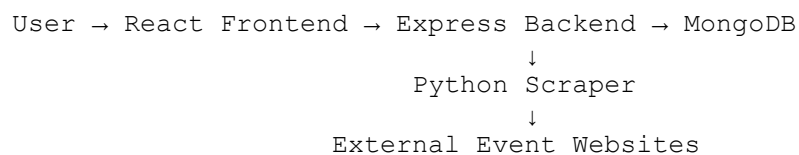
- Payment gateway integration
  - Mobile application
  - AI-based recommendations (future scope)
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## 5. System Architecture

The system follows a **modular client-server architecture**:

- **Frontend:** React + Vite for fast UI rendering
- **Backend:** Node.js & Express for REST APIs
- **Database:** MongoDB for structured data storage
- **Scraper:** Python + Playwright for automated data collection

### Data Flow:



## 6. Technology Stack Used

### Frontend

- React.js
- Vite
- Tailwind CSS
- Axios

### Backend

- Node.js
- Express.js
- Passport.js (Google OAuth)
- MongoDB with Mongoose

### Automation & Scraping

- Python
- Playwright
- Logging & Error Handling

### Tools & Practices

- Git & GitHub
  - dotenv for environment variables
  - PM2 (deployment ready)
  - ESLint & Prettier
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## 7. Features Implemented

### 1. Authentication System

- Google OAuth 2.0 integration
- Secure session management
- Protected routes for dashboards

### 2. Event Dashboard

- Centralized event listing
- Lead management system
- Scalable API structure

### 3. Web Scraping Module

- Automated event data extraction
- Playwright-based browser automation
- Structured and modular scraper design

### 4. Security & Version Control

- Sensitive files hidden using .gitignore
  - Secrets managed via .env files
  - Clean and professional repository structure
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## 8. Project Folder Structure

```
LOUDERWORLD/  
├── frontend/  
│   └── src/  
├── backend/  
│   ├── routes/  
│   ├── controllers/  
│   └── config/  
├── scraper/  
│   └── scripts/  
├── .env.example  
├── .gitignore  
├── README.md  
└── requirements.txt
```

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## 9. Testing & Validation

- API testing using Postman
  - Manual UI testing
  - Scraper output validation via logs
  - OAuth redirect and authentication testing
  - Error handling and fallback testing
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## 10. Limitations

- Scraping depends on third-party website structure
  - Anti-bot mechanisms may affect scraper reliability
  - No mobile app support currently
  - Manual scraper updates required if websites change
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## 11. Learning Outcomes

Through this internship project, I gained hands-on experience in:

- Full-stack web development (MERN)
  - OAuth-based authentication systems
  - REST API design
  - Web scraping using Playwright
  - Secure coding practices
  - Git version control & project structuring
  - Real-world debugging and deployment readiness
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## 12. Future Enhancements

- AI-based event recommendation system
  - Advanced analytics dashboard
  - Role-based access control (RBAC)
  - Payment gateway integration
  - Mobile application using React Native
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## 13. Conclusion

The project successfully demonstrates the integration of frontend, backend, database, authentication, and automation technologies into a single scalable system. This internship

project helped me understand **real-world software development workflows**, security practices, and production-level project structuring, making it a valuable learning experience.

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## 14. References

- React Documentation – <https://react.dev>
- Node.js Documentation – <https://nodejs.org>
- Express.js – <https://expressjs.com>
- MongoDB Docs – <https://www.mongodb.com/docs>
- Playwright – <https://playwright.dev>
- Google OAuth – <https://developers.google.com/identity>