

# YatriPulse

## Transforming Rush Hour into Flow Hour

AI-powered solution optimizing peak-hour rides through intelligent prediction and dynamic pricing.

Team  
TrafficTerminator  
Track 3

# About Me



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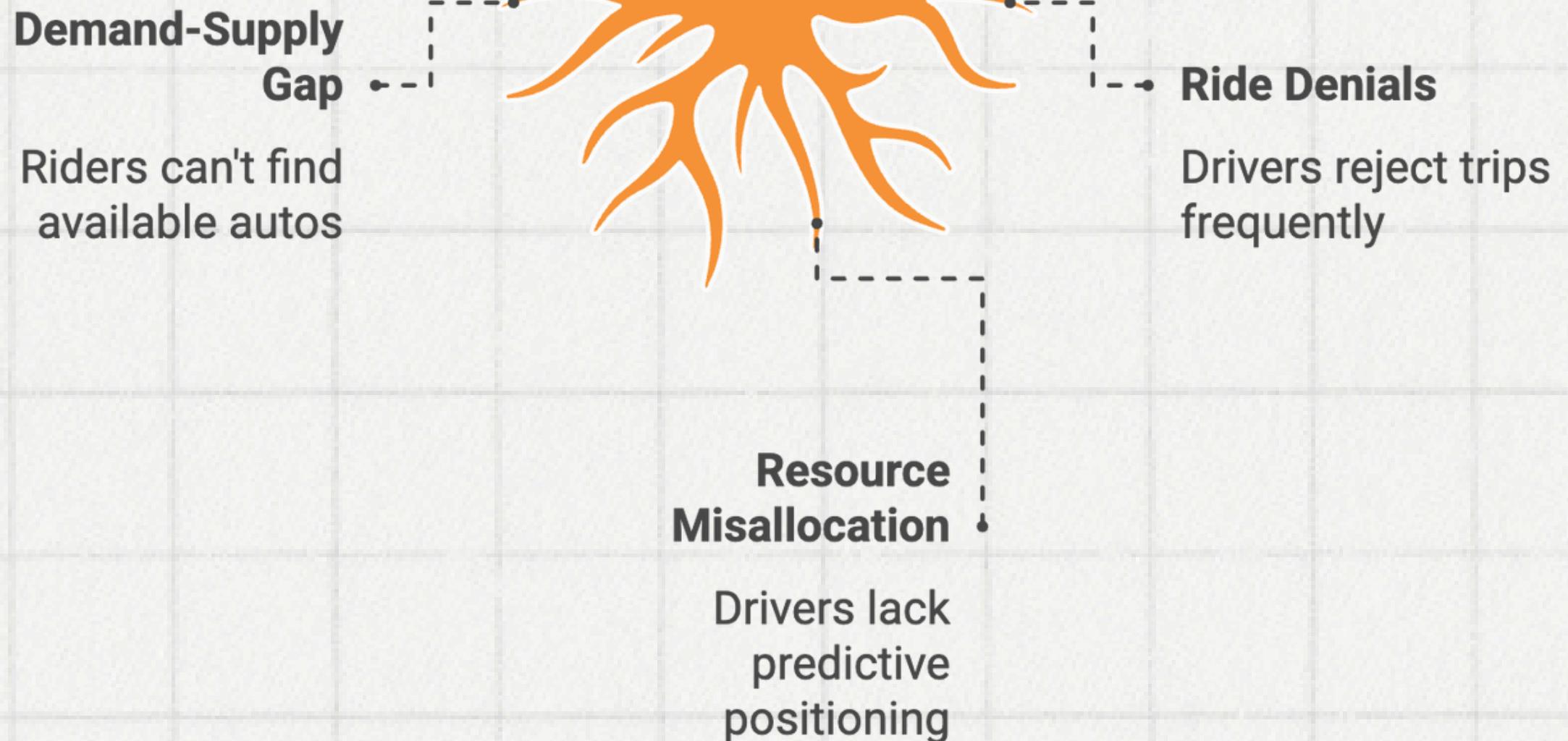
Researcher-CosyLabs

