NEXT-GENERATION INTELLIGENT TRANSPORTATION

AI-Powered Smart Traffic System

45+ AI detection capabilities | <50ms response | Solar-powered | Serving 68+ countries

Flexible Cooperation Models

Choose the model that fits your city's needs and budget

Recommended

BOT
Build-Operate-Transfer

- ✓ Zero upfront government investment
- ✓ We fully fund construction & operation
- ✓ Revenue from violation fine sharing
- ✓ Transfer to government after concession

Best for: budget-constrained cities

EPC
Engineering-Procurement-Construction

- ✓ Turnkey project delivery
- ✓ Government one-time procurement
- ✓ We handle design + procurement + construction
- ✓ Full commissioning and handover

Best for: cities with available budget

Joint Venture
Joint Investment & Operation

- ✓ Shared investment between parties
- ✓ Risk and revenue sharing
- ✓ Government provides policy support
- ✓ Deep partnership structure

Best for: governments wanting deep involvement

Licensing
Technology Licensing

- ✓ License to local partner/integrator
- ✓ Technology transfer + training
- ✓ Ongoing technical support
- ✓ Local market adaptation

Best for: markets with local integrators

Smart Traffic AI Foundation Model

4-layer intelligent architecture: from road perception to real-time decision-making

APPLICATION LAYER
- Signal Opt.
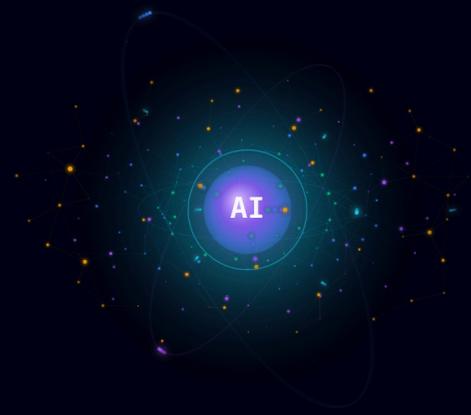- Incident Alert
- Route Plan
- Carbon Track

AI FOUNDATION MODEL
- NLP
- Computer Vision
- Prediction
- Decision

AI

DATA FUSION LAYER
- V2X
- Edge AI
- Digital Twin
- Cloud

PERCEPTION LAYER
- Camera
- Radar
- Sensor
- GPS

2,000 TOPS	<10ms	98.5%	$164.7B
AI Computing Power	End-to-End Latency	Recognition Accuracy	Global Market 2035

A $487 Billion Market Opportunity

The intelligent transportation market is growing at 17.8% CAGR through 2033

$487B
Global ITS market by 2033

17.8%
Annual growth rate (CAGR)

$5.49B
Smart traffic pole market (2025)

68+
Countries deploying smart traffic

Governments worldwide are investing heavily in intelligent transportation infrastructure. From smart city initiatives in the Middle East to traffic modernization programs across Africa and Southeast Asia, the opportunity for AI-powered traffic management has never been greater. SOLARTODO is uniquely positioned as both a technology provider and solar energy company.

Global Urban Traffic Challenges

Every city faces these critical issues — your city is no exception

Fatal Congestion

Urban commuters waste 54 hours/year in traffic. Economic loss: $87B annually in the US alone.

54 hrs/year
wasted per driver per year

Road Safety Crisis

1.35 million deaths annually. 93% caused by human error. Developing countries bear 90% of fatalities.

