



TrafficClair Monthly Updates

2024.11

Kevin Gu

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Crosswalk Safety Revolutionized by Advanced Pedestrian Video Detection System

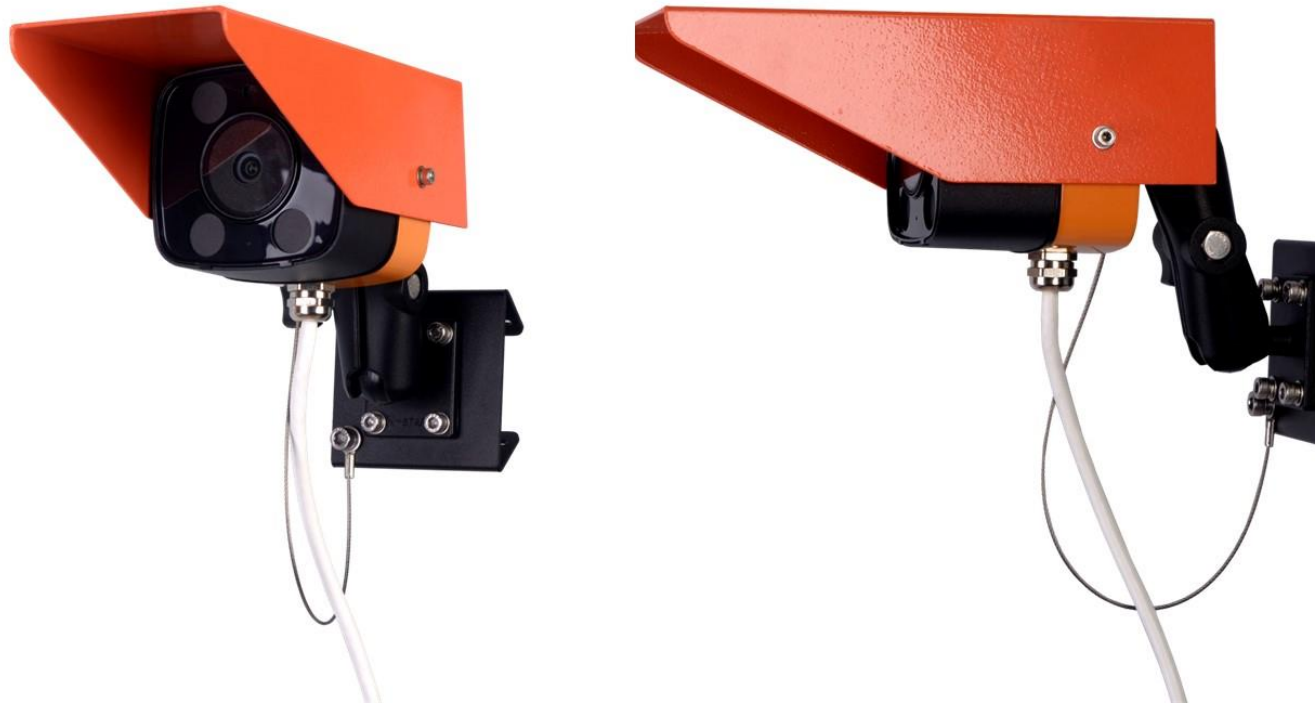


Our Canadian partner, [Novax](#), recently showcased the successful integration of the ClairEye-i pedestrian video detector into its intelligent crosswalk system at the latest tradeshow, highlighting cutting-edge advancements in pedestrian safety technology.

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Sunshield for ClairEye-i Traffic Video Detector



We are excited to announce that a sun and rain cover shield is now included as a standard accessory with every ClairEye-i traffic video detector. This addition enhances the performance of the device, particularly in challenging weather conditions like direct sunlight and heavy rain.

For our existing customers, we are offering a free sunshield supplement to upgrade your current ClairEye-i units. This initiative reflects our commitment to ensuring the highest reliability and satisfaction with our products.

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Malaysia Pilot Project: TraffiClair ClairWav Camera-Integrated Microwave Radar Detector



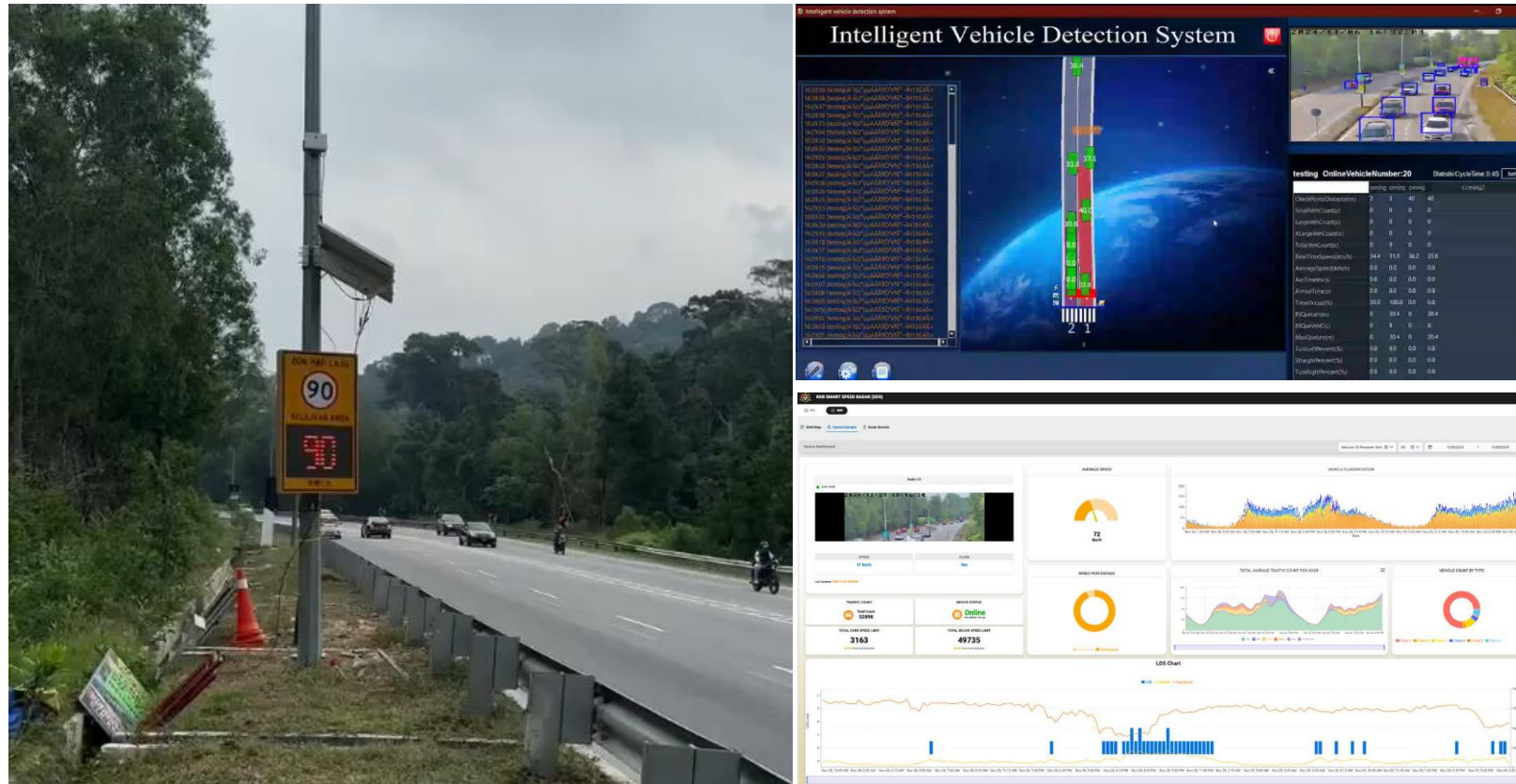
Loranet, our trusted partner in Malaysia, has successfully implemented the TraffiClair ClairWav camera-integrated microwave radar detector in a pilot project aimed at optimizing traffic management. By combining radar technology with an integrated camera, ClairWav radars significantly enhance vehicle classification capabilities, supporting up to 12 detailed categories. This innovative fusion of radar and camera data goes beyond traditional length-based classifications, enabling a more precise and nuanced understanding of the traffic environment.

