



APPLICATION STORY

FLIR thermal sensors lead cyclists in the right direction

Pilot program in the Netherlands uses FLIR ThermiCam sensors to guide bicyclists toward safety amidst heavy traffic.

The Bruchterweg roadway in Hardenberg, the Netherlands, sees both heavy bicycle and vehicle traffic. During rush hour, groups of cycling children swarm to get to school in time, often sharing the road with heavy freight trucks and farm equipment. Needless to say, the dangerous traffic conditions have raised serious safety concerns within the community.

Implementation of the Strategic Traffic Safety Plan (Strategisch Plan Verkeersveiligheid 2030) allowed Dutch authorities to take a proactive approach based on current traffic hazards. While the Bruchterweg had not recorded any traffic casualties, the City of Hardenberg was convinced preventative action was needed.

IN-ROAD GUIDANCE LIGHTING

In general, cyclists are not easy to guide, because they can move relatively freely in traffic. Unlike motorists, they can easily attempt dangerous shortcuts to take the path of least resistance. City officials sought a traffic-responsive system that would activate when dangerous conditions arose, alerting cyclists to move to a safer bike path running parallel to the road.

A pilot program was commissioned by the Dutch traffic safety organization ROV (Regionaal Orgaan voor Verkeersveiligheid), designed by Dutch signalization specialist Sysconnect Traffic Safety & Lighting. Three FLIR ThermiCam units installed on a high-risk Bruchterweg roundabout are now used to

detect bicycle and vehicle traffic. The thermal cameras detect the heat coming off objects and their surroundings, rather than reflected light. This way, they can detect bicyclists and vehicles 24/7, day and night, and in adverse weather conditions, such as rain, snow, and light fog.

When the ThermiCam units detect the heat signatures of vehicles and cyclists, they activate in-road LED warning signals that guide cyclists towards the parallel bike lane. One ThermiCam unit detects oncoming heavy vehicles, while the other two detect bicycle traffic in both directions. A traffic signal farther ahead offers positive reinforcement to the re-routed cyclists ("Good job!").



FLIR ThermiCam



Thermal cameras do not rely on visible light and can, therefore, detect bicyclists and vehicles 24/7 and in adverse weather conditions.



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“There is no other technology I know that can do this,” said Mimoun Salemi, Managing Director at Sysconnect. “Thermal imaging is the only technology that can make such a reliable distinction between cyclists and different types of vehicles. This is important, because we only want in-road lighting to be activated when these two conditions are met: when heavy traffic is approaching and when cyclists merge onto the bike path.”

CHANGING BEHAVIOR

As experts in road safety signalization and lighting, Sysconnect has worked with FLIR’s Intelligent Traffic Systems (ITS) division on previous projects. In the case of Hardenberg, several solutions could have solved the Bruchterweg congestion issue. However, forcing cyclists to use a permanent bike lane would have eliminated bike access to the main road during low-traffic times, while hiring traffic officers to enforce lane restrictions was cost-prohibitive. Creating the warning system for cyclists offered the most mutually-beneficial option.

“Changing cyclist behavior is very hard,” said Mimoun Salemi. “Although there was a safer parallel bike road, in practice, people were not very keen to use it. With the current signalization that we have installed, we are confident that we will gradually instill good habits with the cyclists that are using this road.”

The City of Hardenberg expects traffic conditions will be safer for cyclists along the Bruchterweg moving forward and that 2018 bicycle statistics will pave the way for more FLIR thermal sensors and Sysconnect in-road LED systems installed throughout The Netherlands.

“We have been using thermal sensors from FLIR Systems before, mainly for traffic signal control and warning signalization at pedestrian and bike crossings, but this is the first project in the Netherlands that focuses on changing the behavior of cyclists, which makes it truly unique,” said Salemi.



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For more information about thermal imaging cameras or about this application, please visit:

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