PathPulse.ai × TimoRides Integration

Opening Africa's Under-Served Mobility Market with Next-Gen Routing & Data Monetization

v1.0 | October 20, 2025

Strategic partnership proposal: Empowering African drivers with data ownership while providing PathPulse with premium ground-truth data from emerging markets

TimoRides / OASIS Integration Team | TimoRides | github.com/TimoRides

Executive Summary

TimoRides is pioneering premium ride-hailing in Africa, starting with Durban, South Africa. We're building on OASIS Web4/Web5 infrastructure to create a platform where drivers own their data and earn from it. PathPulse.ai is identified as our ideal routing partner - your whitepaper explicitly lists ride-sharing services as key customers, and your decentralized data marketplace aligns perfectly with our vision of driver empowerment.

The Opportunity

Africa represents a massive untapped opportunity: 1.4 billion people, rapidly growing smartphone adoption, and minimal competition from legacy players in secondary cities. TimoRides + PathPulse can define the future of mobility data in emerging markets.

Opening Under-Served African Markets

PathPulse gains access to ground-truth road data from African cities where Google Maps coverage is limited. TimoRides drivers become PathPulse's data contributors in Durban, Johannesburg, Cape Town, and beyond - markets with massive growth potential but limited current mapping data.

Powerful Driver Revenue Streams

Aligned with PathPulse's 'Contributor ID' and decentralized data marketplace model, TimoRides drivers earn passive income by sharing anonymized road condition data. This creates loyal contributors in emerging markets while providing PathPulse with high-value metadata for your government and fleet customers.

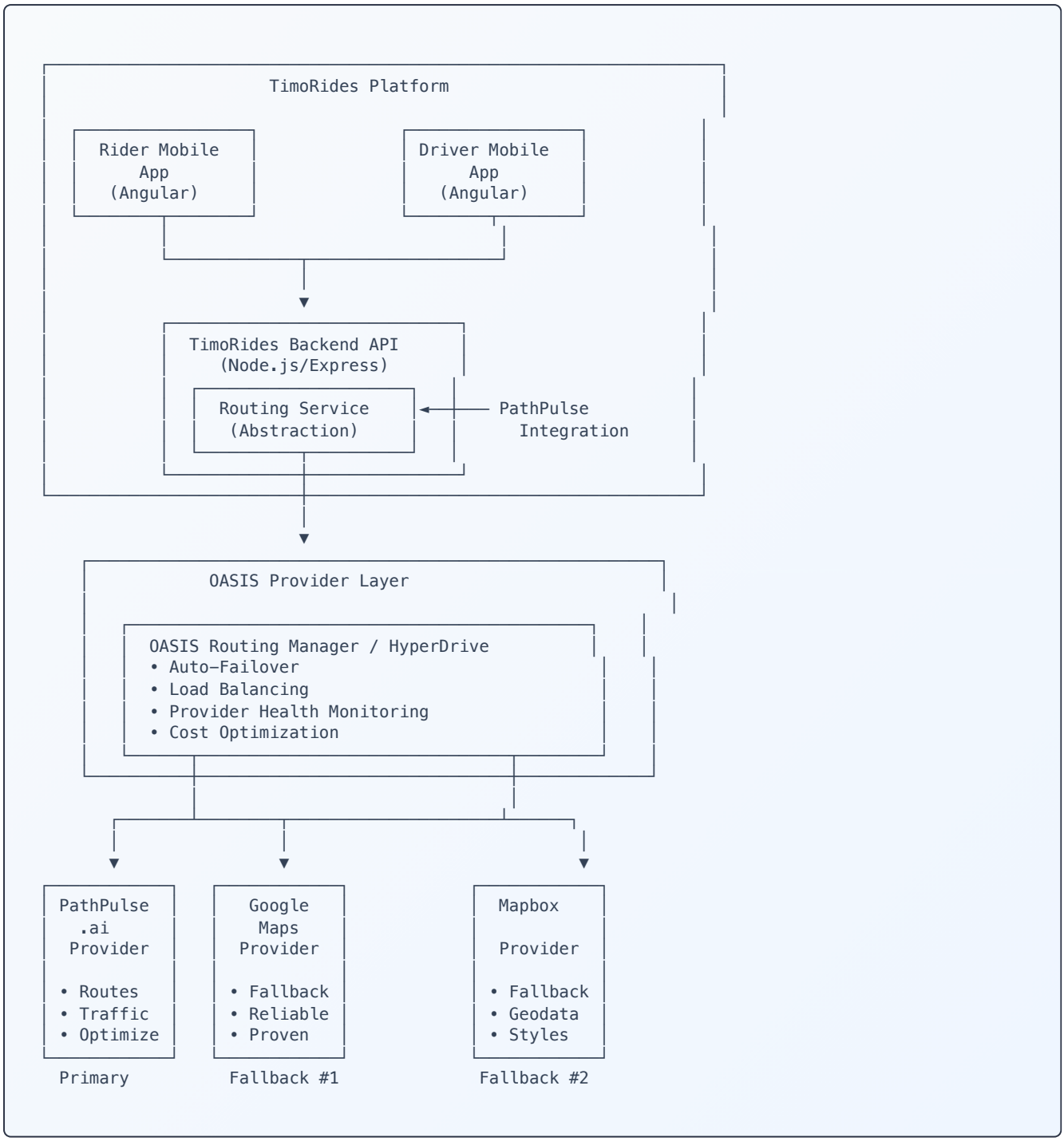
Government & Infrastructure Partnerships

