IITG Travel Guide: A Community-Based Travel Planning Platform for IIT Guwahati Students

Project Report

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IITG TALES

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1 Introduction

Travel planning for IIT Guwahati (IITG) students is often a complex and time-consuming task. The institute's location in Assam, coupled with limited access to reliable, student-centric travel resources, makes it challenging for students to discover destinations, plan itineraries, and manage budgets. Many students lack knowledge about local attractions, transportation options, or cost-effective accommodations, leading to inefficient planning and missed travel opportunities.

The IITG Travel Guide is a community-driven web platform designed to address these challenges. Developed as a DBMS project by Abhiram (230150015) and Ashmita (230150014), it empowers students to plan trips seamlessly by leveraging peer reviews, dynamic routing, and integrated mapping. This platform simplifies decision-making by offering tools like distance calculators, budget estimators, and community insights, fostering a collaborative environment tailored to student needs.

The project aims to provide a comprehensive, user-friendly tool that streamlines travel planning, enhances destination discovery, and promotes cost-effective travel. This report focuses on the platform's innovative features, such as dynamic distance calculations and automated route mapping, and their impact on simplifying travel for IITG students.

2 Core Features

The IITG Travel Guide is built around a suite of features that prioritize ease of use, accuracy, and community engagement. Below, we detail the platform's key functionalities, with a focus on their implementation and benefits.

2.1 Dynamic Distance Calculator

One of the platform's standout features is its dynamic distance calculator, implemented in the `plan_trip.php` module. When planning a trip, the system initially calculates distances from the IITG campus to potential destinations. As users add destinations to their itinerary, the calculator automatically updates to display distances from the last selected destination, streamlining multi-stop trip planning.

This feature eliminates the need for manual distance lookups, saving time and ensuring accurate travel estimates. For example, a student planning a trip from IITG to Shillong and then to Cherrapunji can instantly see the distance between Shillong and Cherrapunji without external tools. The calculator integrates with the database to fetch real-time distance data, enhancing precision.

2.2 Automated Route Mapping

The platform integrates interactive maps in `plan_trip.php`, powered by mapping APIs, to visualize trip itineraries. Once a user selects destinations, the system automatically generates a route map, displaying the path from IITG to each stop in sequence. This feature provides visual clarity, helping students understand travel routes and make informed decisions about transportation modes.

The maps also support local discovery by highlighting nearby attractions, accommodations, and dining options. For instance, a student planning a trip to Guwahati can explore nearby sites like the Kamakhya Temple directly on the map, with distances and transit times calculated automatically. This reduces planning complexity and encourages exploration.

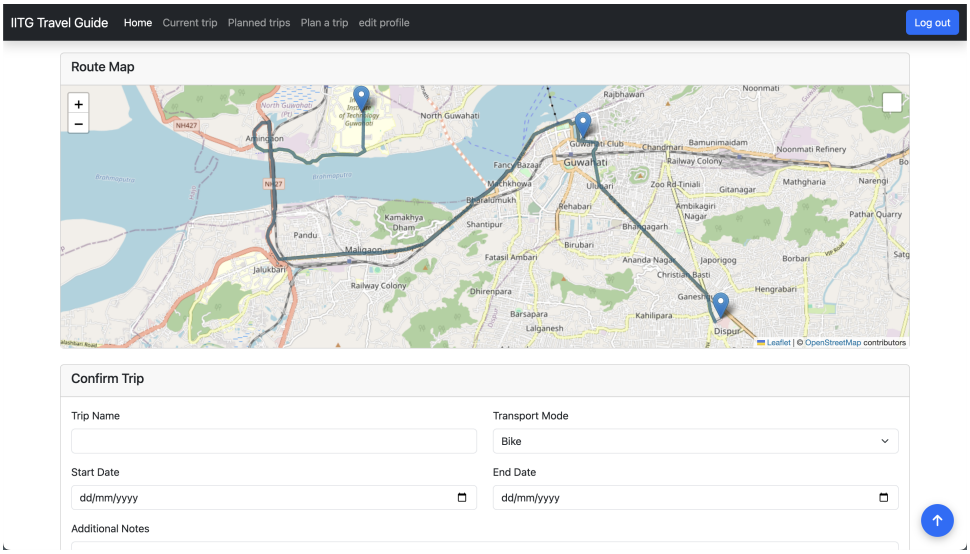

Figure 1: Automated route mapping from IITG to Nehru Park, and Srimanta Sankardev Kalakshetra.