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Cases: Highway Speed Limit & Flow Statistics

Location: Malaysia



- Speed limit with solar powered LED display
- Plate number of the vehicle which is over speed limit will be displayed on the LED.
- Up to 12 vehicle classifications can be identified precisely.
- Flow statistics for each of the vehicle classification can be displayed in the cloud platform.
- Cloud platform supports:
 - Overspeed records with vehicle plate number.
 - Onsite video stream is supported for each note.
 - Traffic flow statistics per each of the 12 vehicle classifications
 - Traffic status of one region or route

TraffiClair Unveils ClairWav T24-700: Traffic Radar with Unmatched 700m Detection Range



TraffiClair introduces the ClairWav T24-700, a groundbreaking 24GHz traffic radar offering an unparalleled 700-meter detection range (2297 feet), ideal for highways, urban roads, and V2X applications.

Powered by phased array technology and AI algorithms, the ClairWav T24-700 tracks up to 512 targets across 14 lanes with precision and speed. Key features include:

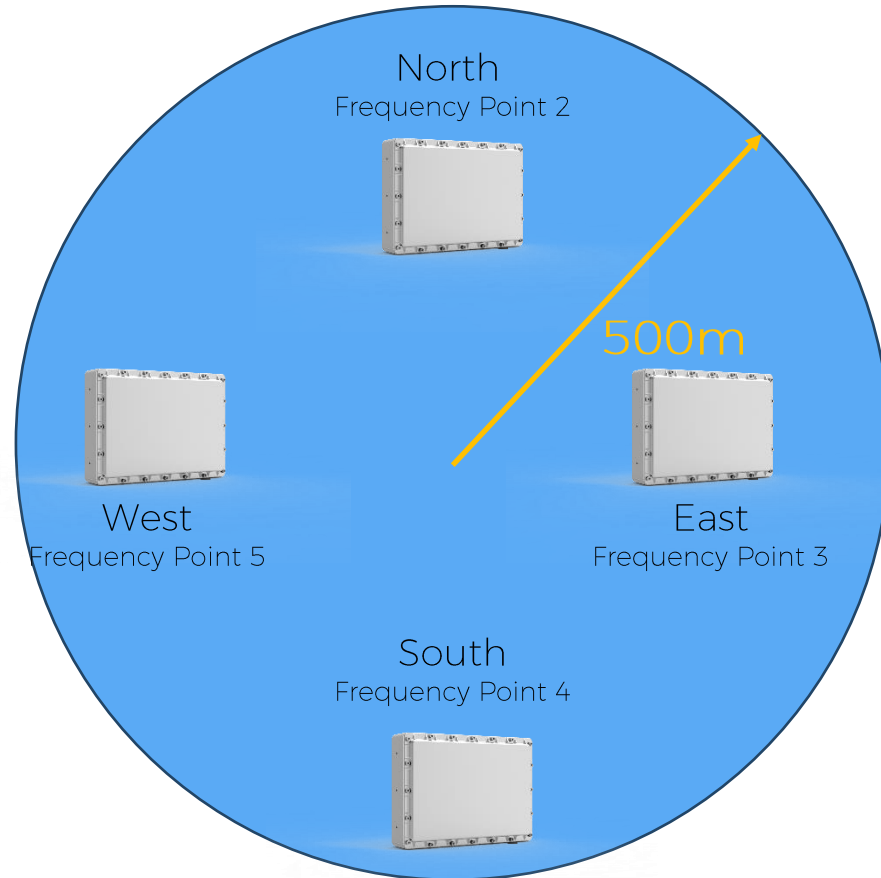
- High Accuracy: ≥95% for vehicle flow, speed, and queue detection.
- Comprehensive Outputs: Real-time positioning, vehicle classification, lane data, and traffic flow metrics.

For enhanced monitoring, the ClairWav T24-700C integrates an 8-megapixel camera, combining radar accuracy with video clarity. The ClairWav T24-700 redefines traffic detection with its superior range and reliability, enabling smarter traffic management.

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Different Frequency Points for Anti-interference with Radars Close By



ClairWav traffic microwave radars are designed with advanced anti-interference technology, offering up to 6 selectable frequency points to ensure seamless operation in densely equipped environments. This feature is particularly beneficial for installations within a 500-meter radius, where multiple radars are in use. By enabling users to assign distinct frequencies to each radar, ClairWav eliminates signal overlap and interference, guaranteeing accurate and reliable performance in even the busiest traffic management scenarios.