PathPulse's whitepaper identifies government transportation departments as key customers. TimoRides provides the on-the-ground data collection network in African cities - real-time traffic, road conditions, and infrastructure insights that governments desperately need for urban planning.

Empowering Alternative to Google Maps

Together, we challenge Google's monopoly in African markets. PathPulse gets a competitive edge with exclusive ground-truth data from TimoRides' driver network, while our riders and drivers benefit from routing that understands local conditions - not just satellite imagery.

Integration Architecture



Key Use Cases for PathPulse in TimoRides

Ride Distance & Fare Calculation

Current:	Google Maps Distance Matrix API
PathPulse:	More accurate distance with traffic consideration
Impact:	Fairer pricing, better rider expectations

Driver ETA to Pickup

Current:	Static distance calculation
PathPulse:	Real-time traffic-aware ETA
Impact:	Riders know exactly when driver will arrive

Multi-Stop Rides

Current:	Manual route planning
PathPulse:	Intelligent route optimization
Impact:	Drivers save time and fuel, riders pay less

Premium Ride Experience

Current:	Basic A→B routing
PathPulse:	Scenic routes, avoid traffic, alternative options
Impact:	True premium experience for premium rides

Request Flow: With PathPulse Integration

```
Rider requests ride
        │
        ▼
TimoRides Backend
        │
        ▼
routingService.js (NEW)
        │
        ├──► Try PRIMARY: PathPulse.ai API
        │           │
        │           ├──► ✅ Success
        │           │    Distance: 25.3 km
        │           │    Duration: 32 minutes (with traffic)
        │           │    Traffic: Moderate
        │           │    Alternative routes: 2
        │           │
        │           └──► ❌ Failed/Timeout
        │                     │
        │                     ▼
        │           Try FALLBACK: Google Maps
        │                     │
        │                     ▼
        │           Distance: 25.5 km
        │           Duration: 35 minutes
        │
        ▼
Calculate Fare: $18.20
        │
        ▼
Show estimate to Rider
   • "Estimated: 32 min (traffic: moderate)"
   • "Alternative routes available"
```

Driver Data Monetization Model

Drivers earn additional revenue by sharing anonymized driving data with PathPulse.ai through a Web3-native data marketplace where drivers maintain ownership and control.

```
┌──────────────────────────────────────────────────────┐
│                  Driver Data Flow                    │
└──────────────────────────────────────────────────────┘

1. Driver opts-in to data sharing
   ├─ Accepts data sharing terms
   ├─ Sets data sharing preferences
   └─ Links wallet for micropayments

2. Driver's device collects data during rides
```

```
    ├─ GPS coordinates (anonymized)
    ├─ Speed, acceleration, braking patterns
    ├─ Route choices and traffic conditions
    └─ Road quality, potholes, obstacles

3. Data stored on Driver's OASIS Avatar
    ├─ Encrypted and attached to driver's Avatar
    ├─ Driver maintains ownership
    └─ Versioned and immutable (blockchain-backed)

4. PathPulse requests data access
    ├─ Driver receives notification
    ├─ Driver approves/rejects request
    └─ Smart contract governs data access terms

5. Data shared with PathPulse
    ├─ Anonymized and aggregated
    ├─ PathPulse improves routing algorithms
    └─ PathPulse pays for data access

6. Driver gets paid
    ├─ Micropayments to driver's wallet
    ├─ Paid in local currency, USDC, or mobile money
    └─ Driver earns karma for contributing to ecosystem
```

Data Types Drivers Can Share

- Route History: Actual routes taken (anonymized GPS trails)
- Traffic Patterns: Real-time traffic observations
- Speed Data: Average speeds on different road segments
- Road Conditions: Potholes, construction, road quality
- Parking Availability: Where parking was found
- Wait Times: Pickup wait times, drop-off times

Example Driver Earnings

Active Driver (200 rides/month)

Base Data Sharing: $20.00
Traffic Reports: $0.15
Road Conditions: $0.10
Revenue Share: $1.00

Total Monthly: $21.25

Plus: 2,000 karma points/month

Part-Time Driver (50 rides/month)

Base Data Sharing: $5.00
Traffic Reports: $0.03
Road Conditions: $0.00
Revenue Share: $0.20