2.3 Smart Trip Planning

The smart trip planning feature uses an algorithm to suggest destinations based on user preferences, such as budget, travel duration, and interests. Implemented in `plan_trip.php`, it filters destinations from a database of locations, prioritizing those with high student ratings and proximity to the user's current plan.

Users can add or remove destinations, and the system dynamically adjusts the itinerary, recalculating distances and updating the route map. This ensures flexibility while maintaining an optimized travel plan, making it easier for students to create comprehensive itineraries without extensive research.

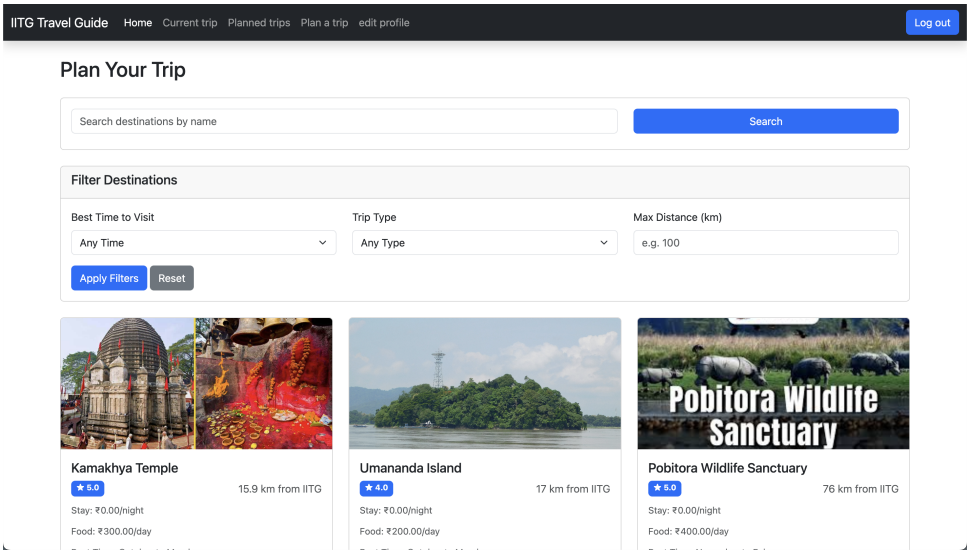

Figure 2: The "Plan Your Trip" page showing destination suggestions and filtering options for smart trip planning.

2.4 Community-Driven Reviews

The platform fosters a collaborative community by allowing students to submit reviews and ratings for destinations, stored in the database and displayed dynamically. Accessible via `past_trips.php`, these reviews provide authentic insights into aspects like the best travel seasons, hidden gems, and student-friendly accommodations.

For example, a review might highlight a budget hostel near Kaziranga National Park, complete with cost details and travel tips. This peer-sourced information helps students make informed choices, reducing the risk of poor travel experiences and building trust in the platform.