# Problem Statement

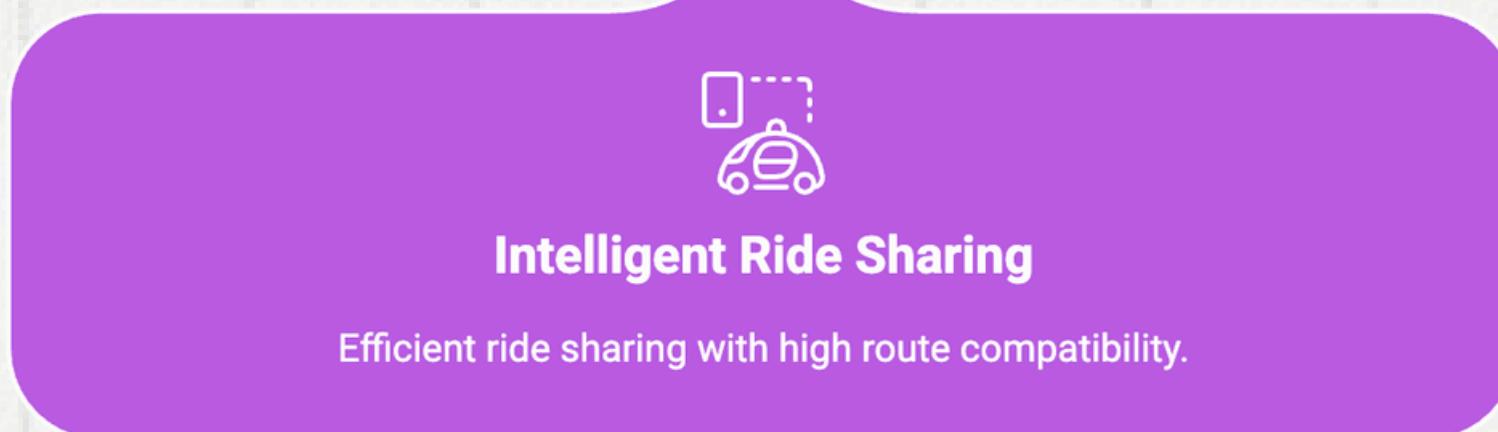
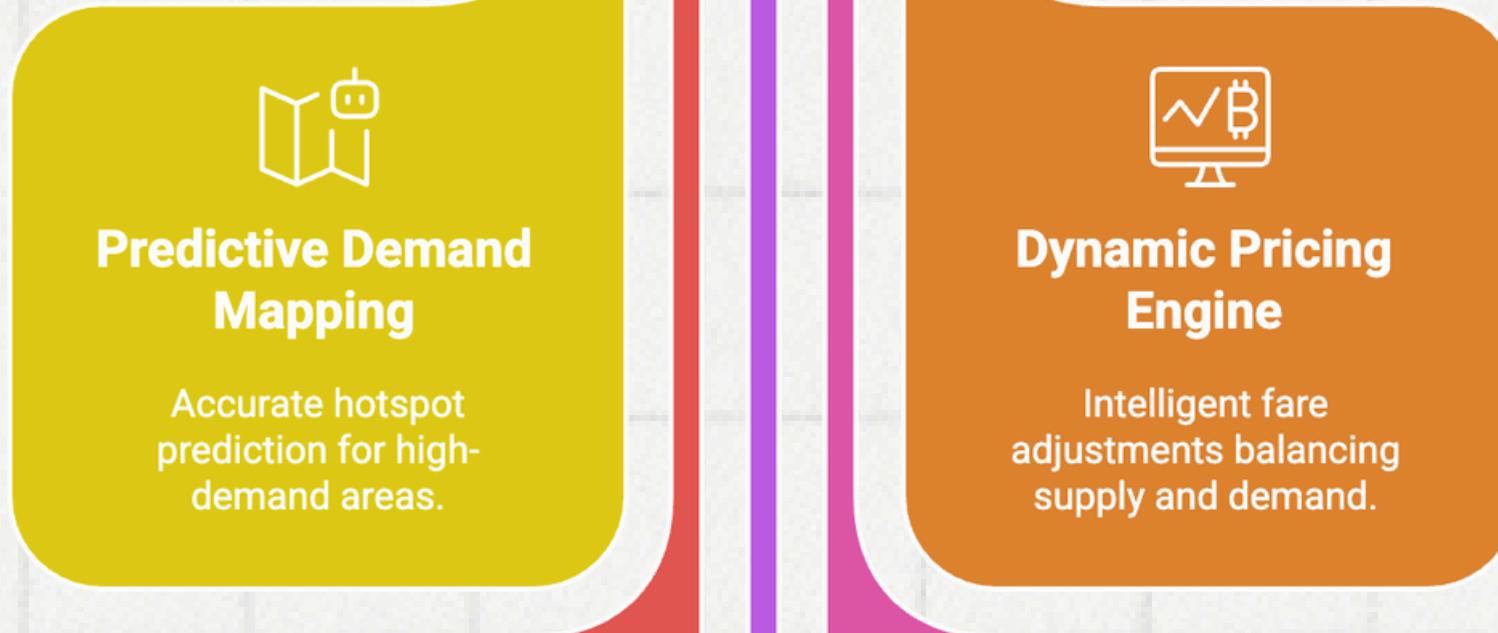
## Urban Mobility Peak Hour Challenge

- **Demand-Supply Imbalance** : Critical shortage of auto-rickshaws during rush hours
- **High Rejection Rate** : Significant ride requests denied during peak periods
- **Inefficient Driver Positioning** : Drivers unable to anticipate high-demand areas

These challenges create a negative feedback loop: frustrated riders, reduced driver earnings, and platform inefficiency during critical operating periods.



