



SIAL  **TRONICA**

Revolutionizing Road Safety at Intersections: Retrolight System®



Our goal is to **transform every intersection into a safe space** for the most vulnerable users

We develop, manufacture, and market technological devices and systems that **reduce accidents, modernize infrastructure to meet new mobility challenges, and optimize traffic flow.**

We are proudly an award-winning company for our innovation capacity in smart mobility



Awarded **“Most Innovative Solution” 2025** by the Red Innpulso, **Network of Cities for Science and Innovation**, by the Ministry of Science, Innovation and Universities.

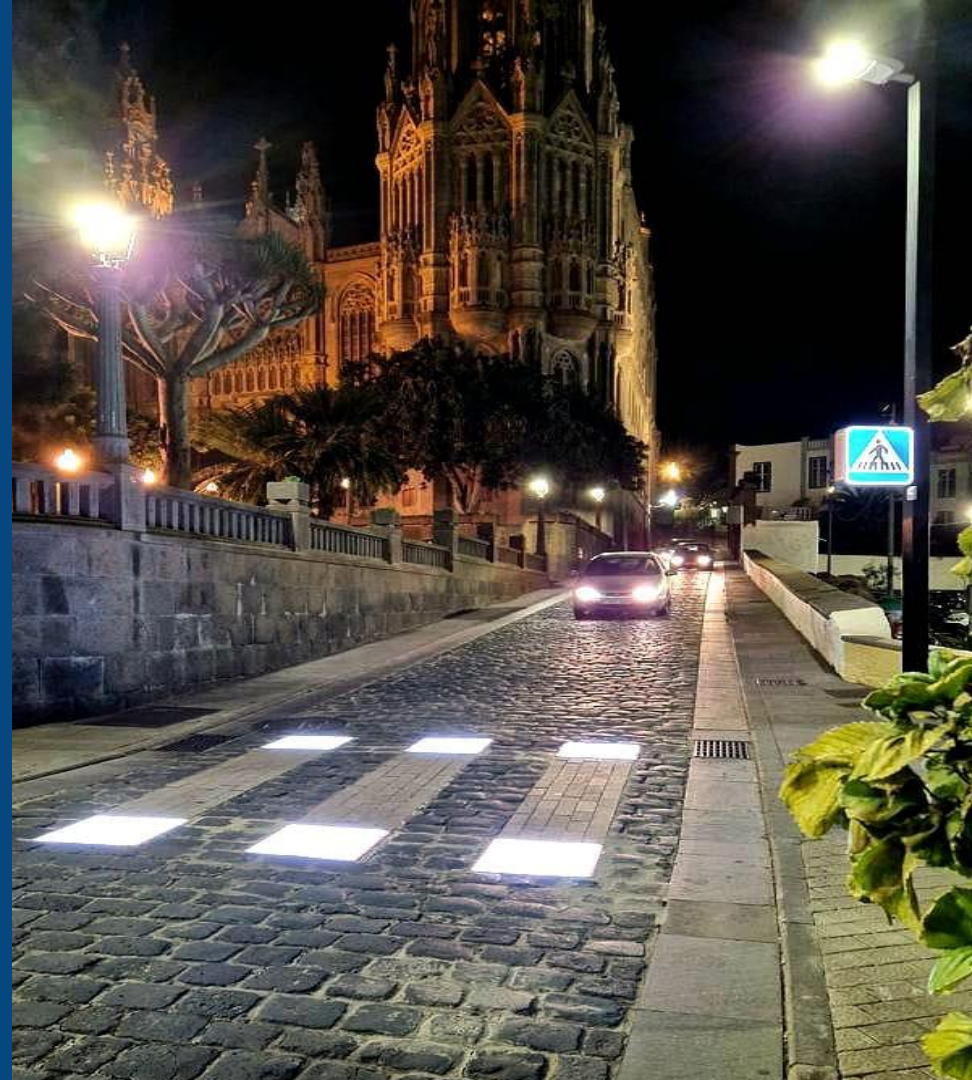


Proudly listed as **Spain’s Top 100 Startups** of 2024 for APTE

Retrolight System® sets a **new standard for safety and visibility at any intersection**

The Retrolight System® is designed for versatile placement at any intersection, including those with challenging conditions such as blind spots, complex layouts, areas with vulnerable populations, or severe weather.

Its modular design allows for seamless integration into existing infrastructure, providing a cost-effective solution to enhance pedestrian safety across diverse urban environments..



ROAD SAFETY INNOVATION & INVENTION AWARDS

3RD PRIZE

REVOLUTIONIZING ROAD
SAFETY AT INTERSECTIONS:
RETROLIGHT SYSTEM®

GONZALEZ AZAHARA
SPAIN

INTERNATIONALLY
RECOGNIZED AND
AWARD-WINNING
SOLUTION

The Retrolight System® received the prestigious **3rd Prize for Best Innovation in Road Safety** at the **4th Global Ministerial Conference on Road Safety**, standing out among global solutions for its exceptional design, quality, and proven effectiveness.