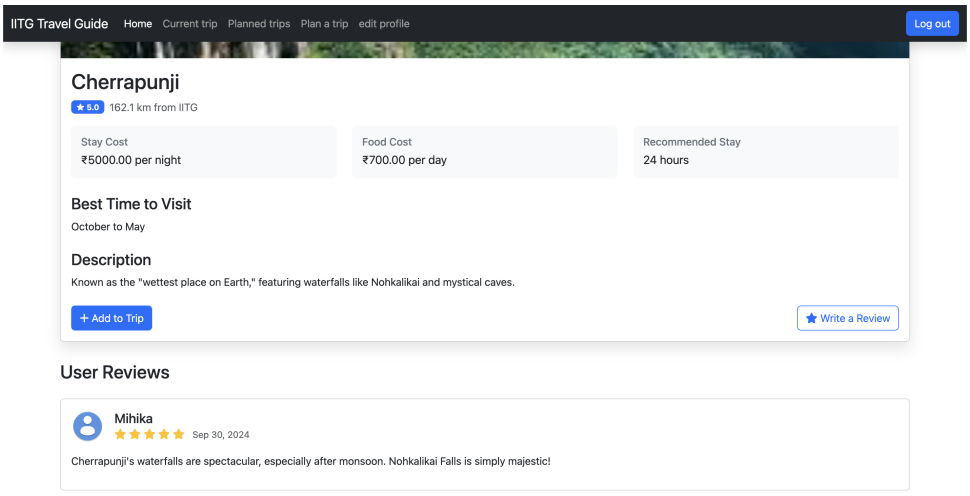

Figure 3: Destination details for Cherrapunji, featuring community-driven reviews and ratings.

2.5 Budget Management

The budget management tool, integrated into `plan_trip.php`, estimates costs for transportation, accommodation, and food based on student reviews and external data. Users input their budget, and the system suggests destinations and services that align with their financial constraints.

For instance, a student with a 5000 budget for a weekend trip can receive recommendations for affordable destinations like Tezpur, with estimated costs for bus travel, budget hotels, and meals. This feature ensures cost-effective planning, making travel accessible to all students.

2.6 Dynamic Trip Management

The platform dynamically tracks and organizes trips through two modules:

- **Current Trip** (`current_trip.php`): Displays real-time details of an active trip, including destinations, routes, and budgets. Users can update their itinerary, and the system recalculates distances and maps automatically.
- **Past Trips** (`past_trips.php`): Archives completed trips, allowing users to review itineraries, share experiences, and contribute reviews. This feature creates a repository of travel knowledge for the community.

This dual approach ensures students can manage ongoing trips efficiently while learning from past experiences, fostering continuous improvement in travel planning.

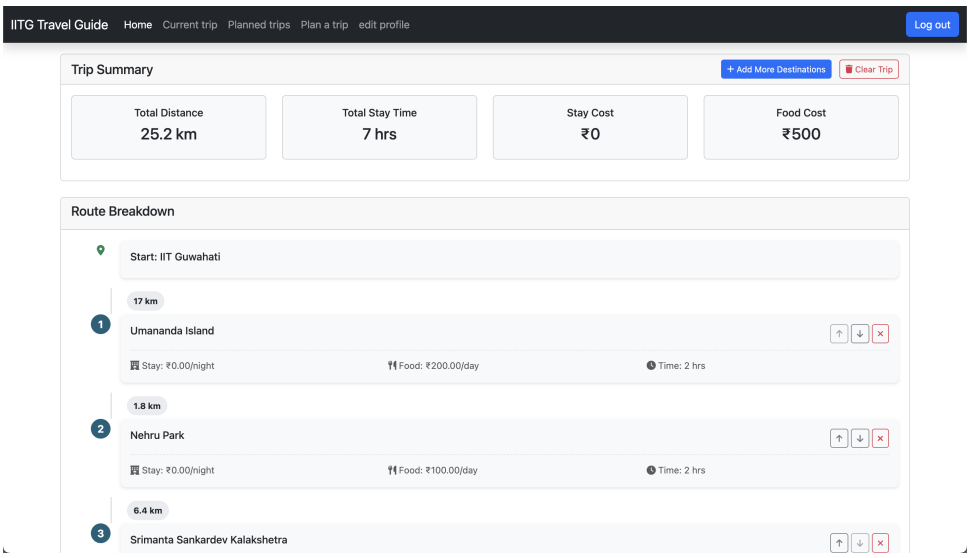

Figure 4: The "Current Trip" page showing a trip itinerary with route breakdown and summary.