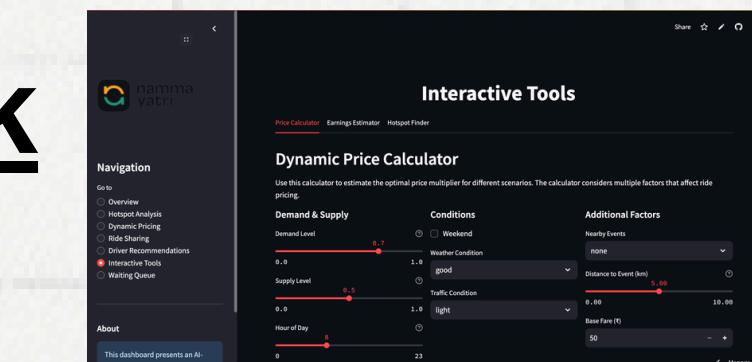
# Solution

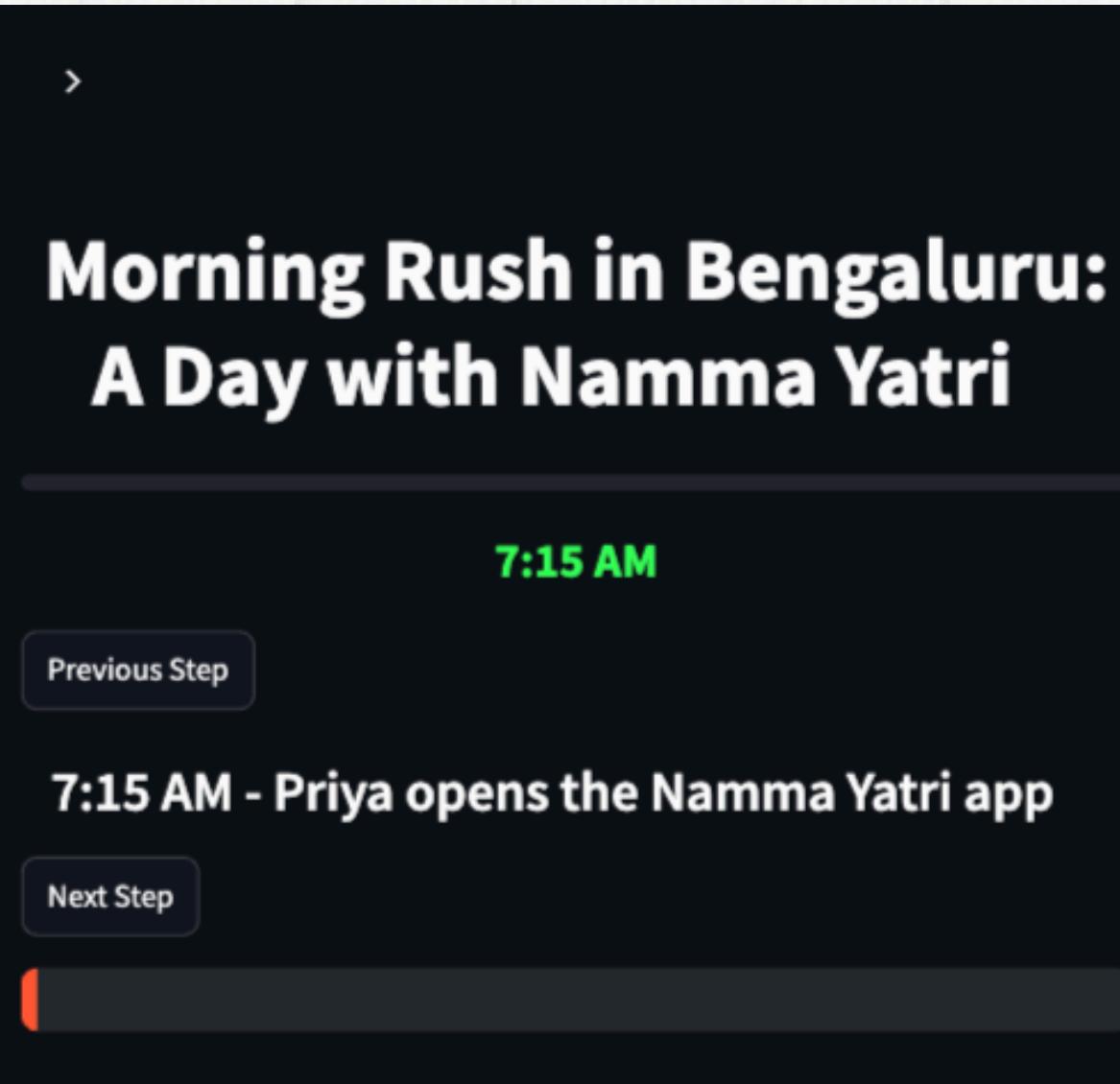
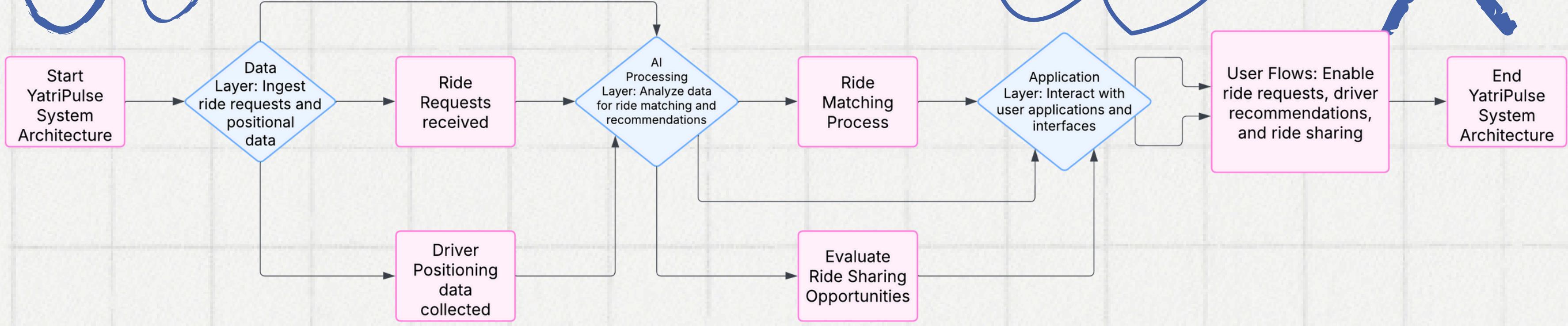


