

Real-Time Situational Traffic Awareness Platform (RTSAP)

Leveraging Sensor Data for Safer Urban Mobility

"Deploying Today, Empowering Tomorrow"



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Motivation



1.2 M

Annual Global Traffic Deaths (WHO)



0

Fatalities by 2050 (EU Vision Zero)



Limited situational awareness in ITS e.g Autonomous Vehicles (AV)



Realtime Insights into complex traffic scenarios



40%

Lower accident severity^[1]



50%

Increase in AV reaction time^[1]



30%

Adverse weather incidents^[2]



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Urban Mobility Challenges



93% of global road deaths in Low and Middle Income Countries^[4]



68% of global population will live in cities by 2050 (more traffic and Safety Risks)^[3]



Ethical and Legal Concerns

ITS Issues



Fragmented data

Data is scattered and hard to integrate



Low interoperability

Systems struggle to communicate effectively^[12]



Limited environment awareness

Inability to interpret complex environments



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Credit: Pkawalya

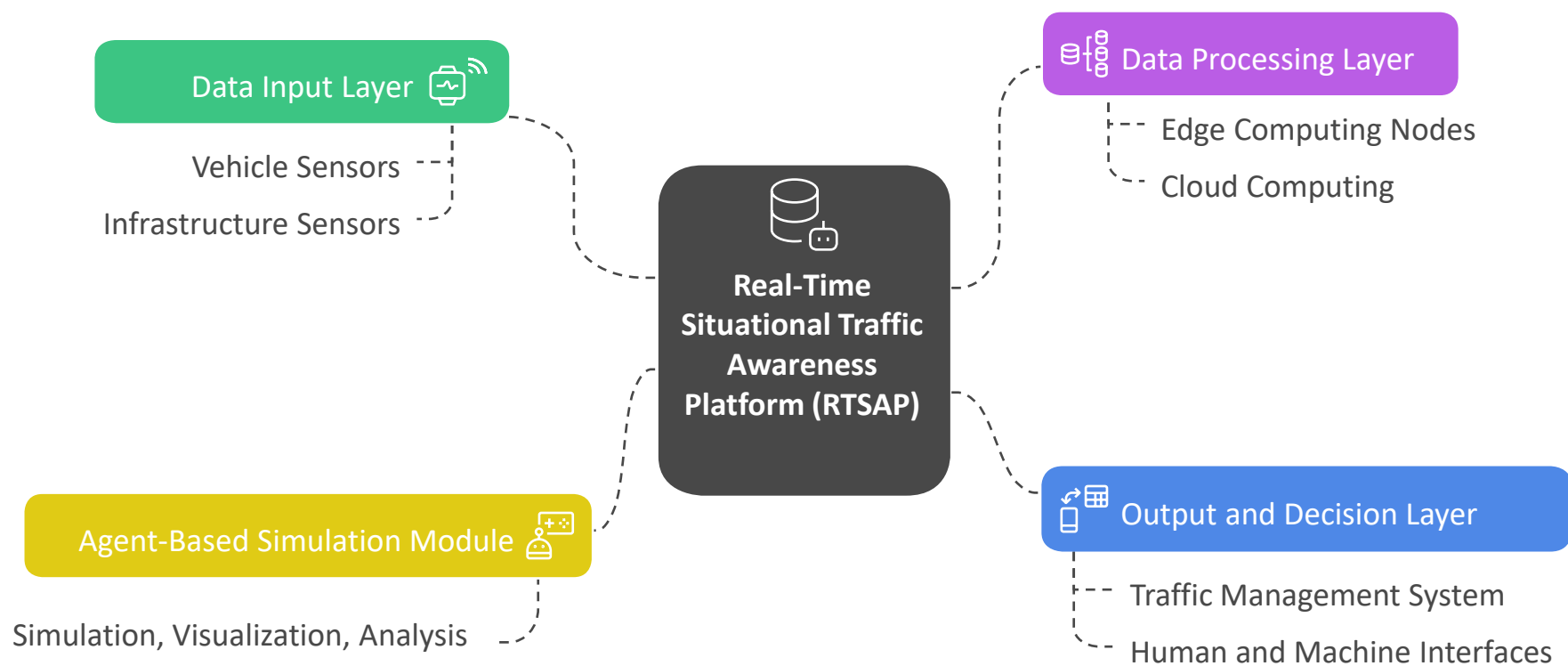
Mixed Traffic



Credit: wuppertaler

1. Pkawalya (https://commons.wikimedia.org/wiki/File:Bodabodas_mostly_used_in_Kampala.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>
2. wuppertaler (https://commons.wikimedia.org/wiki/File:AUS_Brisbane_Central_Business_District_Albert_Street_005.jpg), Cropping by No, <https://creativecommons.org/licenses/by/4.0/legalcode>