1.35M/year
deaths globally per year

Environmental Impact

Transportation accounts for 27% of greenhouse gas emissions. Idle vehicles in traffic emit 3x more CO2.
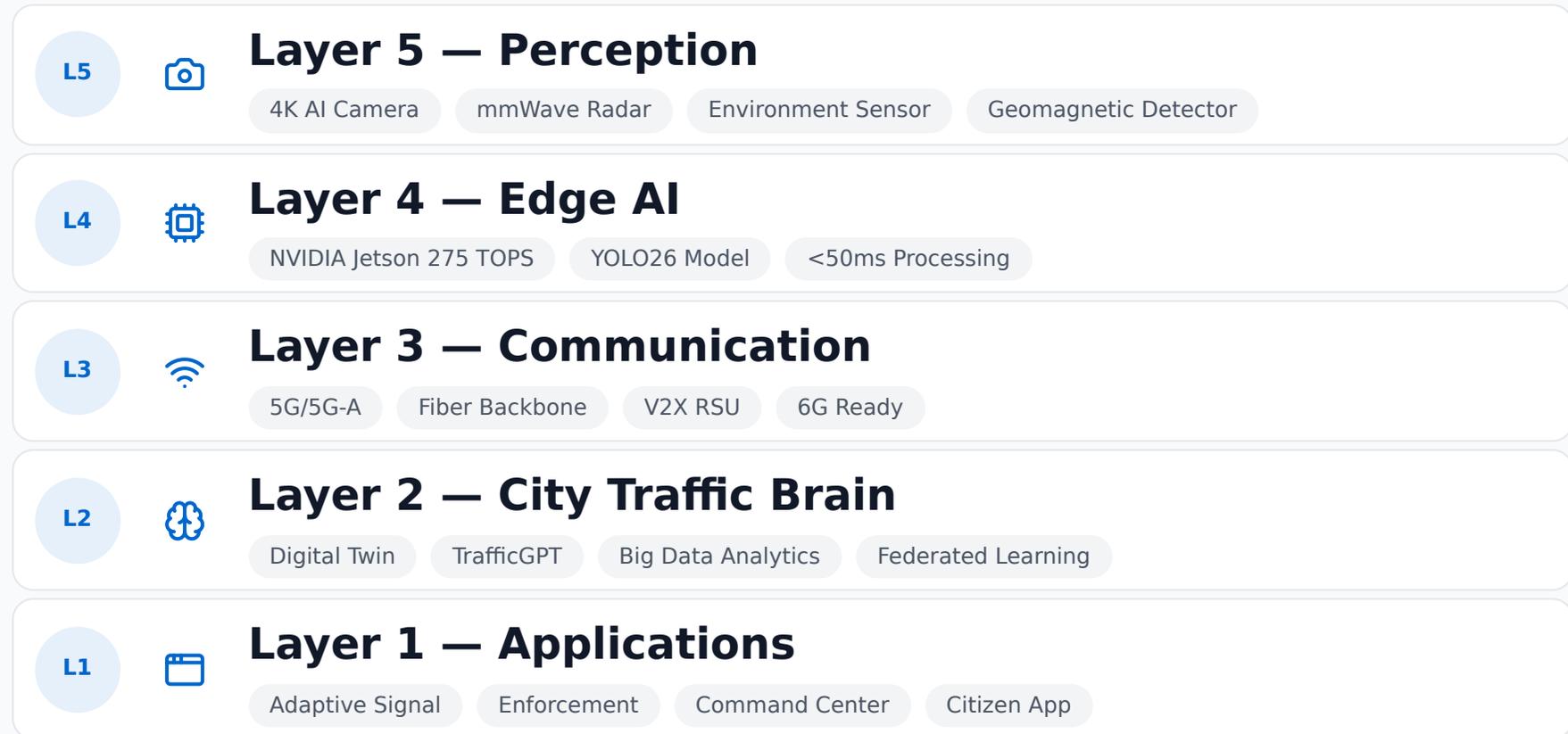
27%
of global CO2 emissions

Enforcement Gaps

Manual enforcement catches <5% of violations. Motorcycle helmet compliance is below 40% in many countries.
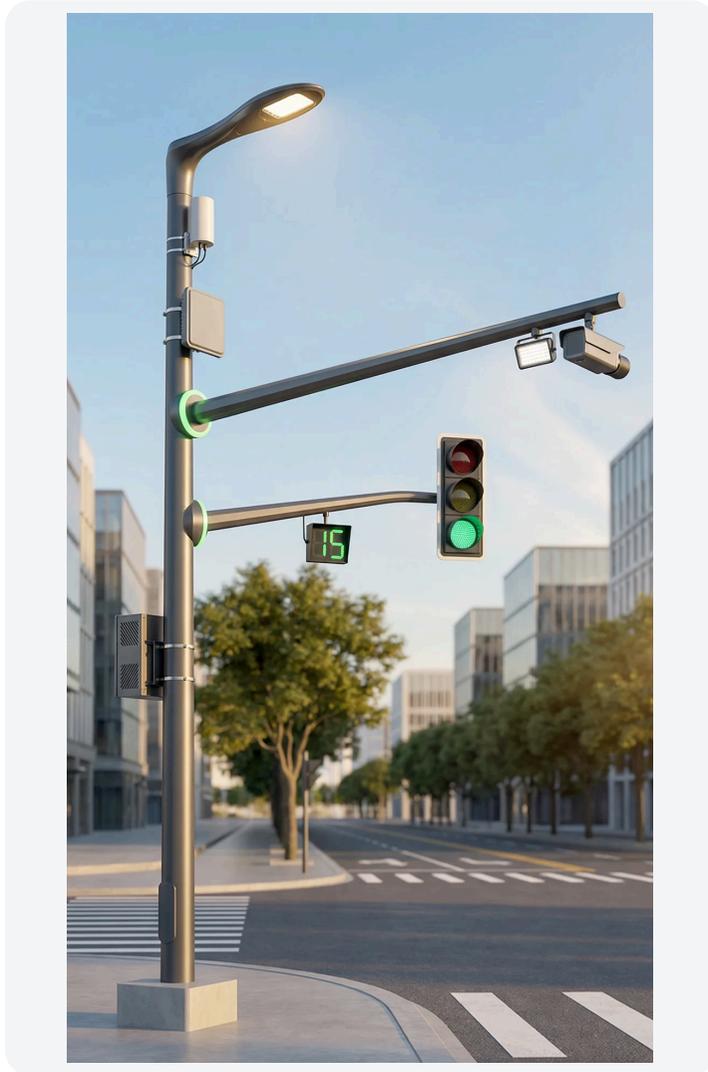
<5%
violations detected manually