Total Monthly: $5.23

Plus: 500 karma points/month

Privacy Protection

- ✓ No Personal Information: Names, addresses, rider info never shared
- ✓ GPS Anonymization: Location data anonymized to 100m radius
- ✓ Aggregation: Data combined with other drivers before PathPulse access
- ✓ Differential Privacy: Mathematical privacy guarantees
- ✓ GDPR/POPIA Compliant: Meets all data protection regulations

Technical Requirements from PathPulse

✓ Must-Have Features

Distance Calculation API

Input: Origin (lat/lng), Destination (lat/lng). Output: Distance (km), Duration (minutes). Response time: <500ms

ETA with Traffic API

Real-time traffic consideration, Departure time parameter, Alternative routes

Route Optimization API

Multiple waypoints (5-10 stops), Optimize for time or distance, Return optimized order + total metrics

+ Nice-to-Have Features

- Geocoding (address → coordinates)
- Reverse Geocoding (coordinates → address)
- Polyline/Route Geometry (for drawing on map)
- Historical Traffic Patterns
- WebSocket/Streaming API (for live tracking)

Proposed 8-Week Integration Timeline

Phase 1: Discovery & Scoping — Week 1-2

- ✅ Technical architecture review (this document)
- 🔲 📄 PathPulse API documentation review
- 🔲 📄 Test API credentials & sandbox access
- 🔲 📄 Pricing & business terms discussion

Phase 2: MVP Integration — Week 3-4

- 🔲 📄 Implement PathPulse service layer in TimoRides backend
- 🔲 📄 Replace distance calculation with PathPulse
- 🔲 📄 Set up Google Maps as fallback
- 🔲 📄 Internal testing with real Durban routes

Phase 3: Pilot Testing — Week 5-6

- 🔲 📄 Closed beta with 50-100 rides
- 🔲 📄 Monitor accuracy, performance, costs
- 🔲 📄 Gather rider/driver feedback
- 🔲 📄 Compare vs Google Maps baseline

Phase 4: Production Launch

Week 7-8

- [ ] 🚀 Full rollout to all TimoRides users
- [ ] 📊 Monitoring & analytics dashboard
- [ ] 💰 Cost tracking & optimization
- [ ] ⚡ Performance SLA monitoring

Phase 5: Advanced Features

Week 9-12+

- [ ] 🔄 Multi-stop optimization for shared rides
- [ ] 🚦 Traffic-aware dynamic pricing
- [ ] 🌐 Full OASIS provider implementation (optional)

Success Metrics

Technical KPIs

- ✓ API Response Time: <500ms (95th percentile)
- ✓ Uptime: >99.5%
- ✓ Accuracy: <5% deviation from actual drive time
- ✓ Fallback Rate: <1% of requests

Business KPIs

- ✓ Cost per Ride: Track routing costs
- ✓ User Satisfaction: Rider ratings for ETAs
- ✓ Driver Efficiency: Time/fuel savings with optimization
- ✓ Revenue Impact: Premium rides booked due to better routing

TimoRides Market Data & Projections

Estimated Volume

Rides per month: ~10,000 (MVP), scaling to 100,000+

Distance calculations per ride: 3-5 (Initial fare estimate, Driver assignment, Live tracking ETAs)

Total API calls: ~30,000 - 50,000/month (MVP)

Current Costs

Google Maps Distance Matrix: ~$5-10 per 1,000 requests

Monthly spend: ~$150-500 (MVP phase)

Projected spend (scale): $5,000+/month at 1M rides/year

Geographic Focus

Primary: Durban, South Africa

Phase 1 Expansion: Johannesburg, Cape Town, Pretoria, Harare (Zimbabwe)

Phase 2: Pan-African expansion (Kenya, Nigeria, Ghana)

Phase 3: South American markets (Brazil, Colombia, Argentina)

Questions for PathPulse Team

Technical

- What is your API architecture? (REST, GraphQL, gRPC?)
- Do you provide SDKs? (Node.js, Python, C#?)
- What authentication method do you use? (API keys, OAuth, JWT?)
- What are your rate limits?
- Do you support batch requests?
- What is your typical API response time?

Business

- What is your pricing model?
- Do you offer volume discounts?
- What are typical contract terms?
- What SLA do you provide?
- Do you offer a free trial or sandbox?
- What support channels are available? (email, Slack, phone?)

Product

- What regions do you currently support?
- What's your roadmap for African coverage?
- Do you have traffic data for South Africa?
- What unique features differentiate you from Google Maps?
- Do you support offline/cached routing?
- Can you handle real-time tracking use cases?

Partnership Opportunity Levels

Level 1: Technology Integration

PathPulse as routing provider for TimoRides

- → Standard API integration
- → Pay-per-use or subscription model

Level 2: Strategic Partnership

Joint go-to-market in South Africa

- → Co-branded 'Powered by PathPulse' in app
- → Case study & testimonials
- → Preferential pricing for TimoRides

Level 3: Ecosystem Collaboration

PathPulse becomes official OASIS routing provider

- → Available to all OASIS-based applications
- → Joint development roadmap
- → Potential equity/revenue share arrangement