THE ROAD TO A SMART CITY *with* SERNIS

One important area of focus for Smart Cities is Road Safety. Globally, one life is claimed in a traffic accident every 25 seconds.

THE ROAD TO A SMART CITY *with* SERNIS

SERNIS is working on developing new and improved Road Safety products and solutions that provide better quality of life in urban areas

ITS

Intelligent Systems developed to reduce road accidents

PARKING

Systems developed to make parking more easy, fast and safe

ROAD STUDS

Specially developed road studs with communication and smart features

FLEXIBLE BOLLARDS

Ideal for urban areas delimitation, developed to increase safety and walkability for pedestrians.

THE ROAD TO A SMART CITY *with* SERNIS

The concept of a Smart City combines existing basic services and physical infrastructure with technology that allows things to communicate with each other.
One important area of focus for Smart Cities is Road Safety. Globally, one person die at every 25 seconds in a traffic accident. For this reason, SERNIS is working on developing new and improved Road Safety solutions every day.
SERNIS products and solutions can play a proactive role in making worldwide roads more safe and smart.
Cities across the globe are using SERNIS products and solutions to provide safer roads and a better quality of life and this is only the beginning. With research on smart technology advancing rapidly, the possibilities for new products are endless.

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ITS

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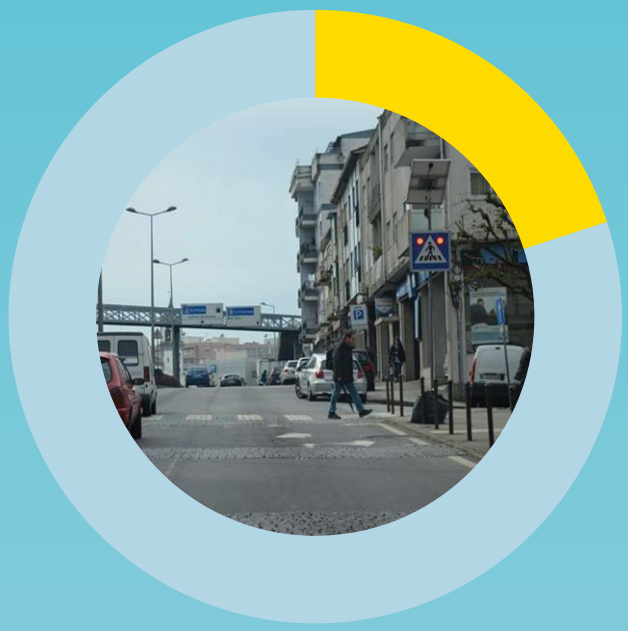

SR-TICS

The **Thermal Intelligent Crossing System** is a **thermal technology** based system that **detects pedestrians at crosswalks** by **real-time image processing**, managing automatically the activation of a set of warnings through **vertical signs** and **road studs** to **alert drivers in a safe and effective way**.
SR-TICS have a thermal camera that don't see sun glare, responding only to the heat signature, detecting and giving a **24-hour detection of vehicles regardless of the amount of light available**, reducing the risks of accidents in crosswalks.

https://www.sernis.com/business/road-safety/its/product/sr-tics

ITS

NEW

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SRL-SMDCC

Speed Meter Display Data Cloud is a solar-powered system developed to **inform drivers of their speed**. What makes SRL-SMDDC a distinct road safety product is its **Data Cloud**.
Accessing its interface, the **administrator will have access to data** like **battery voltage level monitoring**, **graphical view of battery level**, **real-time communication status** and **installation site location**.
The **key feature of SRL-SMDDC Data Cloud** is the **graphical view of speed and count report** here it is possible to see and analyze the **minimum, average and maximum speed** (daily, weekly, monthly and yearly). It will also show **data on detected vehicles** (daily, weekly, monthly and yearly), the **hour of most detected vehicles during the day**, the day of most detected vehicles during the week, the week of most detected vehicles during the month and the month of most detected vehicles during the year.
The **interface allows the administrator to export data for ".csv" format**.
The administrator can **edit or remove devices from the platform**, have **multiple devices in the same platform** (administrator and user accounts) and **create, edit or remove users**.
Multiple **parameters are configurable in the platform**: **minimum display speed**, **maximum display speed**, **day brightness**, **night brightness** and **configurable display time**.