5-Layer Intelligent Architecture

From edge perception to cloud intelligence — a complete smart traffic ecosystem

L5 📷 ## Layer 5 — Perception

4K AI Camera | mmWave Radar | Environment Sensor | Geomagnetic Detector

L4 ## Layer 4 — Edge AI

NVIDIA Jetson 275 TOPS | YOLO26 Model | <50ms Processing

L3 ## Layer 3 — Communication

5G/5G-A | Fiber Backbone | V2X RSU | 6G Ready

L2 ## Layer 2 — City Traffic Brain

Digital Twin | TrafficGPT | Big Data Analytics | Federated Learning

L1 ## Layer 1 — Applications

Adaptive Signal | Enforcement | Command Center | Citizen App

4-in-1 Smart Traffic Pole

One pole, complete intelligence — camera, radar, fill light, and signal integrated

📷 4K AI Camera

- ✅ 8MP, Starlight-level Night Vision
- ✅ Built-in AI chip, edge inference
- ✅ 360° PTZ, auto cruise patrol
- ✅ H.265+ encoding, low bandwidth

📡 mmWave Radar

- ✅ 77GHz high-precision speed measurement
- ✅ Max detection range: 200m
- ✅ Max detection speed: 320 km/h
- ✅ All-weather: rain, fog, night

💡 Intelligent Fill Light

- ✅ LED strobe supplemental lighting
- ✅ Auto brightness adjustment
- ✅ Non-blinding to drivers
- ✅ Synced with camera capture timing

▶ LED Signal Light

- ✅ High-brightness LED matrix
- ✅ Adaptive timing control
- ✅ Countdown display
- ✅ Self-diagnosis fault alarm

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

| Vehicles | General | Cars | Motorcycle | Heavy Vehicle | Incidents | Law Enforcement |

| Analytics |

Cars (Sedan/SUV/MPV/Sports)	Brand, model, color, year	Motorcycles (2/3-wheel, electric) — Rider count, helmet, overload
E-bikes / Scooters	Riding behavior, wrong-way	Public Transit (Bus/Minibus/School) — Route ID, stop compliance
Trucks (Light/Heavy/Tanker)	Overload estimate, zone restrict	Bicycles / Shared Bikes — Direction, illegal parking
Pedestrians (Adult/Child/Wheelchair)	Crossing, loitering detection	Emergency Vehicles — Auto-detect → signal priority

45+	98%	<50ms	320km/h	29,000
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

Vehicles | **General** | Cars | Motorcycle | Heavy Vehicle | Incidents | Law Enforcement | Analytics

Speeding (up to 320km/h)	Radar+AI	Wrong Way / Wrong Lane	>95%
Illegal Parking	>96%	Solid Line / Lane Violation	>94%
Illegal U-Turn	>93%	Restricted Zone Entry	>95%
Failure to Yield to Pedestrian	>92%	Emergency Lane Occupation	>96%
Tailgating / Too Close	>90%	Illegal Honking	>88%
Plate Obstruction / Damage	>91%		

45+	98%	<50ms	320km/h	29,000
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

Vehicles | General | **Cars** | Motorcycle | Heavy Vehicle | Incidents | Law Enforcement