## AI-Powered Urban Mobility Optimization

- **Predictive Demand Mapping :** LSTM-based hotspot prediction with 87% accuracy identifies high-demand areas before they form
- **Dynamic Pricing Engine :** Reinforcement learning model balances supply-demand through intelligent fare adjustments
- **Smart Driver Positioning :** Personalized recommendations guide drivers to optimal locations based on historical patterns
- **Priority Queue Management :** Fair allocation system that respects subscriber status while optimizing overall wait times
- **Intelligent Ride Sharing :** Route compatibility algorithm identifies sharing opportunities with 65% route overlap

## Dashboard-Link





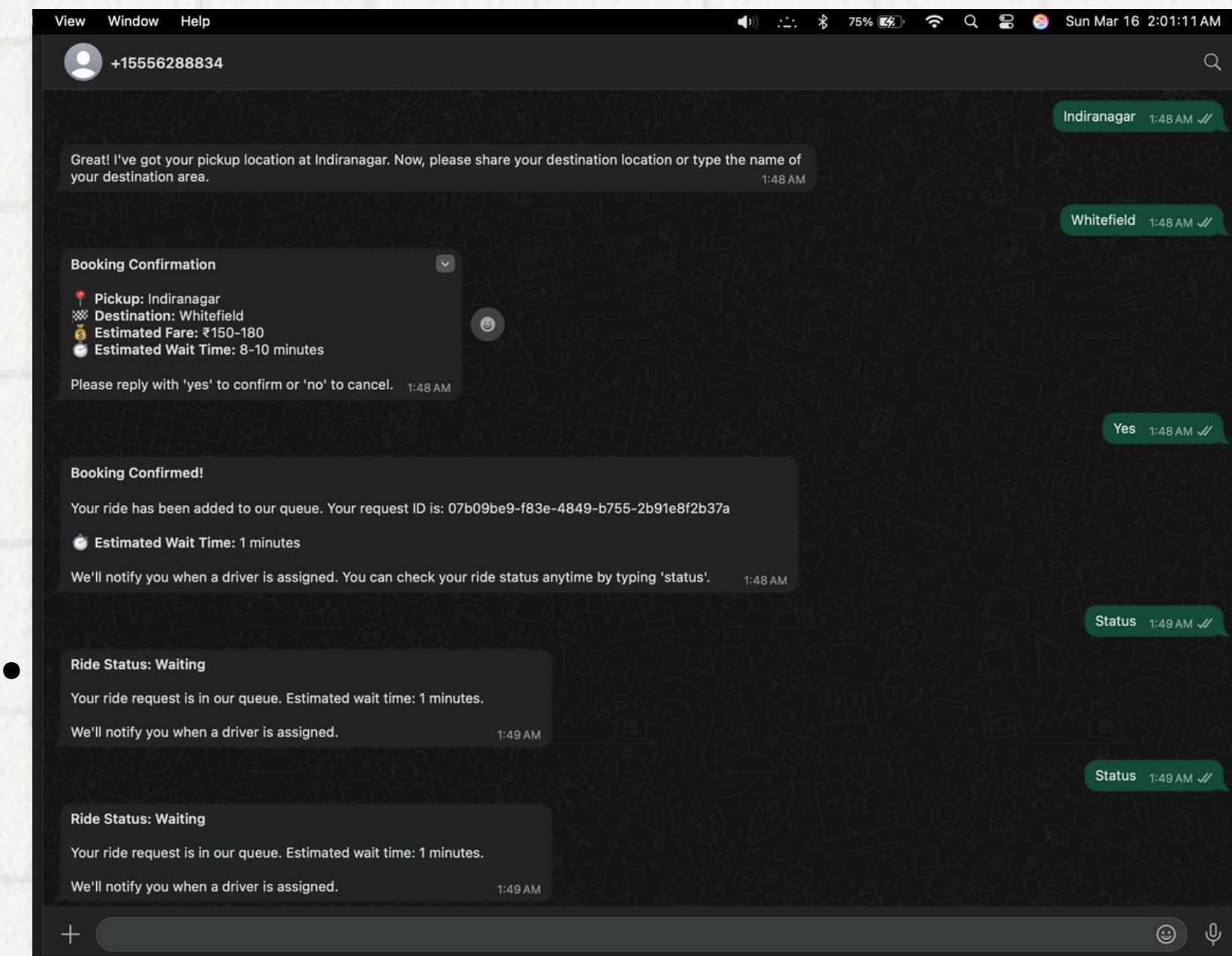
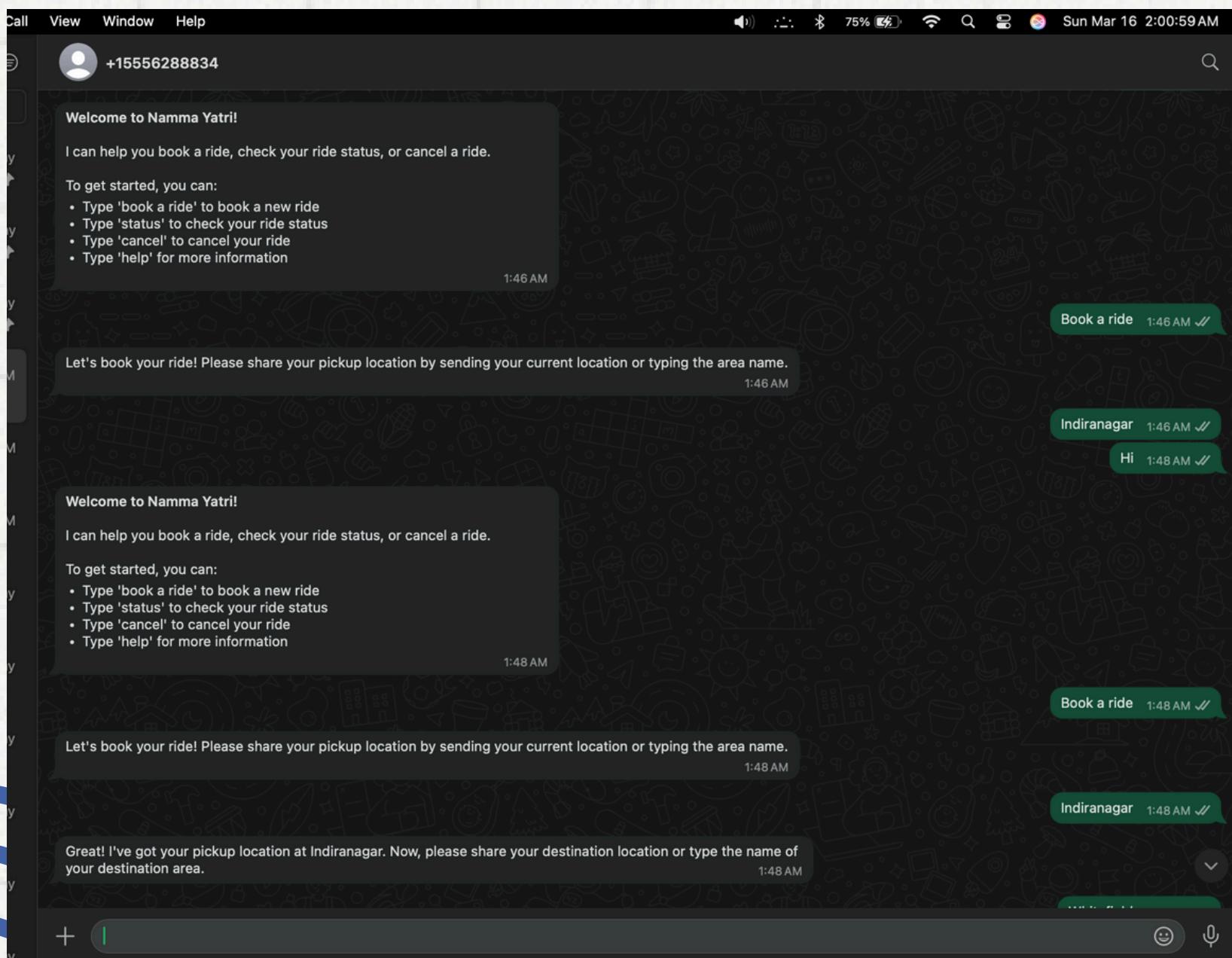
# Architecture & Real Scenario

