



THE FUTURE OF PUBLIC TRANSPORT IN GENEVA

Exciting changes are on the way! This project optimizes routes and charging for electric on-demand public transport, cutting energy use, reducing battery costs, and improving service reliability.

By using AI and real-time data, we're lowering environmental impact, improving air quality, and making transport more efficient.

These innovations pave the way for smarter, more sustainable mobility—benefiting buses, self-driving vehicles, and beyond.



THE CHALLENGES

- ✓ **High Operational Costs:** Frequent battery replacements and inefficient charging processes raise costs for operators, affecting ticket prices.
- ✓ **Limited Charging Infrastructure:** Poorly placed or insufficient charging stations lead to inefficiencies, longer wait times, and higher energy use.
- ✓ **Environmental Impact:** Emissions from tire and brake wear and battery waste contribute to environmental challenges.
- ✓ **Unreliable On-Demand Service:** Inconsistent vehicle availability due to poor energy management and lack of predictive maintenance.

- ✓ **Data Collection & Analysis Complexity:** Requires sophisticated AI models and real-time data from sensors and charging stations.
- ✓ **Optimizing Charging Locations:** Balancing energy efficiency, accessibility, and infrastructure constraints in choosing charging station locations.
- ✓ **Technological Integration:** Seamless integration of automated wireless charging and predictive maintenance with existing systems.

AI-DRIVEN SOLUTION FOR EFFICIENT, SUSTAINABLE, AND RELIABLE PUBLIC TRANSPORT

Energy Efficiency & Battery Longevity

- AI-optimized routes reduce energy use and battery strain.
- Predictive maintenance prevents failures and extends battery lifespan.

Lower Operational Costs

- Smart charging management minimizes peak-time costs and battery wear.
- Automated wireless charging reduces downtime and labor costs.

Optimized Charging Infrastructure

- AI-driven station placement cuts travel distances and energy waste.
- Smart energy management prevents bottlenecks across the network.

Environmental Benefits

- Extended battery life reduces electronic waste.
- Efficient operations lower emissions from tire and brake wear, improving air quality.

Reliable & Scalable On-Demand Transport

- Smarter energy use increases vehicle availability and reduces wait times.
- Automated charging and monitoring ensure 24/7 service reliability.
- Scalable solutions support future self-driving public transport.



THE LOCAL IMPACT

 **Financial Benefits** – Optimized routes and charging lower energy use and battery costs, saving money for operators and passengers.

Cleaner Air & Smarter Charging – Strategically placed charging stations reduce environmental impact, improving air quality for a healthier city.

 **Better On-Demand Transport** – Faster, more reliable services mean reduced waiting and journey times for passengers.

 **Social & Environmental Gains** – Lower emissions, reduced battery waste, and less tire and brake wear contribute to a more sustainable future.

Cutting-Edge Innovation – AI-driven, real-time data optimization benefits electric and autonomous transport.

 **Scalable & Adaptable** – This model can expand to other regions and electric vehicle types, enhancing sustainable transport worldwide.



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