A user-friendly solution designed for effortless and intuitive operation

Upon detecting a pedestrian's intent to cross, the system instantly activates, illuminating a pathway of in-ground LED panels and vertical signals to alert approaching vehicles.

The system automatically deactivates when not required, ensuring optimal performance and energy efficiency.



SENSING AND CONTROL SYSTEM

Intelligent system that uses sensors to activate components and to gather data.

BACKLIGHT SIGNALS

Highly visible vertical signage with backlighting and optional daytime flashing. Customizable graphics to adapt to traffic signage needs.

LIGHT PANEL

Durable platform with embedded, high-performance LEDs, designed to withstand harsh conditions and offering customizable options.

Check out our YouTube channel for examples:
<https://www.youtube.com/@Sialtronica>

Sustainability Features

The Retrolight System® prioritizes sustainability through several key features. Optional solar integration provides a renewable energy source, while energy-efficient LED technology optimizes power usage. Additionally, components include recyclable materials, minimizing environmental impact.

Solar Integration

Optional renewable energy source for off-grid operation

Energy Efficiency

LED technology optimizes power usage
Triggered only by demand

Recyclable Materials

Components include recycled wind turbine blade materials

We are making an **IMPACT!**

"The **implementation of the measure proved to be a great success**. Traffic **accidents were reduced by 69%**, resulting in a significant increase in road safety. It also **revitalized the area, with a 191% increase in pedestrian traffic (...)**. Additionally, the approach appears to be easily adaptable to other areas."

"The results showed that this technology leads to a **19.3% reduction in average speed at the crosswalk**, which corresponds to a lower risk of fatal accidents and serious injuries."



Recognized as a **good practice**

Identified as a practice of interest **for improving visibility for both pedestrians and drivers at crosswalks.**

"According to recent police records, there have been no accidents near the crosswalks since the system was implemented."

Recommendation from the **Safe Cities area of the 2030 Road Safety Strategy of the General Directorate of Traffic** ([See post](#)).



Good practice in energy efficiency and road safety for Interreg Europe, an EU program for regional development and interregional cooperation ([See report](#))

Smart Crosswalks

Retrolight System® improves the legibility and visibility of road markings, making a real positive impact by:

- ✓ Making it easier for pedestrians to take the lead and giving cars a heads-up.
- ✓ Slowing down vehicle speed.
- ✓ Encouraging pedestrians to stick to the right areas when crossing.
- ✓ A much greater sense of safety.

Image owned by SIEMENS ITS showcasing the integration of our products into their solutions. Watch the video here: <https://www.youtube.com/watch?v=hydFr8LjK4U>

CROSS
WALKS

TRAFFIC
CALMING

BIKE LINES

SIDEWALKS
AND LEVEL
CROSSINGS

SAFE
ROUTES TO
SCHOOL

SHARED USES

STRATEGIC
LOCATION

TUNNELS

ROADS



Traffic calming

By illuminating road markings with LED lights upon approach, we enhance visibility and promote safer driving—especially at high-speed intersections where accidents are frequent.

Beyond that, we can optimize traffic flow by indicating right-of-way at roundabouts, warning drivers of potential hazards, and providing guidance during congestion.

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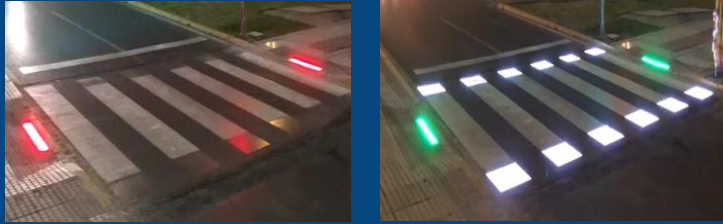
ROADS

Bike Lane marking

Intersections with pedestrian crossings and roads are a high-risk area for cyclists due to the speed and quietness of these vehicles, which can increase the likelihood of collisions.

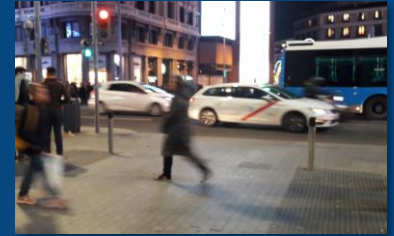
Implementing our solution would help alert and manage interactions between all users, identifying designated spaces for each, and facilitating data transmission and management.