https://www.sernis.com/business/road-safety/its/product/srl-smddc

ITS

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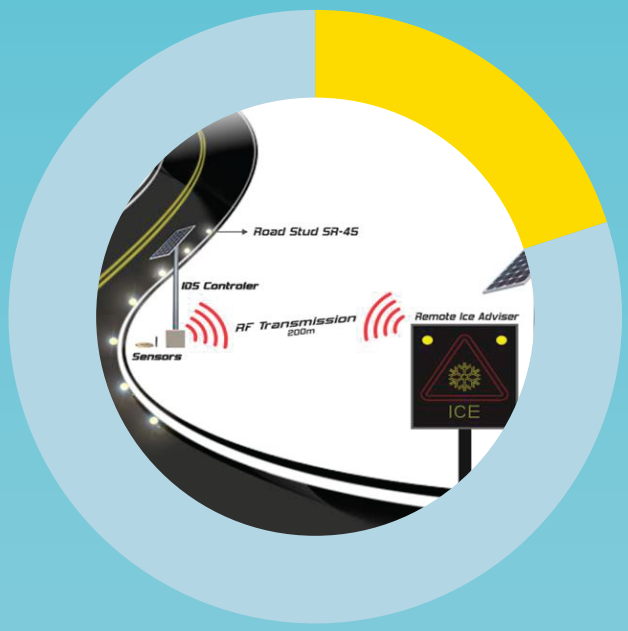

SR-IDS

The **Intelligent Ice Detector System detects the possibility of ice formation at critical places on the road**.
SR-IDS uses the **road stud SR-45** as base for the structure which incorporates inside **two sensors that measure the temperature and humidity at road surface level**. With this structure type **the system detects when there is a high possibility of ice formation** in any potentially dangerous place.
For warning with greater efficacy, the **ice detector** allows **radio communication** that makes possible **connecting with road signs to alert the drivers for the danger of ice formation** in a certain place. The **red LEDs** are activated in case of **ice formation possibility** and the **green LEDs** are activated when there is **no danger**.
The device also works with **solar energy**, allowing the placement of this system in any critical point of the road.
The Intelligent Ice Detector System with the presented functionalities is a **step forward on the detection of dangerous places due the ice formation** and at the same time **alerts for the road conditions in real-time**, contributing in this way to the safety of the drivers in the highways.

https://www.sernis.com/business/road-safety/its/product/sr-ids

ITS

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PARKING

NEW

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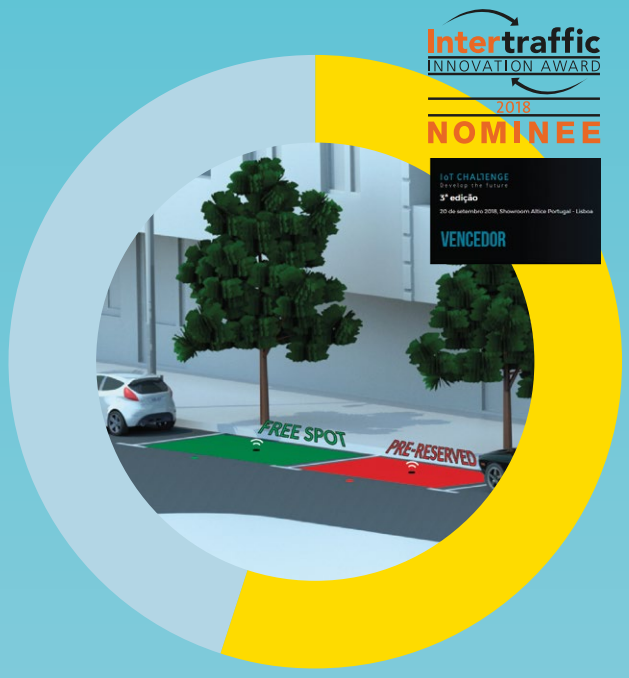

iMAPARK

iMAPARK is an **on-street smart parking system** that helps drivers **find** and **PRE-RESERVE** an **available parking spot on public roads** more quickly by means of **traffic lights** - road studs - on the floor, **electronic displays** and **smartphone app**. The system was a nominee of **Intertraffic Amsterdam 2018 Innovation Award** (Parking Category), and **winner of the IoT Challenge by Altice**.

Each parking spot has a **light signal** and **sensor** that **sends information about the availability of the spot to the Gateway through wireless network**. The **light signal** (road stud) - visible from the road even when a car is parked - will **inform drivers about the occupancy status of the spot**.

Drivers will receive **information in real-time** about the parking spots available in the area and will be able, among other things, to **PRE-RESERVE the parking spot**, **extend the parking time** and **make the payment of the service** - the system **include the payment system**.