Proposed Solution

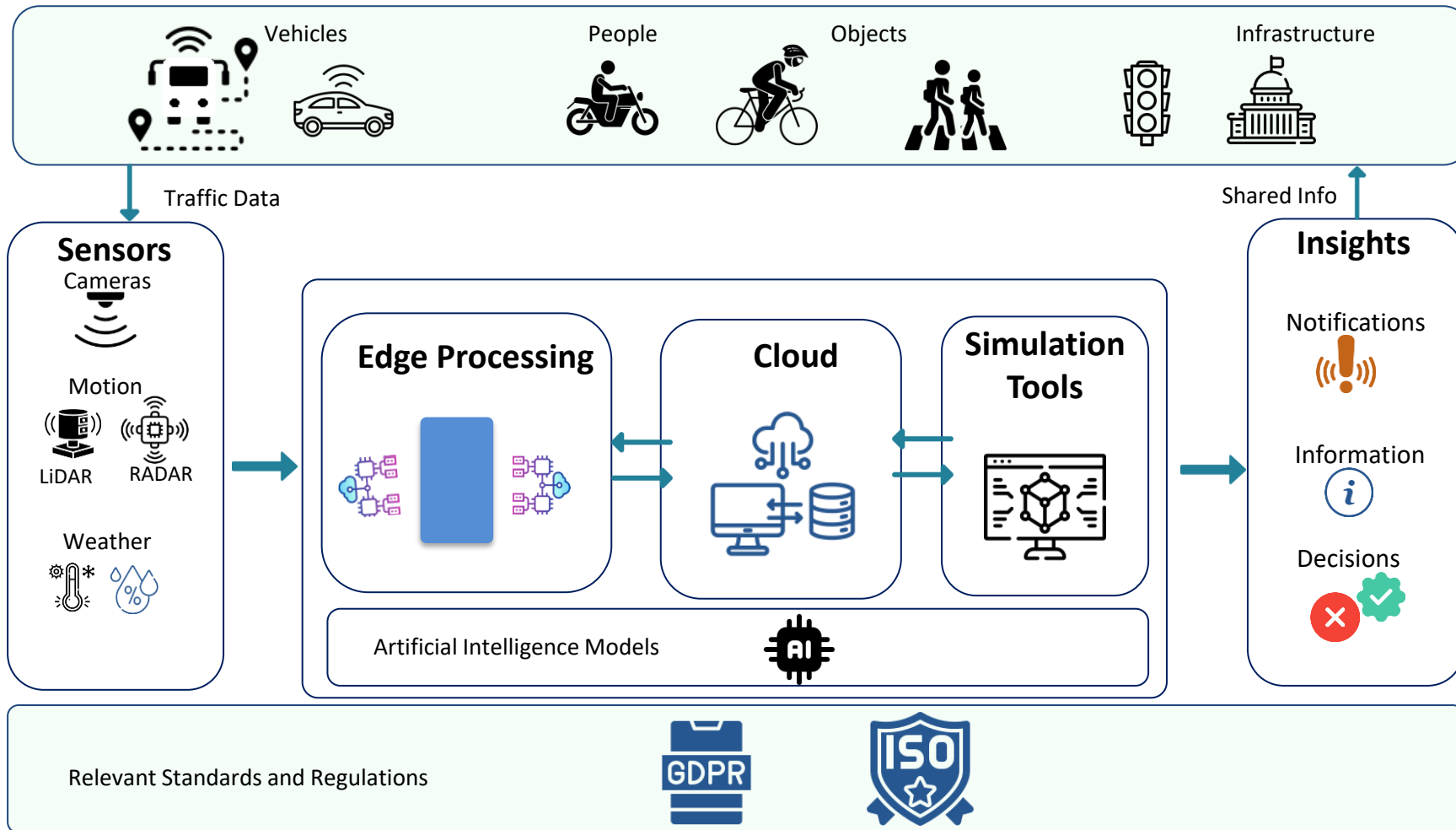


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Solution Description



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Platform Core Capabilities



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Platform Benefits



AV Decision Support

Detailed Platform Data Aids in AV decision-making and improvement



Open APIs Support

Facilitate secure data access and communication



Forecasts

Platform data useful to predict future mobility trends, and patterns



Real-Time Data

Provides up-to-date information for decision-making



Edge-Cloud Integration

Enables seamless communication between platforms



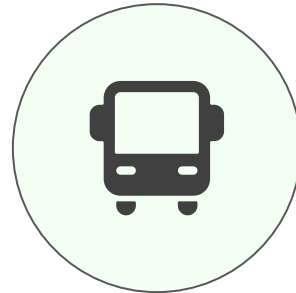
Secure Data Access

Ensures safe and reliable data exchange



Applications

Encourage local innovation to address unique mobility challenges in cities

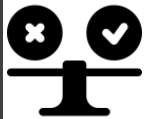


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Ethical & Legal Compliance



Ethical Concerns

- Data privacy and surveillance
- Safety and responsibility
- Bias and fairness in algorithms
- Transparency and explainability
- Consent and informed use
- Environmental and social impact



Legal Concerns

- Liability and accountability
- Data protection and privacy compliance
- Cybersecurity and hacking risks
- Standardization and interoperability
- Intellectual property and licensing
- Traffic laws and regulatory compliance
- Liability in algorithmic decision-making



Data Handling

Ensuring data handling and anonymization are GDPR compliant. This protects user privacy. [5]



Open Standards

Foster Interoperability



Explainable AI

Implementing explainable AI and audit mechanisms to actively prevent bias. This promotes fairness.



Equitable deployment

Aligning deployment with World Bank standards in developing regions. This ensures fair access.



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Use Case



Oldenburg, Germany Autonomous Buses/Delivery vans, cyclists at intersections, share alerts



Kampala, Uganda Edge Device Equipped Vans /E-buses detect pedestrians in market zones

In both regions RTSAP;

- Offers a scalable, cost-effective solution
- Utilizes existing infrastructure
- Provide comprehensive, real-time traffic data in urban environments.