Side walks traffic lights

Pedestrians who are distracted, such as 'smombies' who prioritize their mobile devices, or those with vulnerabilities, may fail to notice changes in traffic lights. Our illuminated plates with red/green LED positioned on the sidewalk and synchronized with traffic lights, offer a clear and effective solution to prevent pedestrians from crossing during red lights.



At- grade crossings

The seamless transition between road and sidewalk can create a hazard for pedestrians who are distracted and may not realize they're crossing a street. Our luminescent plates harmoniously integrate into this environment, highlighting the crossing while preserving the aesthetic appeal of the space.



Safe walking routes to school

Clear and visible signage along safe school routes is essential for protecting the well-being of children as they travel to and from school.

Retrolight System® leverages advanced technology to deliver real-time, intelligent signage that includes illuminated vertical signs, pedestrian crossings, and ground markings, ensuring safety and efficiency on school routes.

Dynamic signage for shared-use spaces



To enhance urban efficiency and safety, cities must optimize public spaces, particularly in high-traffic areas. Our innovative, dynamic signage system addresses this challenge by adapting to changing needs.

By seamlessly blending into the pavement, our plates can designate different uses from the same spot. Retrolight System can provide a dynamic in ground signaling just by changing at real time LED colors, using white or blue for parking, amber for loading zones or red for emergency services, optimizing space utilization and ensuring safety.

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Pedestrian crossings in strategic locations

Certain public spaces, characterized by their uniqueness and high visibility, can serve as powerful showcases for cities, particularly on the international stage.

In areas with heavy foot traffic and a strong potential for social impact, intelligent road signage solutions can have a profound effect.



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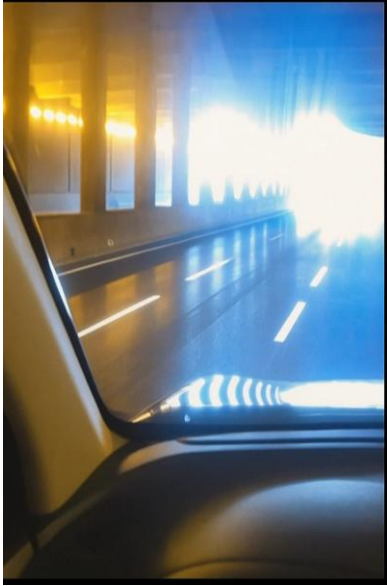
SAFE SCHOOL
ROUTES

SHARED USES

**STRATEGIC
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TUNNELS

ROADS



Tunnels

Tunnel lighting must strictly adhere to specific regulations. Unlike conventional roads, tunnel lighting can vary to meet changing conditions.

Our innovative watertight plates and dynamic markings ensure precise illumination levels within tunnels, enhancing safety and efficiency.

Reinforcing the absence of light inside tunnels with artificial illumination is vital to prevent drivers from encountering issues or accidents both inside and at the entrance and exit of the tunnel.

Road Access and intersections

Many conventional roads suffer from inadequate lighting, increasing the risk of accidents due to limited driver visibility.

Retrolight System® detects the presence of vehicles and dynamically illuminates the road marking. This solution represents a significant leap forward of visibility at junctions, lanes, and exits.



A system with unlimited potential in multiple fields



AIRPORTS

- Defining spaces on platforms designated for each vehicle.
- Improved visibility of markings in approach zones.
- Pedestrian crossings and walkways.



FACILITIES

- Dynamic signage for emergency vehicle access spaces.
- Improved visibility of markings in approach zones.
- Restricted facility access.



RAILWAYS

- Signaling of at level crossings with traffic lights.
- Incorporation of dynamic messages and maneuvers on platform floors.
- Dynamic evacuation route signage.



INDUSTRY

- Delimitation of pedestrian walkways and areas.
- Sensorized environments for autonomous vehicles.
- Luminous signage for loading docks.
- Occupancy of vehicle parking spaces.



PARKINGS

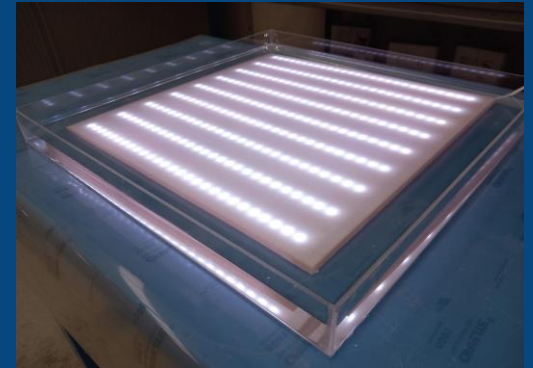
- Definition of pedestrian spaces and crosswalks.
- Signaling of parking space occupancy in outdoor parking lots.

