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TraffiClair Monthly Updates

2026.06: Intelligent Solar Stud - Revolutionizing Road Safety, Maintenance, and Visibility

TraffiClair Team

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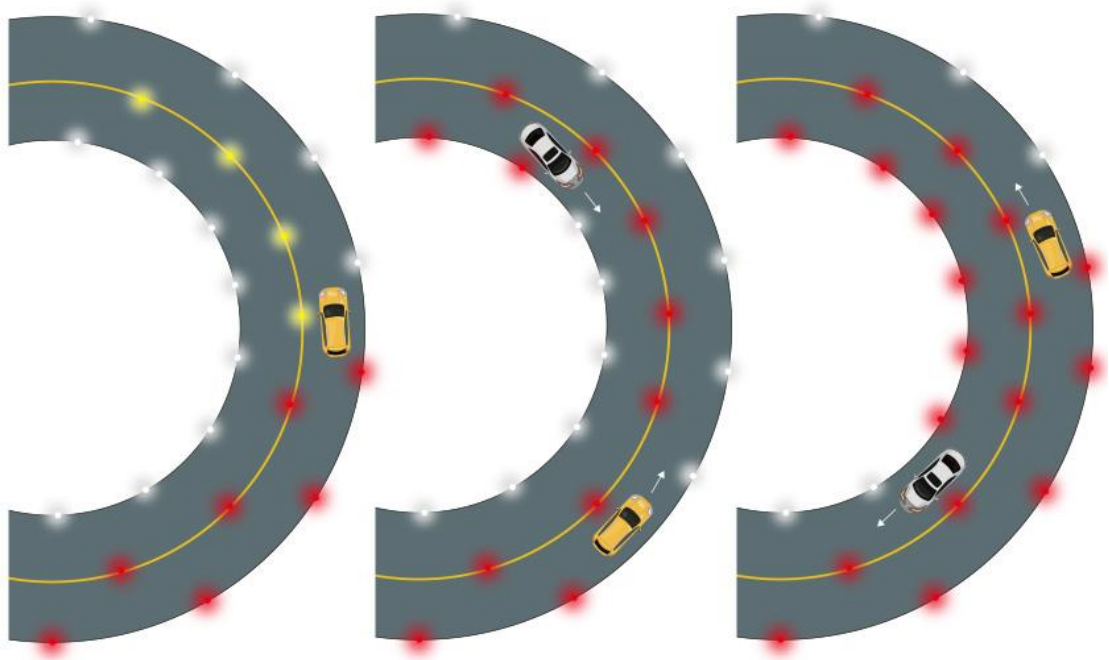
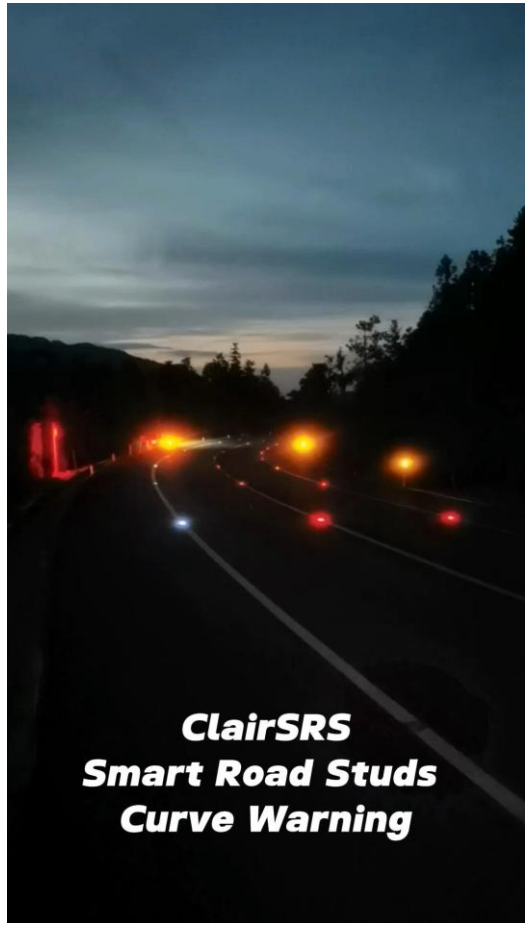
Dynamic Vehicle-Following Effect with ClairSRS Solar Mag Stud



- A yellow (or white) light pattern illuminates **ahead of the vehicle**, guiding the driver through the bend.
- Red lights activate **behind the vehicle**, warning following drivers of the car in front.
- Edge lines and centerline studs adjust dynamically based on oncoming or rear traffic, creating a clear, real-time visual corridor.