Link

# Booking Made Simple

## Whats App Integratiom

Now Book your Yatri with a single What's App Message



1.

2.

# Cost Efficiency

## Revenue Potential

- **Increased Ride Volume** : 15-20% more completed rides during peak hours
- **Higher Driver Retention** : 30% reduction in driver churn saves ₹3,500 per driver in acquisition costs
- **Premium Subscription Revenue** : ₹99/month from estimated 15% of user base
- **Reduced Marketing Costs** : 25% decrease in incentive spending due to better organic matching

## Implementation Costs

- **AI Infrastructure** : ₹8-12 lakhs annually for cloud computing resources
- **Model Development & Maintenance** : ₹15-20 lakhs for initial development, ₹6-8 lakhs annually for updates
- **Integration & Deployment** : ₹5-7 lakhs one-time cost
- **Monitoring & Analytics** : ₹3-5 lakhs annually

\*Just an guesstimate using [sources](#)

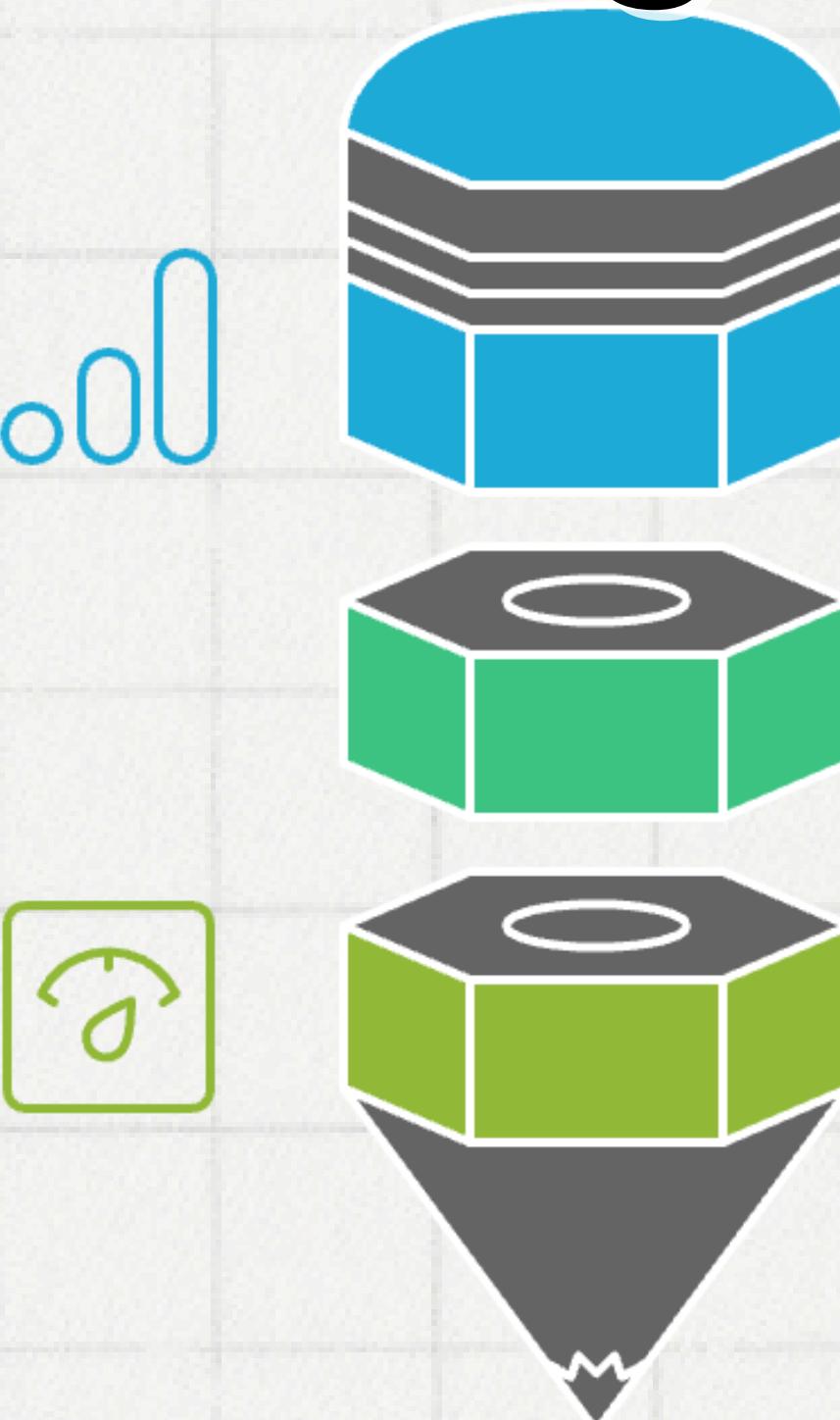
# Technologies Used

## AI/ML Technologies

Includes LSTM Neural Networks, Q-Learning, TensorFlow/Keras, and Scikit-learn for various predictive and analytical tasks.

## System Components

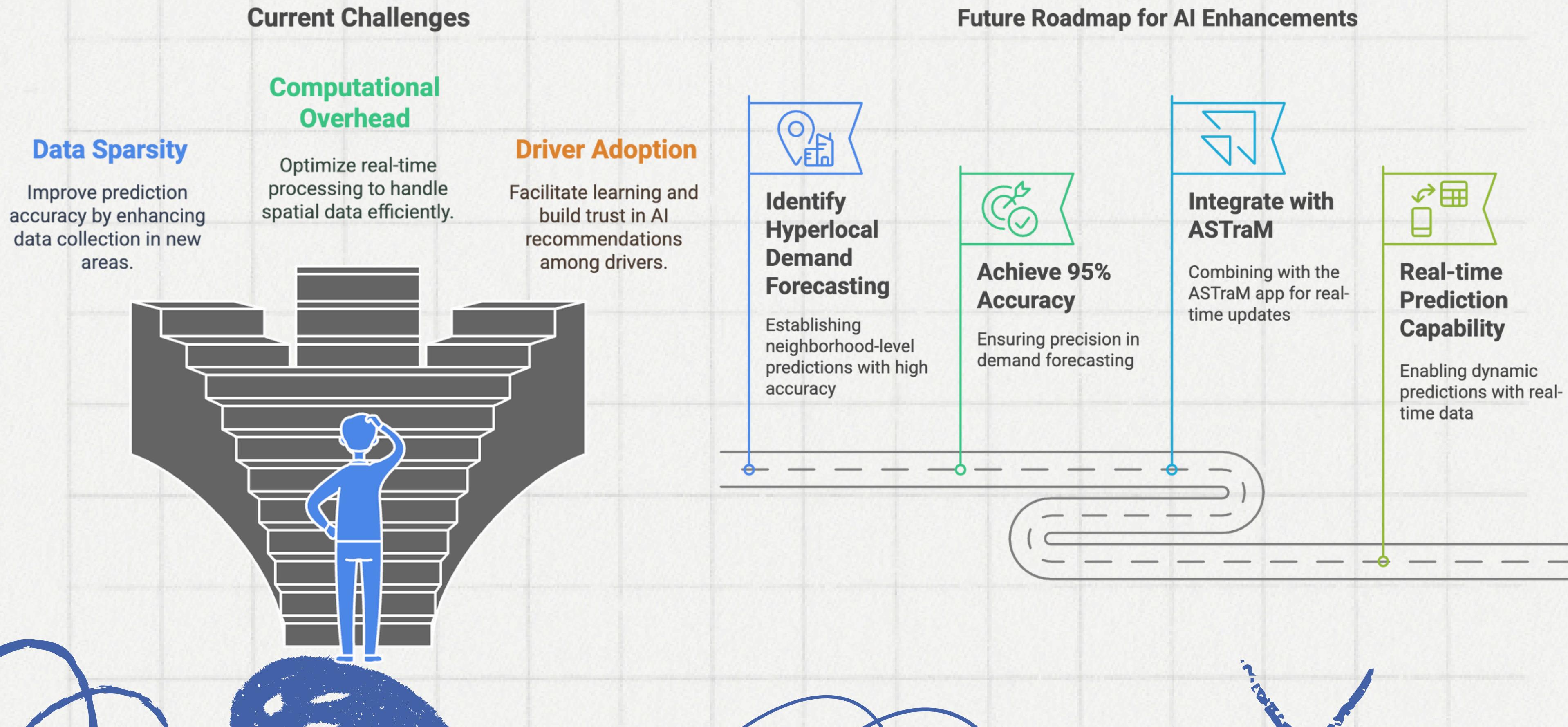
Comprises a Waiting Queue System, Dynamic Pricing Model, and Driver Recommendation Engine for efficient operations.