When installed, this system will **reduce traffic density in the center of the city** and **increase the revenues of municipalities/car park managers** by **increasing occupancy** and **reducing non-payments**.

https://www.sernis.com/business/road-safety/parking/product/imapark

PARKING

NEW

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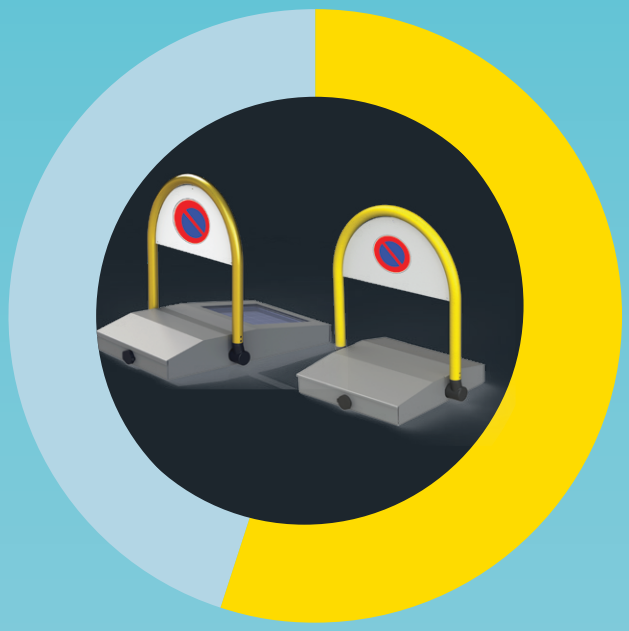

SR-SAFEMYPARK

SR-SAFEMYPARK is a simple and **easy-to-use parking space blocker** controlled through an **application** installed on the user's **smartphone** via **Bluetooth**.
The **intelligent auto lift sensor** allows the user to **prevent others from parking in their parking spot**.
Using the smartphone app, the user can **lower the automatic parking blocker to lay flat**, allowing the user to drive the vehicle into the parking spot.
When leaving the parking spot, the user just needs to touch the smartphone app and the **parking barrier will automatically rise up** to **prevent anyone else from using the parking spot**.

https://www.sernis.com/business/road-safety/parking/product/sr-safemypark

PARKING

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ROAD STUDS

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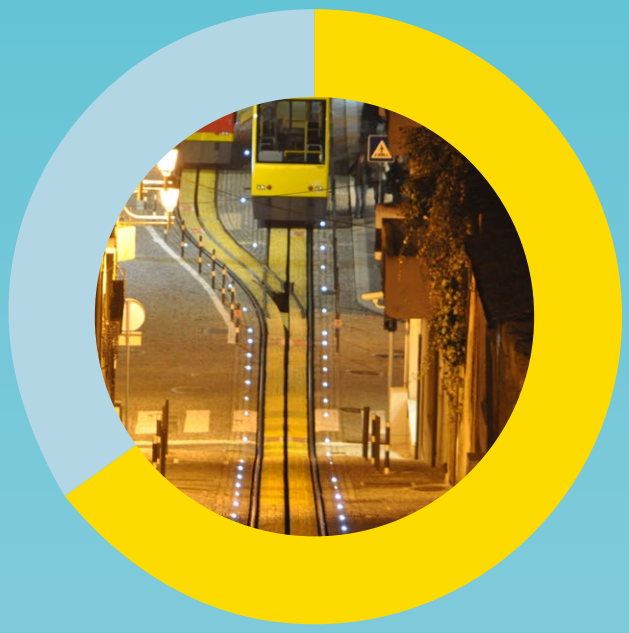


i-STUD

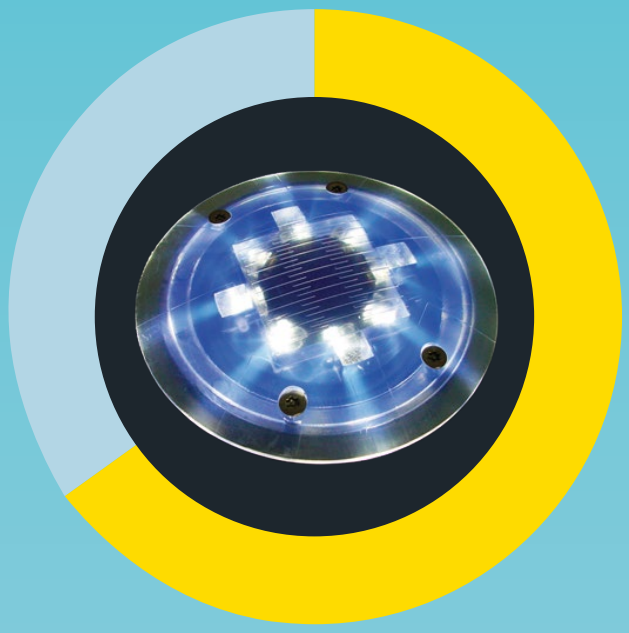
i-Stud is the new generation of **solar studs with the most advanced technology in the world**. This technology is applied to **SR-i15**, **SR-i20, SR-i21 and SR-i35** to **improve the performance of solar road studs**. Features include **use of microcontroller technology**, **SLEEP mode** to **prevent discharge during storage/transport**, **constant brightness during all functioning period**, **internal prismatic system**, **protection against deep discharge of the batteries/capacitors**, **high performance photovoltaic solar module** and **energy storage in super capacitors or batteries**.