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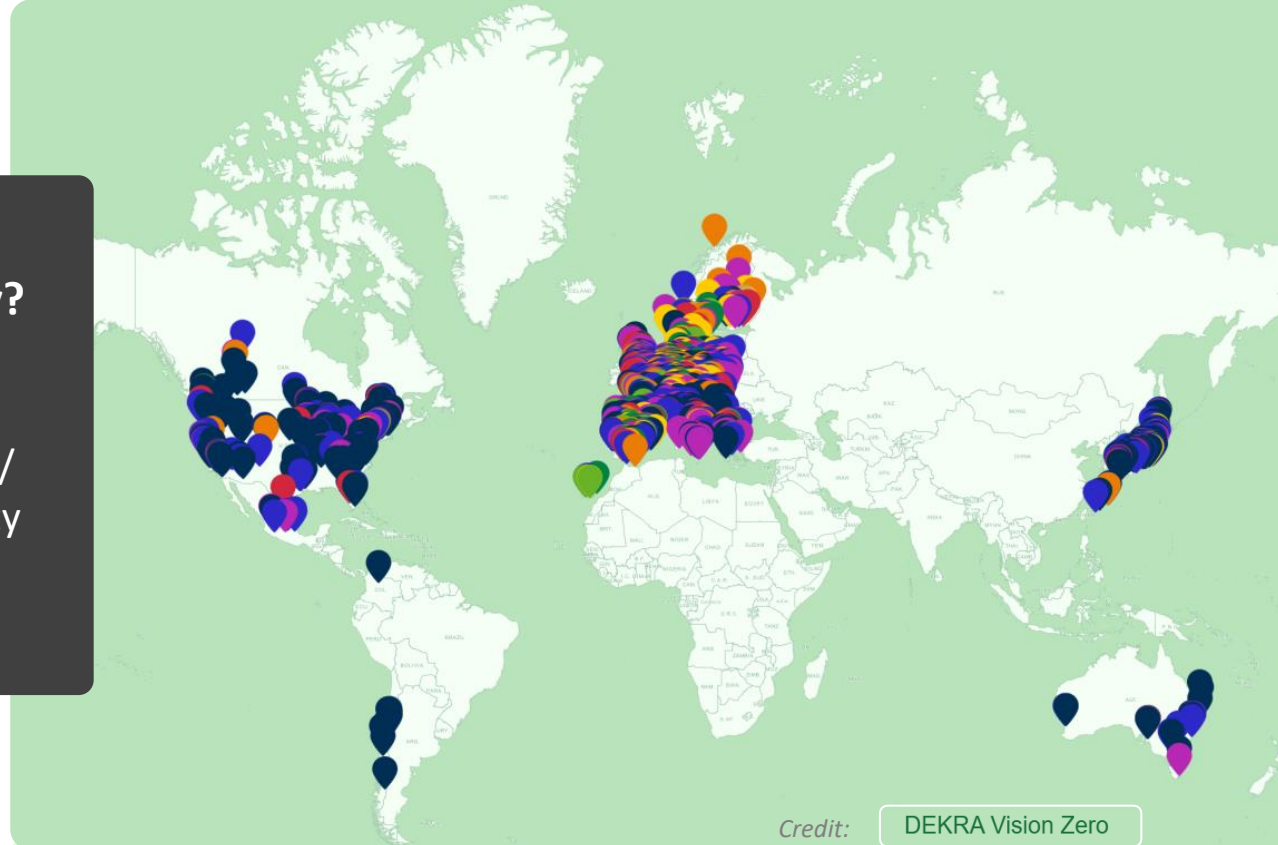
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1. Jacek Rużyczka (https://commons.wikimedia.org/wiki/File:Oldenburg_Lambertikirche_Utkiek.JPG#filelinks), „Oldenburg Lambertikirche Utkiek“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>
2. Jacek Rużyczka (https://commons.wikimedia.org/wiki/File:Oldenburg_Fliegerhorst_Bus_Linie_322_MAN_Lion's_City.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>
3. Jacek Rużyczka (https://commons.wikimedia.org/wiki/File:Oldenburg_vom_Utkiek_neu.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>
4. Raffael Beier (https://commons.wikimedia.org/wiki/File:Central_bus_station_Kampala.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>
5. Felix from Canada (https://commons.wikimedia.org/wiki/File:Uganda_-_Kampala_Taxi_stop.jpg), „Uganda - Kampala Taxi stop“, <https://creativecommons.org/licenses/by-sa/2.0/legalcode>

The Road to Vision ZERO

Why deploy RTSAP today?

- Scalable Solution to global south & developed regions
- Aligns EU Vision Zero, WHO / World Bank safety and equity recommendations^[6]



From lab to street: Launch pilots in high-risk zones to validate technology, accelerate innovation and protect lives where communities face the greatest risk.



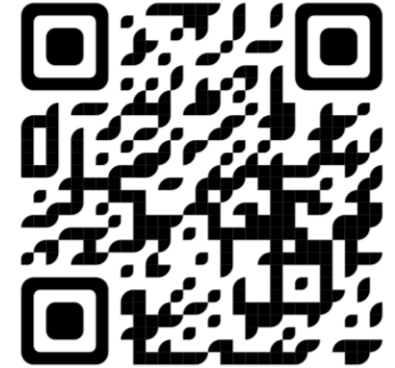
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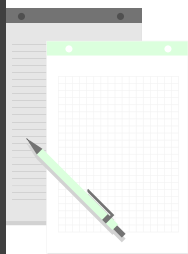
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Thank You



Let's connect



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