On sharp curves or foggy highways, standard road markings often fall short when visibility is low or traffic conditions change rapidly.

The ClairSRS Solar Mag changes this with its **smart vehicle-following effect**. Each solar-powered road stud is equipped with a built-in geomagnetic sensor and chain communication network, enabling real-time detection of vehicle speed, movement, and position.

Full Story
Youtube Video
Product Webpage

ClairSRS-Solar-Mag – Intelligent Light Guidance for Low-Visibility & Follow-Driving Scenarios

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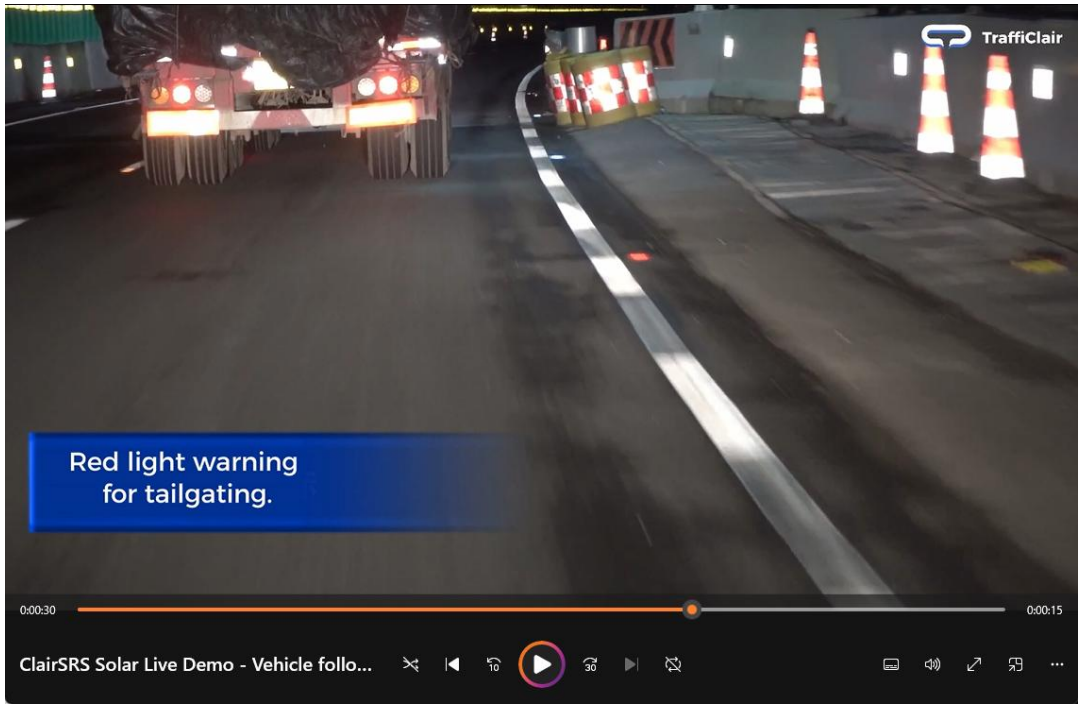


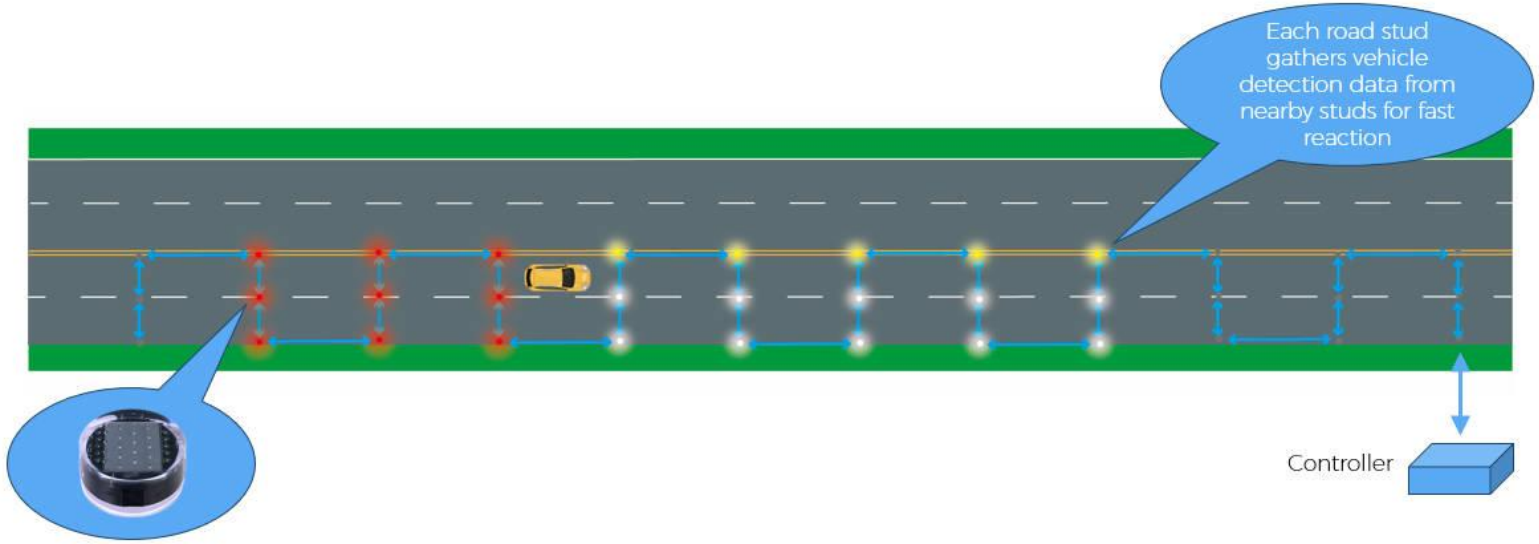
Full Story
Youtube Video
Product Webpage