Analytics

No Seatbelt (Driver + Passenger)	>92%	Phone Use While Driving	>90%
Fatigue Driving	Trajectory AI	Throwing Objects from Window	Motion AI
No Headlights at Night	Light+AI	Lane Change Without Signal	Signal+Track

45+	**98%**	**<50ms**	**320km/h**	**29,000**
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

🚗 Vehicles   🛡 General   🚗 Cars   🚲 **Motorcycle**   🚚 Heavy Vehicle   🚨 Incidents   🛡 Law Enforcement

📊 Analytics

No Helmet	97.7% mAP	Triple Riding	>94%
4+ Overloading	>91%	Motor Lane Intrusion	>93%
Wrong Way Riding	>95%	Oversized Cargo	Contour AI
Restricted Zone Entry	>93%		

45+	**98%**	**<50ms**	**320km/h**	**29,000**
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

Vehicles   General   Cars   Motorcycle   **Heavy Vehicle**   Incidents   Law Enforcement

Analytics

Overweight Estimation	Axle+AI	Over-Height/Width/Length	3D Contour
Time-Based Restriction	Time+Type	Uncovered Load (Dump Truck)	Top AI
Abnormal Exhaust Emissions	Smoke AI		

45+	**98%**	**<50ms**	**320km/h**	**29,000**
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

🚗 Vehicles   🛡 General   🚗 Cars   🏍 Motorcycle   🚚 Heavy Vehicle   🚨 Incidents   🛡 Law Enforcement

📊 Analytics

Traffic Accident	Auto-alert + dispatch + signal adjust	Vehicle Breakdown	Stall detect → warn following cars
Road Debris	Anomaly detect → notify cleanup	Pedestrian on Highway	Emergency warning
Animal on Road	Regional special detection	Severe Weather (Rain/Fog/Flood)	Env sensor → auto speed limit
Congestion Detection & Prediction	Real-time + 30min forecast	Queue Length Estimation	Signal optimization input

45+	**98%**	**<50ms**	**320km/h**	**29,000**
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

🚗 Vehicles 🛡 General 🚗 Cars 🚲 Motorcycle 🚚 Heavy Vehicle 🚨 Incidents 🛡 **Law Enforcement**

📊 Analytics

Vehicle Brand/Model/Color ID	Deep Learning	Real-time Blacklist Matching	ms-level
Amber Alert / Missing Child	Multi-station	Hit-and-Run Tracking	City-wide
Emergency Vehicle Priority	Auto Green Wave	VIP / Diplomatic Escort	Preset Route

45+	**98%**	**<50ms**	**320km/h**	**29,000**
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

45+ AI-Powered Detection Capabilities

From motorcycles to heavy trucks — every vehicle, every violation, every incident

🚗 Vehicles   🛡 General   🚙 Cars   🏍 Motorcycle   🚚 Heavy Vehicle   🚨 Incidents   🛡 Law Enforcement

📊 Analytics

Traffic Volume	By type/direction/time/lane	Average Speed	Real-time + historical trends
Queue Length	Per approach lane	Saturation / V/C Ratio	Intersection service level
OD Matrix	Origin-Destination analysis	Pedestrian Flow	Crossing demand analysis
Non-Motorized Traffic	Bicycle / E-bike flow	Heat Map	Spatiotemporal congestion viz

45+	98%	<50ms	320km/h	29,000
Types of Detection	License Plate Accuracy	Response Time	Max Detection Speed	Violations caught by 8 cameras in weeks

Motorcycle & E-bike Intelligence

Purpose-built for developing market challenges where two-wheelers dominate traffic

68%
of commercial motorcyclists involved in accidents (Nigeria)

55%
of hospital patients from motorcycle overloading (Ethiopia)

60%+
of traffic flow is motorcycles (Southeast Asia)

No Helmet Detection
NVIDIA TAO + YOLOv8, F1-score 92.7%

97.7% mAP

Triple Riding Detection
Mask R-CNN rider counting

>94%

4+ Overloading
Common in developing countries

>91%

Motor Lane Intrusion
Lane + vehicle type fusion

>93%

Wrong-Way Riding
Direction detection algorithm

>95%

Oversized Cargo
Contour anomaly detection

Contour AI

Restricted Zone Entry
Vehicle type + geofencing

>93%

AI-Adaptive Signal Control with Green Wave

Every intersection learns, every corridor flows

Real-Time Adaptive

Dynamically adjusts signal timing based on live traffic flow. Multi-objective optimization: efficiency + pedestrian safety + transit priority.