https://www.sernis.com/business/road-safety/road-studs/product/sr-i15
https://www.sernis.com/business/road-safety/road-studs/product/sr-i20
https://www.sernis.com/business/road-safety/road-studs/product/sr-i21
https://www.sernis.com/business/road-safety/road-studs/product/sr-i35

ROAD STUDS

NEW

THE ROAD TO A SMART CITY *with* SERNIS



SR-35

We want **more bike safely cities** and **we can do it together with SR-35, SR-i35**.
SR-35 - solar and hardwired road studs - has been specially developed to **provide guidance at cycle paths** due to its **360 degrees lighting**, which **emit light from any direction** and for **both lane sides**, keeping the **cyclist aware of his traffic lane all the time**.
Especially well-suited for road areas with cycling infrastructures, SR-35 was designed with a **minimal high above the road surface** in order to **not disrupt the circulation of bicycles**, which **can go over the stud without any risk**.
According to **European Road Safety Observatory**, almost **one-third of cyclist fatalities** in Europe occurred when **lighting was poor** - twilight or darkness. This means there is an important work that needs to be done to improve the cycle paths with concerns to reduce the incidents.
SR-35 provides the **visual guidance** and **warning** that will **improve the attention to vehicle drivers and cyclists**, **decreasing the number of accidents and fatalities**. For an effective additional safety, the hardwired version can also be synchronized with traffic lights.

https://www.sernis.com/business/road-safety/road-studs/product/sr-i35
https://www.sernis.com/business/road-safety/road-studs/product/sr-35c

ROAD STUDS

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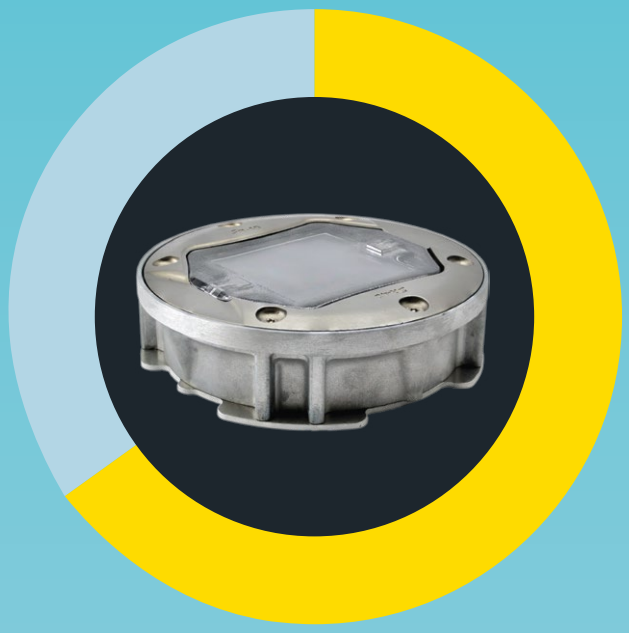

SR-i40

SR-i40 is a **wireless solar road stud** ideal for countries with **low sun exposure** due to its **big and high performance photovoltaic solar module**.
This **powerful road stud** has **high mechanical resistance**. The most recent independent tests showed resistance until **80Tons**, making it **suitable for harsh conditions** and **ready for snow plough machines**.
SR-i40 was designed after extensive **Research and Development (R&D)**.
This road stud has **low power RF with 868MHz network communication**.
The **i-stud evolution technology** applied to SR-40 **increase the performance** of solar power studs with **energy storage by battery**.
The main advantage of i-stud is the use of **wireless technology inside each stud**, which allows several beneficial features and **control options even after installation**. Features include a **wake up and sleep function**, **automatic brightness control** and **night-level detection**. The stainless steel, aluminum and polycarbonate body houses two unidirectional LEDs or four bidirectional LEDS.
SR-i40 is **environmental friendly** and provides great visibility for drivers. **Easy to install**, it have **virtually no maintenance** and **works efficiently and reliably** for years and years to come.