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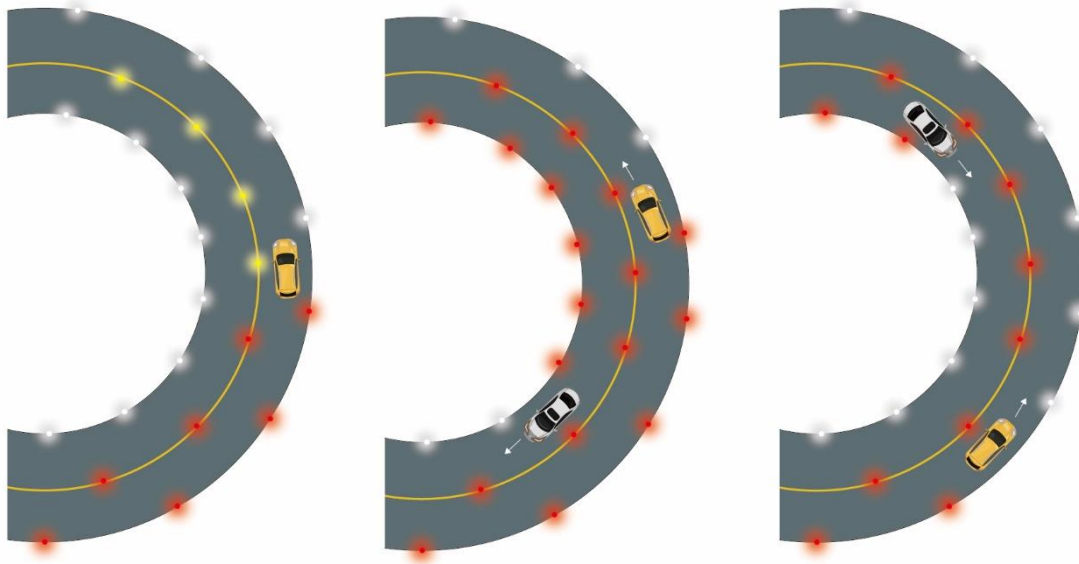
Network		Board parameters	
IP:	192.168.0.79	Altitude:	0.000000
Gateway:	192.168.0.1	Longitude:	0.0000000
Subnet mask:	255.255.255.0	Latitude:	0.0000000
Name:	北向南	Height:	0.000000
MAC:	08-00-42-AB-00-83	Horizontal offset angle:	0.000000
Firmware version:	f344	Detection threshold:	10.000000
Software version:	2.0.0.1.5.9	Frame rate:	Low frame rate
Device identification:	TSR-BRL-L3E	Frequency:	1
Protocol type:	Sondit new protocol	WTP server IP:	
Target data format:	Target packet 0		
Active status:	Activated		

Buttons: Modify, Add device, Upgrade board, Upgrade

Benchmark ClairWav vs. SmartMicro

Model Parameters	SmartMicro				TraffiClair				Benefits
	TRUGRD UMRR-12 Type 48 (Typical Values at 12.7dBm)	TRUGRD UMRR-12 Type 48 (Typical Values at 20dBm)	UMRR-11 Type 45 (Typical Values at 12.7dBm)	UMRR-11 Type 45 (Typical Values at 20dBm)	ClairWav-T24S	ClairWav-T24L	ClairWav-T24SC	ClairWav-T24LC	
Operating Frequency	24~24.25GHz	24~24.25GHz	24~24.25GHz	24~24.25GHz	24~24.25GHz	24~24.25GHz	24~24.25GHz	24~24.25GHz	
Lanes	12	12	4	4	12	12	12	12	
Simultaneously Detected Objects	256	256	126	126	128	256	128	256	
The horizontal field of view angle.	±55°	±55°	±22°	±22°	±45°	±45°	±45°	±45°	
The vertical field of view angle	±10°	±10°	±12°	±12°	±7°	±7°	±7°	±7°	
Maximum detection range for motor vehicles	Passenger car: 200m Truck: 300m	Passenger car: 260m Truck: 300m	190m	219m	250m	400m	250m	400m	Longer distance
Distance resolution	2m or 4m	2m or 4m	2.06m	2.06m	Long distance: 2m Short distance: 0.6m	Long distance: 2m Short distance: 0.6m	Long distance: 2m Short distance: 0.6m	Long distance: 2m Short distance: 0.6m	
Distance detection accuracy	±0.25 or ±0.5m	±0.25 or ±0.5m	±0.25m	±0.25m	Long distance: ±0.4m Short distance: ±0.1m	Long distance: ±0.4m Short distance: ±0.1m	Long distance: ±0.4m Short distance: ±0.1m	Long distance: ±0.4m Short distance: ±0.1m	
Speed detection range	±210km/h or ±320km/h	±210km/h or ±320km/h	±320km/h	±320km/h	-220~+220km/h	-220~+220km/h	-220~+220km/h	-220~+220km/h	
Speed resolution	0.23m/s or 0.78m/s	0.23m/s or 0.78m/s	0.35m/s	0.35m/s	0.1m/s	0.1m/s	0.1m/s	0.1m/s	Higher speed resolution.
Speed detection accuracy	±0.1m/s or ±0.28m/s	±0.1m/s or ±0.28m/s	±0.18m/s	±0.18m/s	±0.05m/s	±0.05m/s	±0.05m/s	±0.05m/s	Higher speed detection accuracy
Angular resolution	6°	6°	1°	1°	3°	2°	3°	2°	
Angular measurement accuracy	0.5°	0.5°	20°	20°	±0.2°	±0.1°	±0.05°	±0.05°	Higher angular measurement accuracy
Operating/storage temperature	-40°C~+80°C	-40°C~+80°C	-40°C~+85°C	-40°C~+85°C	-40°C~+74°C (Operating temperature) -45°C~+85°C (Storage temperature)	-40°C~+74°C (Operating temperature) -45°C~+85°C (Storage temperature)	-40°C~+74°C (Operating temperature) -45°C~+85°C (Storage temperature)	-40°C~+74°C (Operating temperature) -45°C~+85°C (Storage temperature)	
IP Class	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	
Acceleration	No	No	No	No	Yes	Yes	Yes	Yes	more suitable for abnormal driving & breaking detection
Cycle Time	50ms, 100ms	50ms, 100ms	58ms, 75ms	58ms, 75ms	50ms, 100ms	50ms, 100ms	50ms, 100ms	50ms, 100ms	
Power/Ethernet disconnected counting	?	?	?	?	Yes	Yes	Yes	Yes	easier to troubleshooting (monitoring software needed)
Number of Simultaneously Counting Bars	?	?	?	?	32	32	32	32	
Build-in Camera	No	No	No	No	No	No	Yes	Yes	5MP, 25fps
license plate recognition	No	No	No	No	No	No	Yes	Yes	Need further training for plate number in the regions outside China
Vehicle Types Classification	No	No	No	No	3	3	12	12	Rich vehicle classification
Frequency Points for Anti-interference	No	No	No	No	6	6	6	6	