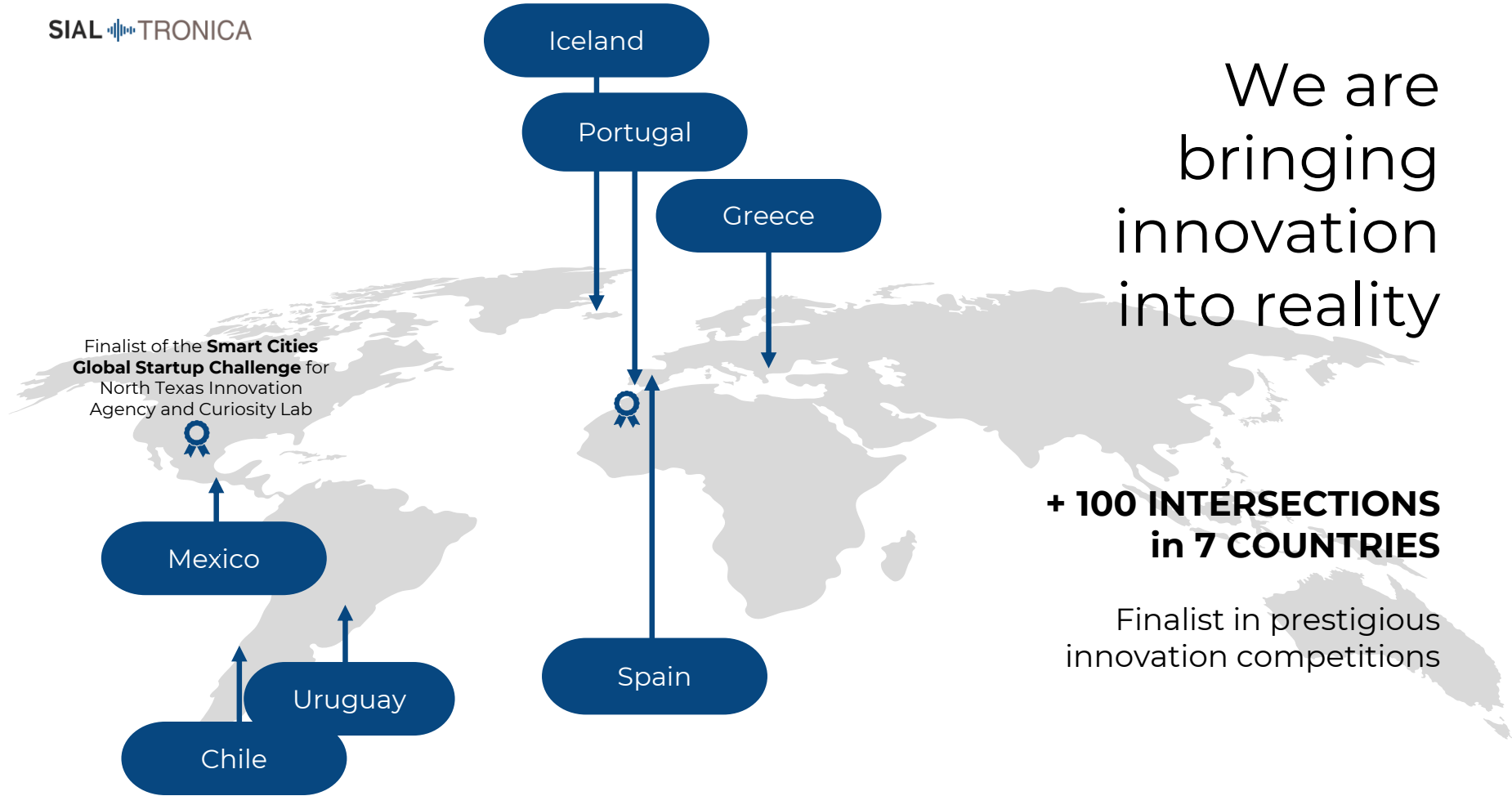
***Retrolight System®* is backed by the highest industry certifications and comply with most demanding technical requirements**

We guarantee **long-term performance even under the most extreme temperature conditions (-50°C to 100 °C) and heavy vehicle traffic (>60,000 kgs).**

We have certificates of **complete waterproofing (IP 68), the highest impact resistance (IK 10), and the greatest durability (P7)** on the market.

We **comply with road signage regulations** (UNE EN 1436 and PG3) and the requirements of the most demanding **slip resistance surfaces** (UNE EN16165 and UNE-EN 13036), aging (UNE-ISO 4582 and ISO 175), **resistance** (UNE-EN 5470, ISO 10545), **low voltage directives** (2014/35/EU), **electromagnetic compatibility** (2014/30/EU), restrictions on hazardous substances (2011/65/EU), and the limitation of emissions of volatile organic compounds (RD 227/2006).







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