Pittsburgh SURTRAC: -25% travel time

Green Wave Coordination

Synchronize signals across arterial corridors. Vehicles pass through at constant speed without stopping.

Typical result: -40% stops

Transit & Emergency Priority

Auto-detect buses, ambulances, fire trucks. Pre-switch to green, escort through corridor.

Response time: -50%

Pittsburgh
-25% travel, -20% emissions, -40% wait

London
-10~30% travel time at key intersections

Singapore
-15% commute (Digital Twin optimization)

SOLARTODO | Email: cinn@solartodo.com | WhatsApp: +86 137 7331 3328

City Traffic Brain — 4-Layer Cloud-Native Platform

The intelligence behind every decision

Data Ingestion Layer

- Multi-source fusion: Camera + Radar + Geomagnetic + Floating GPS
- Real-time stream processing: Kafka + Flink
- Data cleansing & standardization
- Edge-to-cloud data pipeline

Analytics Layer

- Real-time traffic situational awareness
- Historical trend analysis
- OD Matrix (Origin-Destination analysis)
- Congestion prediction (next 30 min)

Decision AI Layer

- Reinforcement learning signal optimization
- Multi-objective planning (efficiency/safety/emissions)
- Emergency response auto-trigger
- LLM-powered scenario evaluation

Visualization Layer

- Digital Twin 3D city model
- Real-time heat maps
- What-If scenario simulation
- TrafficGPT natural language interaction

Cloud-Native   Kubernetes   Microservices   Auto-Scaling   Multi-Tenant

TrafficGPT-Powered Command Center

Control your city's traffic with natural language — the world's most advanced traffic HQ

Show me the top 5 congested intersections right now

Here are the top 5 congested intersections with real-time heat maps and recommended signal adjustments for each.

Extend green light on University Road by 15 seconds

Done. Impact assessment: throughput +12%, queue length -8%. Change effective for the next cycle.

What will happen if we close Bridge Street for maintenance next Monday?

Running Digital Twin simulation... Alternative routes identified. Recommended signal adjustments for 3 adjacent intersections. Expected delay increase: +4 min on detour routes.

Not just a dashboard — a conversation with your city

Air-Ground Integrated Surveillance Network

Eliminate every blind spot with UAV + ground sensor fusion

UAV Swarm

- Detection precision: 91.8%
- Tracking: MOTA 92.1% / MOTP 93.7%
- Use: traffic monitoring, incident response, events
- Autonomous patrol + auto recharge

Ground Pole Network

- City-wide coverage
- Each pole = independent AI node
- Multi-pole collaborative tracking
- Fiber-connected backbone

Air-Ground Synergy

- Real-time data sharing between air and ground
- UAV detects incident → ground adjusts signals
- Eliminates fixed-camera blind spots
- Temporary aerial coverage for major events

V2X Ready — Built for Tomorrow's Roads

From connected vehicles to quantum-optimized cities

2026-2028

V2X Vehicle-to-Everything

• C-V2X communication protocol

• 84,000 signalized intersections globally connected

• 2027 forecast: 60% vehicles V2X-capable

• Accident reduction potential: 80% (US DOT)

2030

6G Evolution

• Smooth upgrade path: 5G → 5G-A → 6G

• Latency: 10ms → <1ms (sub-millisecond)

• Coordinate: thousands → 50,000+ intersections

• Holographic comms, sensing fusion, AI-native

2030+

Quantum Computing Ready

• Architecture pre-equipped with quantum interfaces

• McKinsey: congestion reduction up to 50%

• QAOA algorithm: peak travel time -15%

• Simultaneously optimize 50,000 intersection signals

Our architecture evolves with technology — invest once, upgrade forever

Solar-Powered Smart Traffic — Only from SOLARTODO

We don't just build traffic systems — we power them

The world's only smart traffic system provider that is also a solar energy company

100%	**0**	**24/7**
Solar-Powered Operation	Grid Dependency	Uninterrupted Service

Blockchain-Secured Evidence & Privacy Protection

Tamper-proof, privacy-compliant, legally admissible

On-Chain Evidence

Blockchain immutable records from capture to legal enforcement. Full traceability with legal validity.

Decentralized Vehicle ID

Blockchain anonymous authentication. Prevents identity forgery and data tampering. No single point of failure.