ClairSRS Application: Curve Warning



In situations such as small-radius curves or poor-visibility road sections, the system can manage scenarios like single-vehicle travel, oncoming traffic, and roadside parking.

Functionality:

- For Vehicles Ahead: Yellow (or white) lights illuminate in front of the vehicle.
- For Vehicles Behind: Red lights are displayed at the rear.
- For Oncoming or Rear Traffic: The centerline and edge lines also adjust accordingly to enhance visibility and safety.

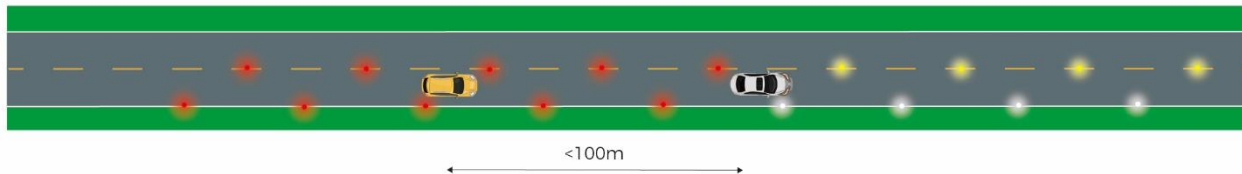
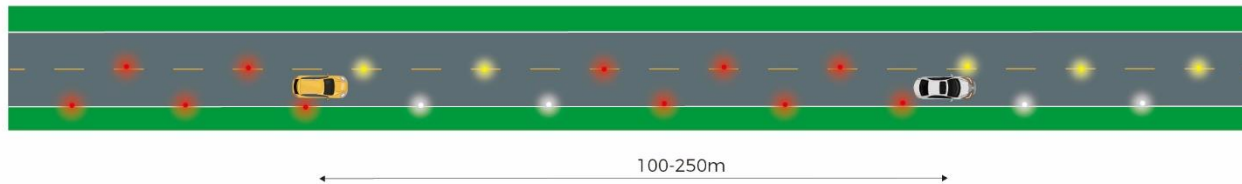
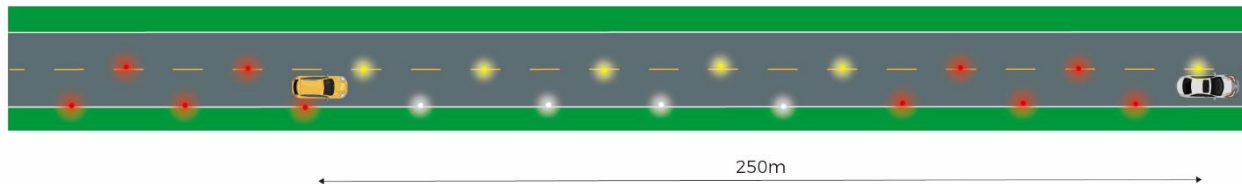
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ClairSRS Application: Fog Zone Driving Alerts & Main Road Section Visibility Alerts



- For a certain distance ahead of the vehicle (e.g., 150 meters), the smart road studs in the center of the lane flash yellow, and the studs along the lane edges flash white, moving with the vehicle.
- For a certain distance behind the vehicle (e.g., 100 meters), the smart road studs on both the lane centerline and the edges flash red, also moving with the vehicle.
- During follow driving (scenario 2.1 combination overlay), similar to scenario 2.1, the system follows the principle of yellow (white) lights in the front and red lights in the rear, with red lights having higher priority.

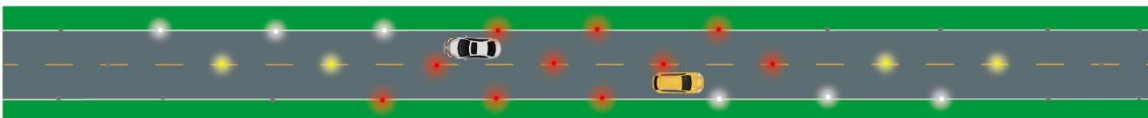
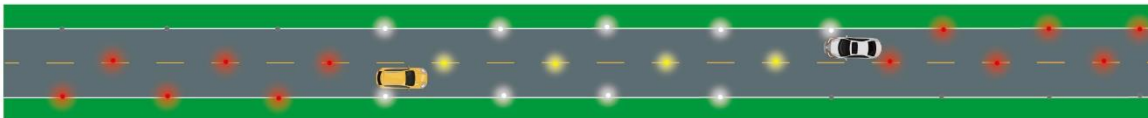
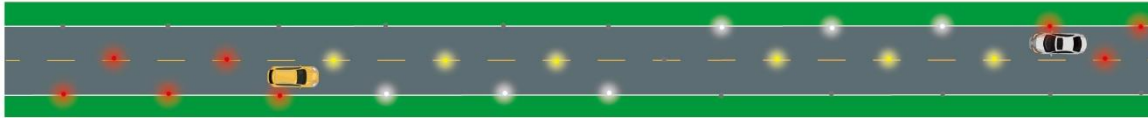


- Taking two vehicles in follow driving as an example, the status can be divided into several stages depending on the distance between the vehicles, such as ① when the distance is far and does not constitute following, ② when the distance is closer, and ③ when the distance is within the red light zone behind the leading vehicle.
- ① When the distance between the vehicles is far, not constituting follow driving, each vehicle follows the single-vehicle driving status. There is a certain length of dormant road studs between the red light band behind the leading vehicle and the yellow (white) light band in front of the following vehicle (e.g., distance > 250 meters);
- ② When the distance between the vehicles becomes closer, the dormant road studs gradually reduce as the two vehicles approach, until all the lights are activated (e.g., distance = 250 meters). Furthermore, as the two vehicles continue to get closer (e.g., 100 meters < distance < 250 meters), the yellow (white) light band in front of the following vehicle gradually decreases;
- ③ When the distance between the vehicles is less than the length of the red light band behind the leading vehicle (e.g., distance < 100 meters), the entire space between the two vehicles will be covered by the red light band.