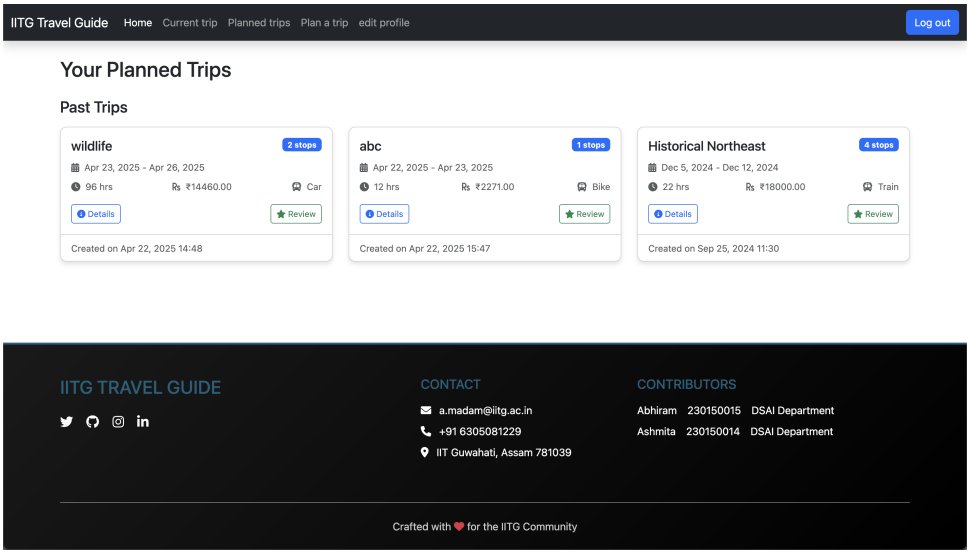

Figure 5: The "Past Trips" page displaying archived trips with details and review options.

2.7 Contact and Feedback System

The contact form, processed by `process_contact.php`, enables users to submit inquiries, bug reports, or feature requests. Data is stored in the `contacts` table, with fields for query type, subject, and status, allowing administrators to respond promptly.

This system ensures the platform evolves based on user feedback, maintaining its relevance and effectiveness for the IITG community.

3 Technical Implementation

The IITG Travel Guide is built using a robust stack to ensure functionality and scalability.

3.1 Backend

PHP handles server-side logic, including form processing and session management, while MySQL stores user data, trip details, and reviews. Prepared statements in `login.php` and `signup.php` prevent SQL injection, ensuring security.

Key tables include:

- `users`: Stores user information (user_id, username, email, password, profile_image).
- `trips`: Manages trip data (trip_id, user_id, destinations, status).
- `reviews`: Contains destination reviews (review_id, user_id, destination, rating, comment).

3.2 Frontend

The frontend uses HTML, CSS, and JavaScript, with Bootstrap 5.3.3 for responsive design. Custom CSS in `index.php` and `footer.php` ensures a cohesive aesthetic. AOS animations enhance interactivity.

4 Security Measures

Security features include:

- Password hashing with `password_hash()` in `signup.php`.
- Prepared statements to prevent SQL injection.
- Session-based authentication for secure access.

5 Impact and Benefits

The IITG Travel Guide transforms travel planning by:

- Simplifying destination selection with dynamic distance calculations and route mapping.
- Enhancing decision-making through community reviews.
- Reducing planning time with automated tools and budget management.

6 Conclusion

The IITG Travel Guide is a powerful tool that addresses the travel planning challenges faced by IITG students. Its features, including dynamic distance calculations, automated route mapping, and community reviews, make it an indispensable resource for student travelers.

7 Future Work

Potential improvements include:

- Real-time travel API integration for live pricing.
- Machine learning for personalized recommendations.
- A mobile app for on-the-go access.

8 References

- Bootstrap Documentation: https://getbootstrap.com/docs/5.3/
- PHP Manual: https://www.php.net/manual/en/