Privacy Compliance

Authorized-only data access. GDPR and international data protection law compliant. Data minimization principle.
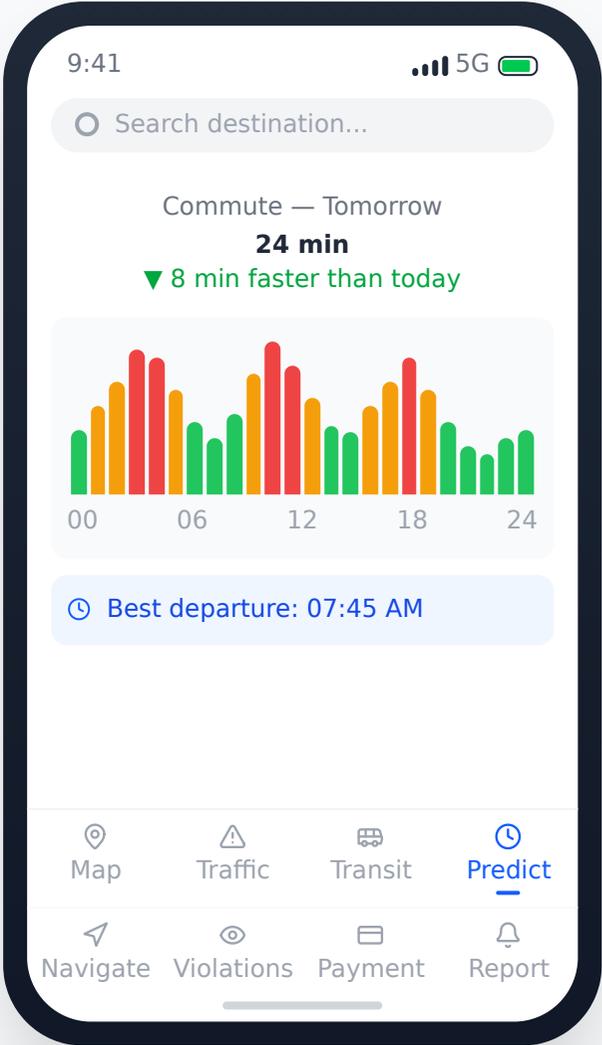
Cyber Security

Decentralized architecture resists DDoS. End-to-end encrypted communication. Zero-trust security model.

Smart Traffic Citizen App

Empowering citizens with real-time traffic intelligence

9:41   5G

◯ Search destination...

Commute — Tomorrow
24 min
▼ 8 min faster than today

00   06   12   18   24

🕐 Best departure: 07:45 AM

Map	Traffic	Transit	Predict
Navigate	Violations	Payment	Report

Live Traffic Map
Real-time congestion, incidents, and road conditions

AI Navigation
Optimal route recommendations avoiding congestion

Violation Query
View records and photos online

Online Payment
Multiple payment methods supported

Traffic Prediction
"How long will my commute be tomorrow?"

Incident Report
One-tap road condition reporting

Public Transit
Real-time bus arrival information

Accessibility
Voice, large text, multi-language support

Proven Results Worldwide

Real data from real deployments across 6 continents

| **-33%** | **-50%** | **-80%** | **-20%** |
| Travel Time Reduction | Emergency Response | Violation Rate Change | CO2 Emission Reduction |

City	System	Result
Pittsburgh	SURTRAC AI Signal	-25% travel, -20% emissions
London	Smart Traffic Mgmt	-10~30% travel time
Singapore	Digital Twin	-15% commute time
Copenhagen	Data-Driven Transit	Significant GHG reduction
Rwanda	Digital Enforcement	Full automation, fewer accidents
Greece (2026)	8 AI Cameras	29,000 violations in weeks

These aren't promises — they're proven results from cities around the world

Contributing to Carbon Neutrality & ESG Goals

Smart traffic is green traffic

AI Emission Reduction

Adaptive signal optimization reduces idle emissions by up to 20%. Source: TRENDS Research.

Solar-Powered Operation

System runs on zero-carbon solar energy. No grid dependency, no carbon footprint.

Modal Shift

Encourages public transit and reduces private car use. Helsinki MaaS: 38% users reduced daily driving.

Environmental

Reduced emissions, improved air quality

Social

Safer roads, better citizen experience

Governance

Transparent data, fair AI enforcement

Our smart traffic systems contribute to UN Sustainable Development Goals: SDG 9 (Industry & Infrastructure), SDG 11 (Sustainable Cities), SDG 13 (Climate Action). Every intersection optimized reduces idle emissions by up to 20%.

SOLARTODO | Email: cinn@solartodo.com | WhatsApp: +86 137 7331 3328