Implementation Document

for

Ride With Us

Version 1.0

Prepared by

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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1.0	AYUSH YADAV HARSHIT PATEL JATOTH SHASHI VARDAN KANDULA AMARNADHU PAL AJAY RAMSAGAR ROHIT VINOD ATKURKAR SANGA BADRI SUGALI YASHWANTH NAIK SUNANDINI BANSAL V HARIVANSH	Initial Implementation of the project	28/03/2025

1 Implementation Details

Programming Languages and Frameworks

- **Backend:** PHP (version 7.x+)
- **Frontend:** JavaScript (with RequireJS for module management)
- **Mapping:** Leaflet.js with OpenStreetMap routing
- **Database:** MySQL

Technology Stack Justification

- **PHP**
  - Server-side scripting language with strong web development capabilities
  - Easy database integration with MySQLi
  - Built-in security features like input sanitization
  - Wide hosting support and low infrastructure costs

- **JavaScript (with RequireJS)**
  - Dynamic, interactive user interfaces
  - Module-based architecture with RequireJS
  - Rich ecosystem of mapping and geocoding libraries
  - Client-side route rendering and interaction

- **Leaflet.js with OpenStreetMap**
  - Lightweight, open-source mapping library
  - Supports mobile and desktop platforms
  - Free routing services
  - Extensive plugin ecosystem
  - Supports draggable markers and route calculations

- **MySQL**
  - ACID-compliant relational database
  - High performance and scalability
  - Strong data integrity with constraints
  - Free and open-source
  - Excellent PHP integration

Database Schema

The application uses three primary tables:

- **user:** Stores user information
- **trip:** Stores trip details
- **trip_request:** Manages ride requests and their statuses

Security Features

- Password encryption using SHA-256 with salting
- Input sanitization to prevent SQL injection
- Binary/TINYINT for boolean-like fields
- Constraints on database tables

2 Codebase

Repository Overview

- Github Repository Link: Here
- Github Repository Structure:

```
├── css/              # Stylesheets
├── js/               # JavaScript files
│   ├── components/   # Reusable UI components
│   ├── lib/          # Third-party libraries
│   └── *.js          # functionality
├── functions/        # PHP functions
├── templates/        # HTML templates
└── *.php             # Main application files
```

Key Files

- **database.php:** Database interaction and trip management
- **user.php:** User authentication and management
- **functions.php:** Utility functions and database connection
- **map-route.js:** Client-side route mapping and interaction

Codebase Navigation

- Backend logic is primarily in PHP files
- JavaScript handles client-side interactions
- Modular design with clear separation of concerns

3 Completeness

Implemented Features

- User Registration and Authentication
- Trip Creation
- Ride Requests
- Location-based Trip Search
- Interactive Map Routing

Detailed Feature Breakdown

1. User Management

- Registration with validation
- Login/Logout functionality

2. Trip Management

- Create trips with origin/destination
- Set trip parameters (spots, women-only, etc.)
- Trip request handling
- Trip deletion

3. Routing

- Geocoding with OpenStreetMap
- Interactive map selection
- Route distance and duration calculation
- Draggable markers

Future Development Plan

- **Version 2.0 Roadmap**

1. Enhanced User Experience

- Social media integration
- User ratings and reviews system
- Improved notification mechanisms

2. Advanced Routing

- Multiple waypoint support
- Estimated fuel cost calculation
- Traffic and alternative route suggestions

3. Safety Features

- Background verification for drivers
- Real-time trip tracking
- Emergency contact integration

4. Payment Integration
- Secure payment gateway
- Trip cost splitting
- Damage deposit mechanism

5. Accessibility Improvements
- Multi-language support
- Enhanced mobile responsiveness
- Improved screen reader compatibility

Conclusion

Ride With Us provides a robust, scalable carpooling platform with a focus on user interaction, safety, and convenience.

Appendix A - Group Log

<Please include here all the minutes from your group meetings, your group activities, and any other relevant information that will assist in determining the effort put forth to implement your software>