Notice: All the illuminating strategy can be customized accordingly.

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ClairSRS Application: Fog Zone Driving Alerts & Main Road Section Visibility Alerts



- During passing (oncoming) driving, the system follows the principle of yellow (white) lights in the front and red lights in the rear, with red lights having higher priority.
- Taking the example of one vehicle passing another (scenario 2.3.1), the situation can be divided into several stages: ① when the vehicles are far apart, ② as they gradually approach, ③ when they meet, ④ as they gradually move apart, and ⑤ when passing is complete.
- ① When the distance between the vehicles is far, each vehicle follows the single-vehicle driving status, and there is a certain length of dormant road studs between the two vehicles (e.g., distance > 300 meters);
- ② As the two vehicles gradually approach, the dormant road studs reduce until all the lights are activated (e.g., distance = 300 meters). Furthermore, as the vehicles continue to get closer (e.g., distance < 300 meters), the yellow (white) light band between them gradually decreases;
- ③ When the two vehicles meet, at the meeting point (distance = 0), there will be a red light band on both sides behind the vehicles and a white light band along the front edges;
- ④ As the two vehicles gradually move apart but are still within close range (e.g., distance < 200 meters), the space between them will be covered by the red light band;
- ⑤ After passing is complete (i.e., distance > 200 meters), both vehicles return to their single-vehicle driving status.

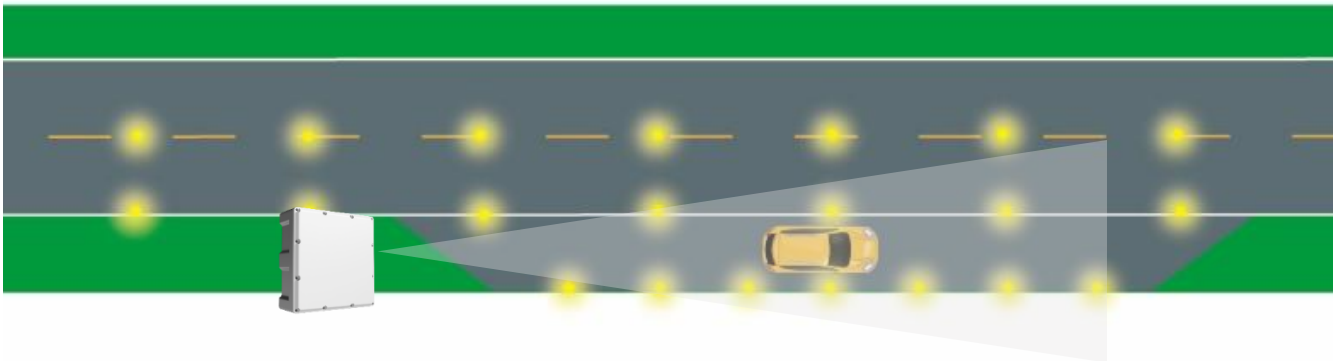
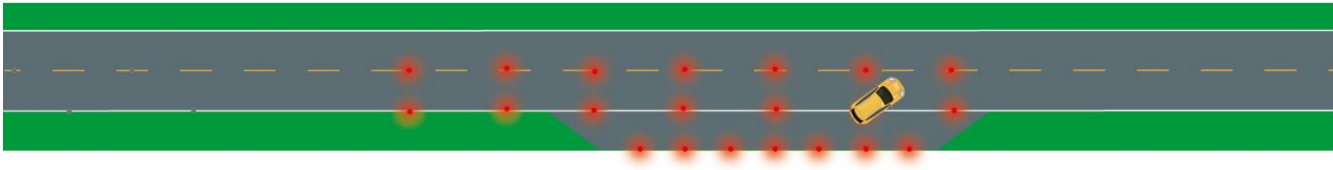
Notice: All the illuminating strategy can be customized accordingly.

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ClairSRS Application: Emergency lane parking alerts on main road sections



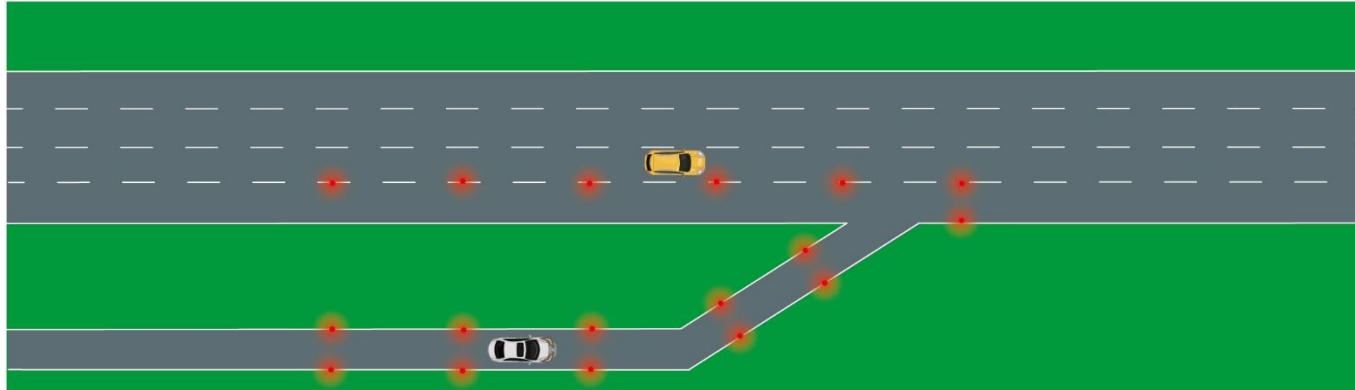
When a vehicle is parked in the emergency lane on a highway, the system activates emergency lane parking alerts. Red lights are turned on within a certain range behind the parked vehicle to warn following drivers.