In follow-driving mode, the same front/rear principle applies – with **red always having priority**. The system adjusts in real time as the gap between two vehicles changes:

- ① Far apart (>250 m) – each vehicle operates independently, with a dormant gap between the lead vehicle's red rear band and the following vehicle's yellow/white front band.
- ② Approaching (100–250 m) – the dormant gap shrinks until all studs are lit; as distance continues to decrease, the following vehicle's yellow/white front band gradually shortens.
- ③ Close following (<100 m) – the following vehicle enters the lead vehicle's red rear zone, and the entire space between the two vehicles is fully covered by **red** studs, providing a clear visual warning.

Whether in fog, at night, or in follow-driving traffic, the ClairSRS-Solar-Mag creates a **real-time, priority-aware visual language** that enhances safety, reduces reaction time, and gives drivers clear situational awareness – without relying on roadside infrastructure alone.

Chain Communication Principle for 2.4GHz Mesh Networks of Solar Studs

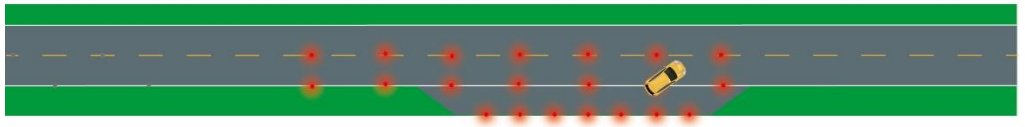


Aspect	Traditional Polling	Chain Communication
Decision location	Centralized controller	On-device (edge)
Communication latency	>2 seconds per cycle	20ms per cycle
Response to vehicles	Delayed (>5s)	Immediate (real-time)
Network refresh rate	Very low (0.5 Hz)	High (50 Hz)

- **Perception source** – Every device senses vehicle presence and shares this data across the entire network.
- **Periodic exchange** – Each stud transmits its vehicle detection status and lighting decision to adjacent devices every 20ms.
- **Distributed decision making** – Every device compares its own sensed data with information received from neighbors, then applies a priority-based rule to determine its own lighting behavior in real time.
- **Rolling refresh** – The entire network state and all lighting decisions are refreshed every 20ms.

Full Story

Real-Time Safety on High-Speed Roads: Emergency Lane Parking Alerts



When a vehicle stops in the emergency lane on a high-speed highway, every second counts—not just for the driver, but for everyone approaching from behind.

Watch how ClairSRS Solar Mag transforms road safety with its intelligent, solar-powered detection system:

- **Instant Detection:** The built-in geomagnetic sensor immediately identifies a stationary vehicle in the emergency lane.
- **Dynamic Warning:** In real-time, a chain of red warning lights activates across a critical distance behind the parked vehicle, alerting oncoming traffic and drastically reducing the risk of secondary collisions.
- **Seamless & Low-Latency:** Thanks to its innovative chain communication network, the lights synchronize flawlessly—even at highway speeds—without network congestion.
- **Always On, Always Ready:** Powered by solar energy with a 720-hour backup, and housed in a rugged, flush-mount design that withstands extreme weather and heavy traffic loads.

Full Story | **Youtube Video** | **Product Webpage**

The Hidden Cost of Road Maintenance? It’s Time to Stop Digging

The Luminode isn’t just another solar road stud. It is an ecosystem designed for the realities of modern road maintenance.

The secret? The Pre-Embedded Base Design.