## Visualization & Frontend

Utilizes Streamlit for creating interactive dashboards to visualize data.

# Challenges & Future Improvements



# Why Choose Us ?



## Why Choose Our Service?

-  **Innovative Solutions**  
Reduces wait times, optimizes pricing, and predicts hotspots
-  **Accessibility**  
Offers easy booking via WhatsApp without app downloads
-  **Reliability**  
Ensures fair ride distribution and reduces peak-hour denials
-  **Transparency**  
Provides clear pricing and real-time estimates
-  **Driver Benefits**  
Increases earnings and reduces idle time for drivers

# Sources

## Datasets

1. [Ola Dataset](#)
2. [Kaggle Dataset](#)
3. [Traffic Dataset](#)

[Dashboard Link](#)

[Real Scenario](#)

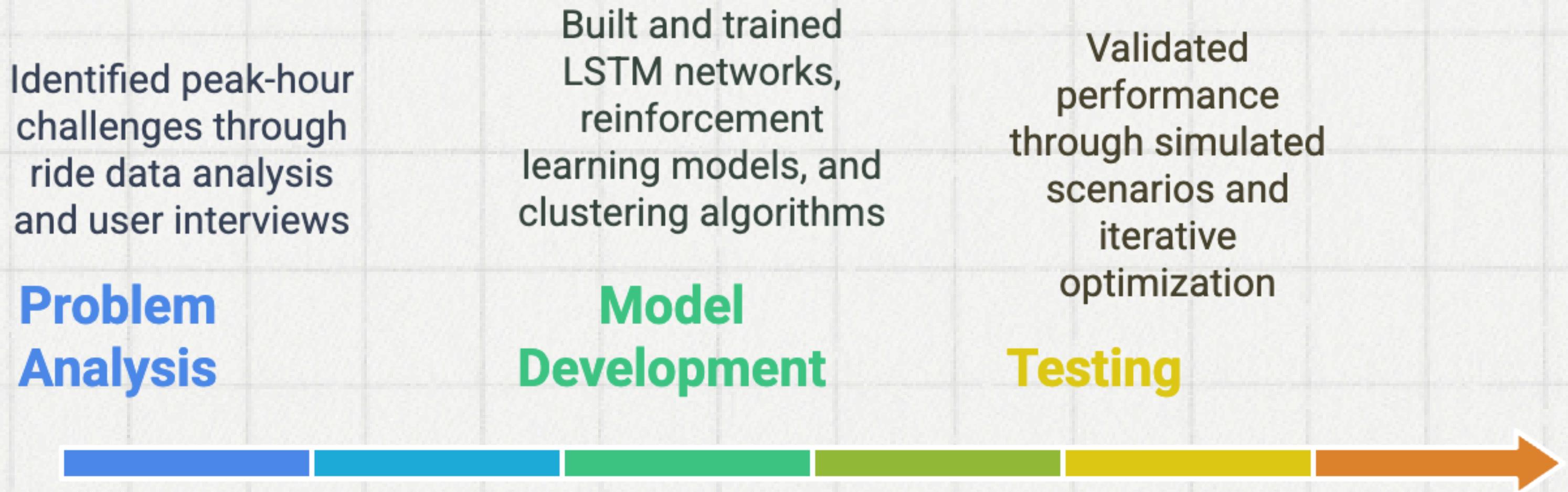
[Documentation](#)

[Code files and github](#)



**Thank You**

# Namma Yatri Peak Hour Solution Development Timeline



## Data Collection

Gathered 6 months of historical ride data including locations, times, and weather conditions

## Integration

Combined individual components into a unified system with clear data flows

## Deployment

Implemented solution with continuous monitoring and improvement processes