For better performance, we can also use radar or infrared sensor for parking vehicle detection.

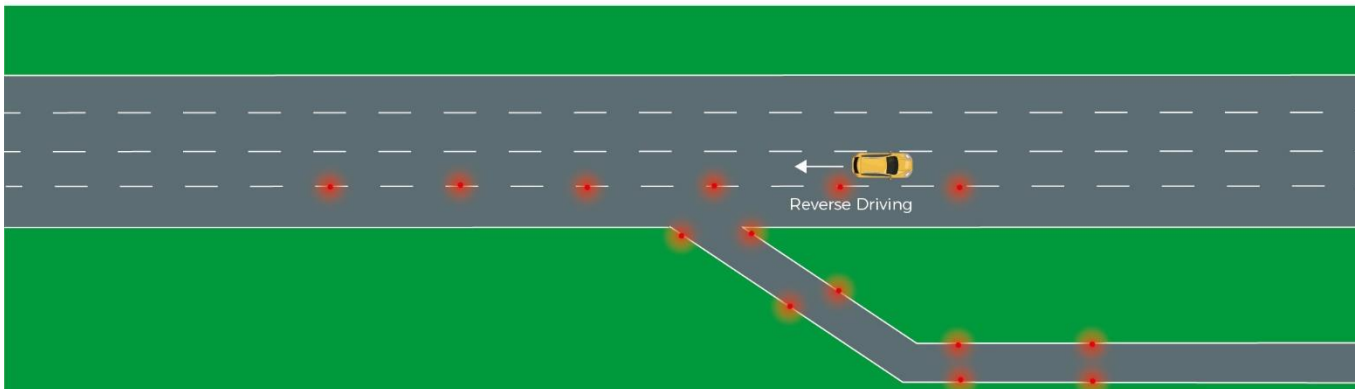
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ClairSRS Application: Merging zone & diverting zone



Merging zone collision alerts

Before a vehicle merges onto the main road from an on-ramp, if there are vehicles passing in the rightmost lane of the main road, yellow lights are activated in front of both the on-ramp and main road vehicles to provide real-time warnings. If there is a collision risk, red lights are turned on.



Diverting zone abnormal behavior alerts

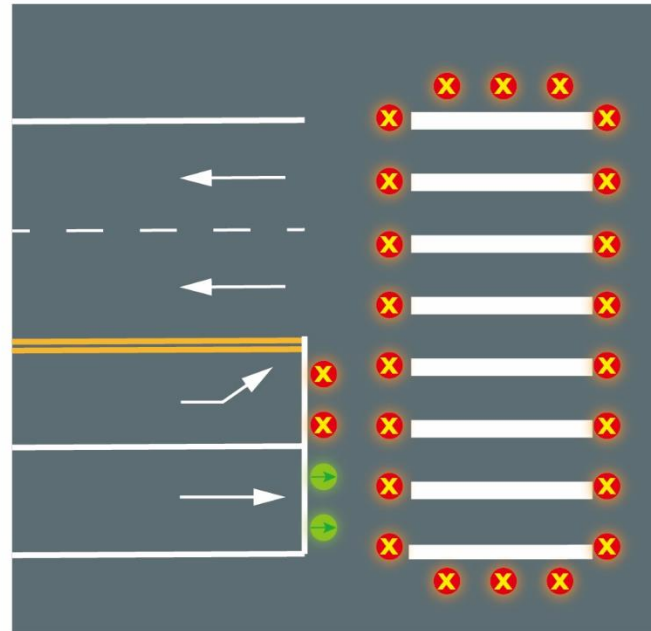
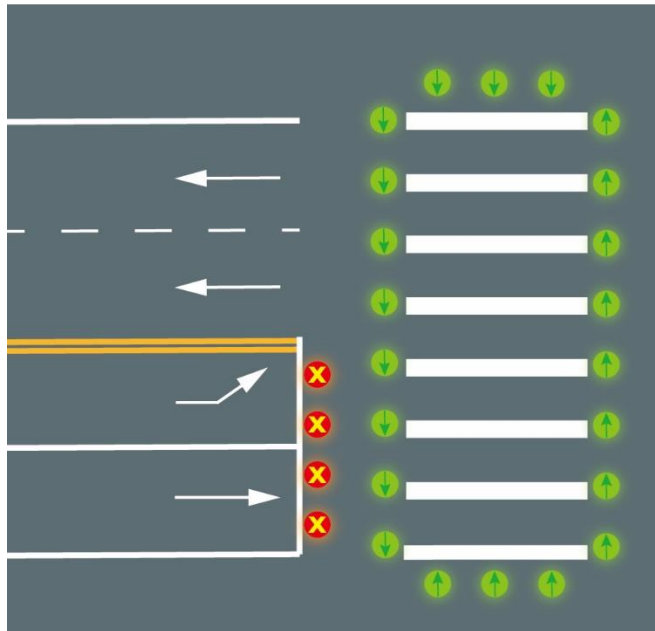
When a vehicle exhibits abnormal behavior such as slowing down, stopping, or reversing due to missing a diversion ramp, the system provides alerts to following vehicles on the main road by turning on red lights within a certain range behind the vehicle.

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Notice: All the illuminating strategy can be customized accordingly.