We install a durable mounting base once. When the lamp reaches the end of its lifecycle (which is 3x longer than conventional markers, by the way), you don't dig it up. You simply unclip the old lamp and click in a new one.

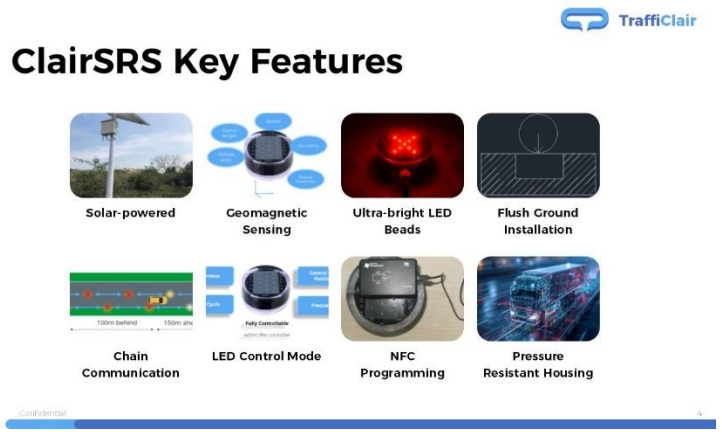
✅ **Zero road destruction.** Your pavement remains intact. No patching. No structural weak points.

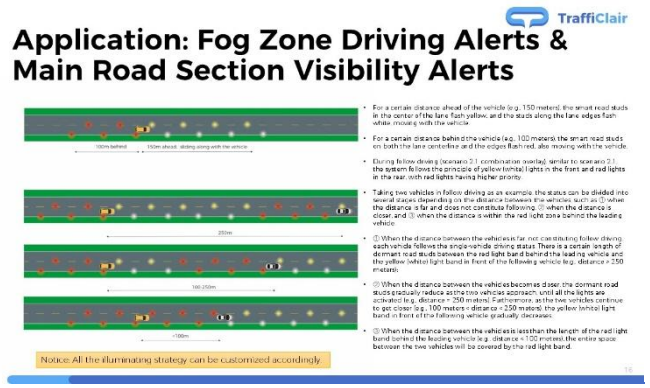
✅ **50% faster installation.** We have reduced replacement time from hours to minutes.

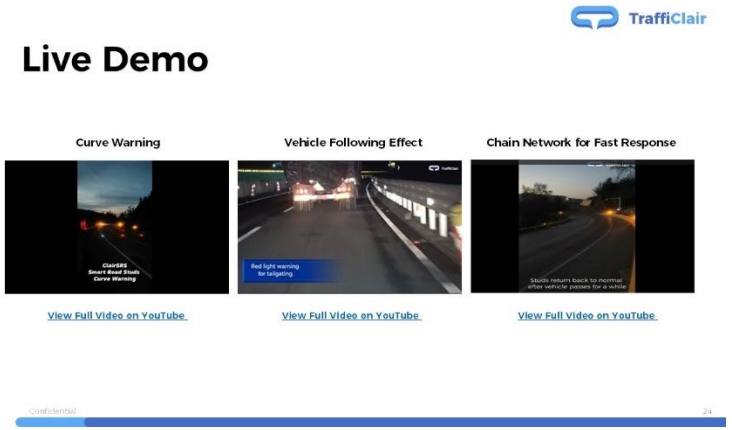
✅ **Drastically lower maintenance costs.** Your maintenance budget goes further by eliminating machinery rental and asphalt repair costs.

Full Story | **Product Datasheet** | **Product Webpage**

ClairSRS Stud Solution Presentation







Overview
Key Features
- Solar Power Supply
- Geomagnetic Sensing
- Ultra-bright LED Beads
- Flush Ground Installation
- Two-stage Light Refraction
- Chain Communication
- LED Control Mode
- NFC Programming
- Pressure Resistant Housing

System Architecture
Application
- Curve Warning
- Fog Zone Driving Alerts & Main Road Section Visibility Alerts
- Emergency lane parking alerts on main road sections
- Merging zone & diverting zone
- Smart Crossing System
- Variable Lane
- Dynamic Road Rights Scheme for BRT Lanes and Bus Priority Lanes
- Tidal Lane

Live Demo

Product Presentation

Join the journey towards the future of mobility.

Follow us on LinkedIn and YouTube as we unfold the next exciting chapter in traffic innovation!

202603: Introducing ClairSaf VillagePeace & Full Safe Mobility Family
202604: Stronger AI, Smarter Signals
202605: Slope Reliability & Bridge Health Monitoring Radars
All previous issues...
Catalogue V1.10

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Thanks

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