https://www.sernis.com/business/road-safety/road-studs/product/sr-i40

ROAD STUDS

NEW

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SR-50

SR-50 is the most powerful, resistant and flat road stud on the market. As seen on Intertraffic Amsterdam, this innovative road stud can be **rotated after installed** (allowing the adjustment of the road stud light direction after having been installed on the road).
This hardwired road stud is very much at home in **harsh conditions** and it is **snow plough-resistant**.
The **stainless steel** and **aluminum body** house **up to 4 power LEDs** and can have **unidirectional** or **bi-directional LED configuration**.
This year, we made an **upgrade to all the mechanical structure** to **improve its resistance**.
SR-50 can be **integrated with control traffic devices** and is suitable for applications in **roads**, **tunnels**, **parks** and **airports**.

One of the most innovative thing about SR-50 is its rotation feature but maybe you just need the most powerful, resistant and flat road stud on the market (without the rotation) for your next project. Thinking of that, we developed a **new version of SR-50 without the rotation feature** at a **more attractive price**.

https://www.sernis.com/business/road-safety/road-studs/product/sr-50

ROAD STUDS

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SR-90

SR-90 is the **first Intelligent System for Physical Speed Reduction** associated with **road studs**. The **Intertraffic Amsterdam 2018 Innovation Award Winner** (Safety Category) is a **road stud** with **two levels of signaling LED** and **relative elevation** from the road surface controlled electronically. The control is the result of an **intelligent algorithm**: the **level of elevation** and the **LEDs color** will **change accordingly to the speed that the car approaches the control area**:
- **Proper speed**: the road stud will be at road surface level and will show a green light;
- **Excessive speed (inadequate by excess)**: the road stud will be slightly above road surface level and will show yellow light;
- **Excess speed (exceeding legal limits)**: the road stud will be at one of its upper levels above road surface level and will show a red light.

This system will be installed in places where it is crucial that cars slow down. Close to schools and in areas with a high average of accidents caused by excessive speeds.

https://www.sernis.com/business/road-safety/road-studs/product/sr-90

ROAD STUDS

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FLEXIBLE BOLLARDS

NEW

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SR-CITY-BALI

SR-CITY-BALI is ideal for **urban areas delimitation** and is available in **two diameters**: **80mm** and **130mm**.
These **high-tech flexible bollards** reinforce **separation** and **cohesion in landscape design** while **increasing safety and walkability for pedestrians**.
SR-CITY-BALI have **3M reflective tape** with **high reflectivity** and **reflective bands** with **two rows of glass elements** for **greater visibility at night**.
All bollards feature **UV protection** to **minimize maintenance** and **prevent fading in sunlight**.
When struck, flexible bollards typically **blend 90 degrees to ground** - minimizing damages to vehicles and surroundings surfaces - and **return to their original, upright position**.
SR-CITY-BALI are made from **durable and rigid PU** to ensure lasting performance. They are a **cost-effective alternative to traditional cast iron bollards**.
Any scratches, scrapes or dents from extended use or impacts will show minimal markings.

https://www.sernis.com/business/road-safety/parking/product/sr-safemypark

FLEXIBLE BOLLARDS

NEW

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SR-BALI-LF

SR-BALI-LF have a main body made with **extremely resistant to impact material** with **high memory**. It have **130mm diameter** for **better visibility over large distances**.
These **high-tech flexible bollards** are an useful tool to **delineate traffic lanes** and **improve road safety**. The application of bollards on roads can **reduce significantly the average speed** and **disallowing dangerous actions as overrunning or changing lanes**.
Its versatility make it ideal for many traffic applications. It can be used in **roads**, **highways**, **urban places** and **pedestrian streets where vehicles should not pass**, **providing safety and protection**.
SR-BALI-LF have 3M reflective tape with **high reflectivity** and **reflective bands** with two rows of glass elements for **greater visibility at night**.
All bollards feature **UV protection to minimize maintenance** and **prevent fading in sunlight**.

https://www.sernis.com/business/road-safety/flexible-bollards/product/sr-bali-lf

FLEXIBLE BOLLARDS

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https://www.facebook.com/sernis.pt/

sernis@sernis.com

253 300 440