ClairSRS Application: Smart Crossing System



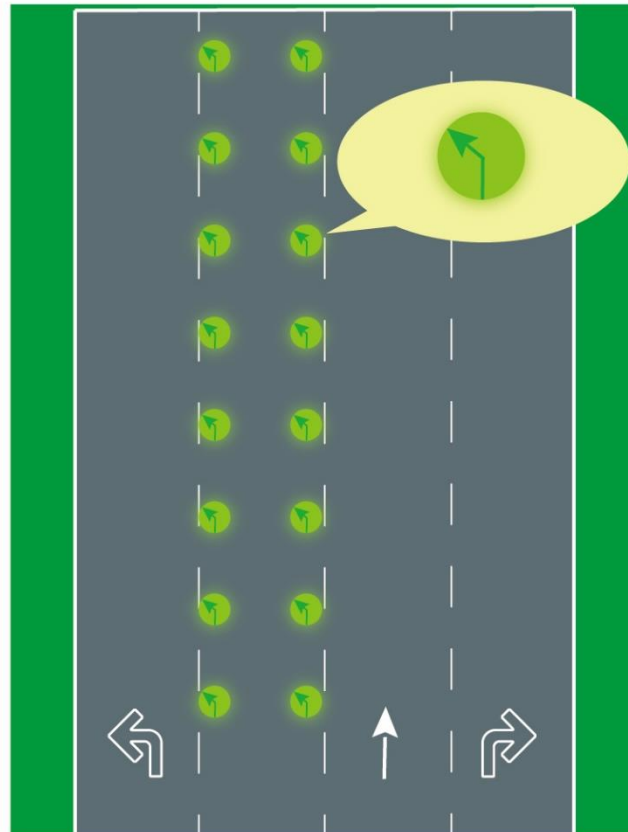
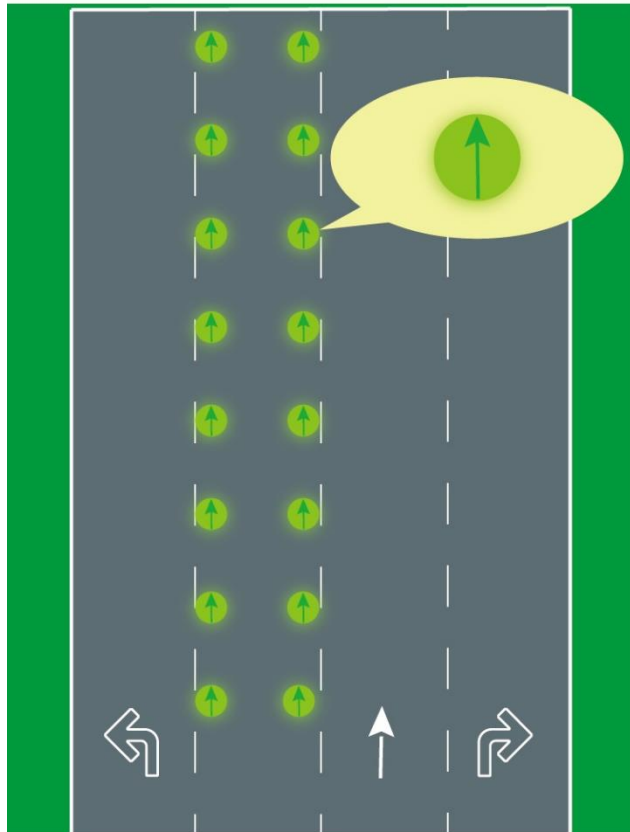
The Smart Crosswalk System is implemented in both signal-controlled and non-signal-controlled urban road sections and intersections to provide warnings for pedestrian crossings at intersections.

1. Pedestrian Detection (Optional): Video detectors monitor pedestrian crossing needs and red-light violations.
2. Vehicle Detection (Optional): Vehicle detectors assess traffic flow, speed, and real-time dynamics upstream and downstream of the crosswalk.
3. Warning Lights: Embedded crosswalk warning lights in the road surface provide alerts to both pedestrians and vehicles, ensuring safer passage and timely warnings.

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ClairSRS Application: Variable Lane

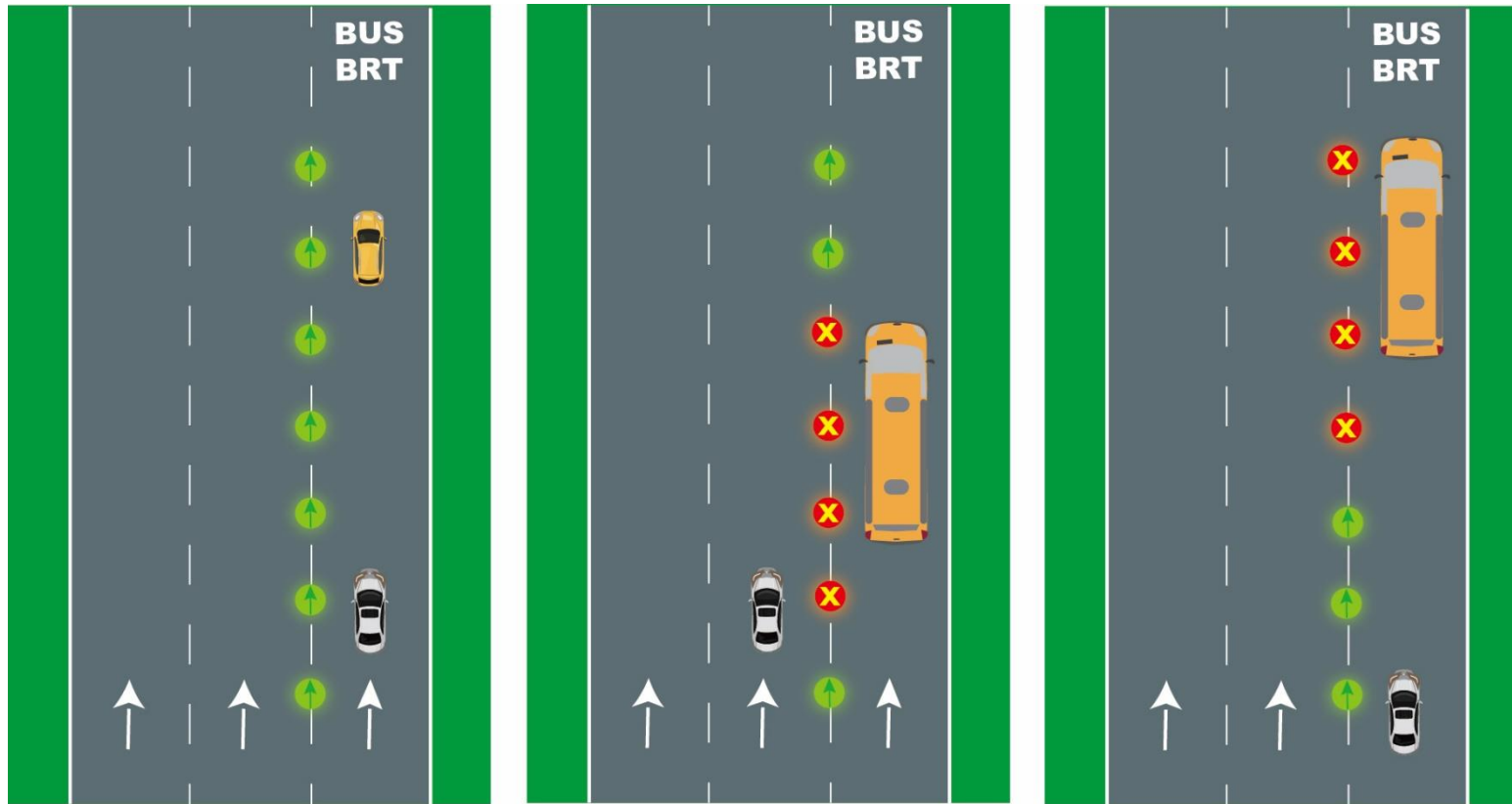


Lane Configuration: A row of smart road studs is installed on each side of the variable lane, supporting the switching between straight-through and left-turn signals. The shape and color (red, yellow, green) of the lights can be controlled by the signal control device.

- **When Defined as a Straight-Through Lane:**
 - Green Light: The road studs display a green straight-through arrow on the ground, which can flash or scroll.
 - Red Light: The road studs display a red straight-through arrow on the ground, which can flash or scroll.
- **When Defined as a Left-Turn Lane:**
 - Green Light: The road studs display a green left-turn arrow on the ground, which flashes synchronously.
 - Red Light: The road studs display a red left-turn arrow on the ground, which flashes synchronously.
- **Transition from Green to Red:**
 - When the light changes from green to red in any state, all road studs will flash yellow on the entire surface to maintain synchronization with the traffic signal light and timing

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ClairSRS Application: Dynamic Road Rights Scheme for BRT Lanes and Bus Priority Lanes



The smart road stud system for bus priority lanes allows general vehicles to use these lanes while ensuring that BRT/bus vehicles retain priority. This approach maximizes road resource utilization, alleviates traffic pressure, and enhances public transport reliability.

When No Special Vehicles are Present: The road stud displays a green arrow that scrolls from bottom to top, indicating that general vehicles are permitted to use the BRT lane.

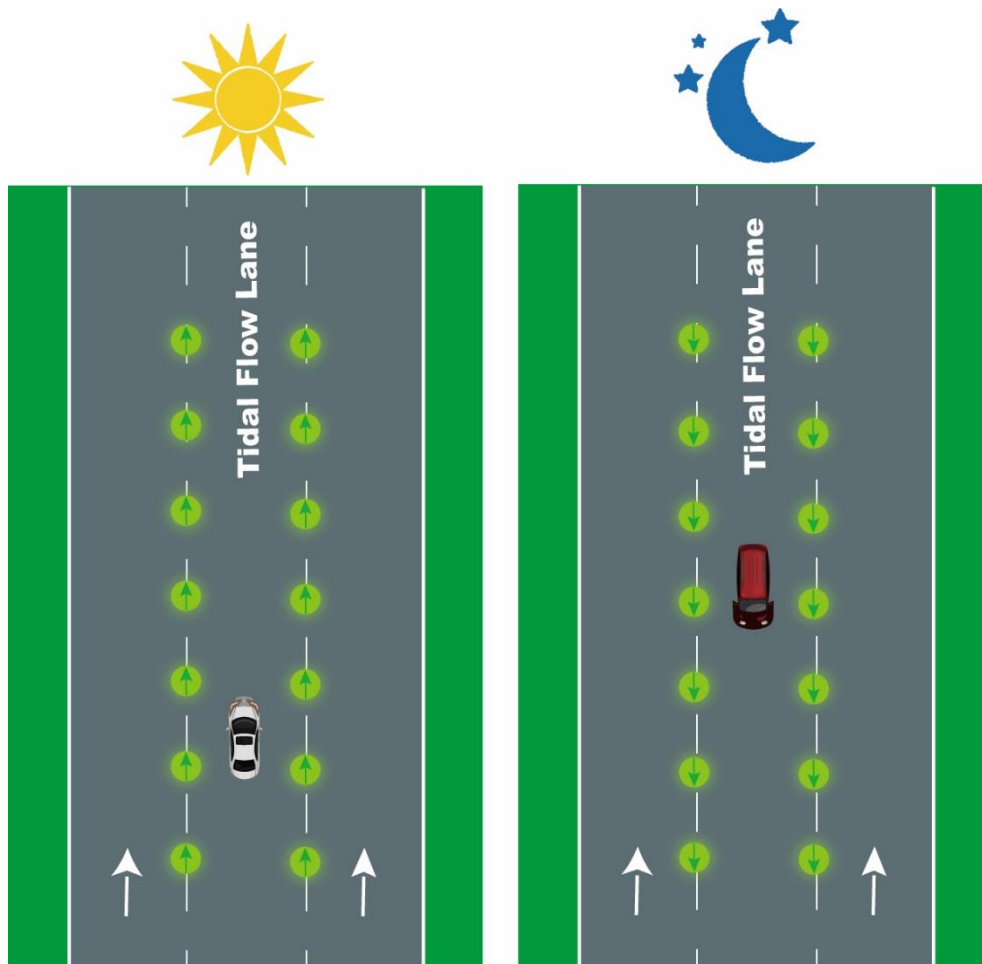
When a Bus is Detected: The road stud activates a red "X" light within the detection range, prohibiting general vehicles from using the lane.

Detection Range: The detection range of the road stud can be adjusted. If no bus is detected, the road stud continues to display the green arrow, allowing general vehicles to use the lane, thereby improving traffic flow and reducing congestion.

Notice: ClairSRS-Wired-I is equipped with infrared detection module while buses are equipped with infrared emitting device.

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ClairSRS Application: Tidal Lane



Morning Peak Period:

In the south-to-north direction, when the green light is activated for straight-through traffic, the road studs installed in the tidal lane will also turn green, displaying a green arrow for south-to-north straight-through traffic. The arrow can flash or scroll as needed.

Evening Peak Period:

The road studs will display a green straight-through arrow in the south-to-north direction, synchronized with the traffic signal lights, to implement the tidal lane scheme effectively.

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Thanks

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