

# APPLICATION STORY



## FLIR SYSTEMS ENABLES SMOOTH INTERSECTION TRAFFIC FLOW IN UTRECHT, THE NETHERLANDS

*ThermiCam thermal sensors from FLIR Systems have been deployed at a big signalized intersection leading from Utrecht to Amersfoort, the Netherlands. Based on heat energy coming from bicyclists and motorists, the cameras from FLIR can detect both types of road users and make a distinction between the two. The cameras pass down their detection information to the traffic lights and this way, a separate regulation for bicyclists and motorists is made possible, all the while both road users are sharing the same road space. The result of this installation is a smoother and more logical traffic flow at the intersection.*

The province of Utrecht was looking for an efficient way to let the traffic at the intersection with the Utrechtseweg (N237) and Wilhelminalaan flow in a much smoother way. More specifically, the traffic authorities needed to find a solution to allow the traffic coming from the Wilhelminalaan and from the exit of the KNMI site (Royal Netherlands Meteorological Institute) to have sufficient green time to cross the Utrechtseweg based on presence information of vehicles. In order not to create any unnecessary waiting time at the intersection, the presence of cyclists should not generate green time. At that intersection, bicyclists can only turn left or right before the intersection area, not straight ahead. For this specific situation, a separate regulation for bicyclists and motorists was the best suitable solution.

Integrator and installation company Imtech Traffic & Infra selected the ThermiCam thermal sensor for FLIR Systems to do the job. "For this specific project, we needed a solution that was able to efficiently detect bicyclists and neglect motorists at the same time," says Guus Sluijmsmans, traffic engineer and account manager sales at Imtech Traffic & Infra. "The ThermiCam sensor from FLIR Systems is the only solution I know that can efficiently make a distinction between bicyclists and motorists on the same traffic lane."

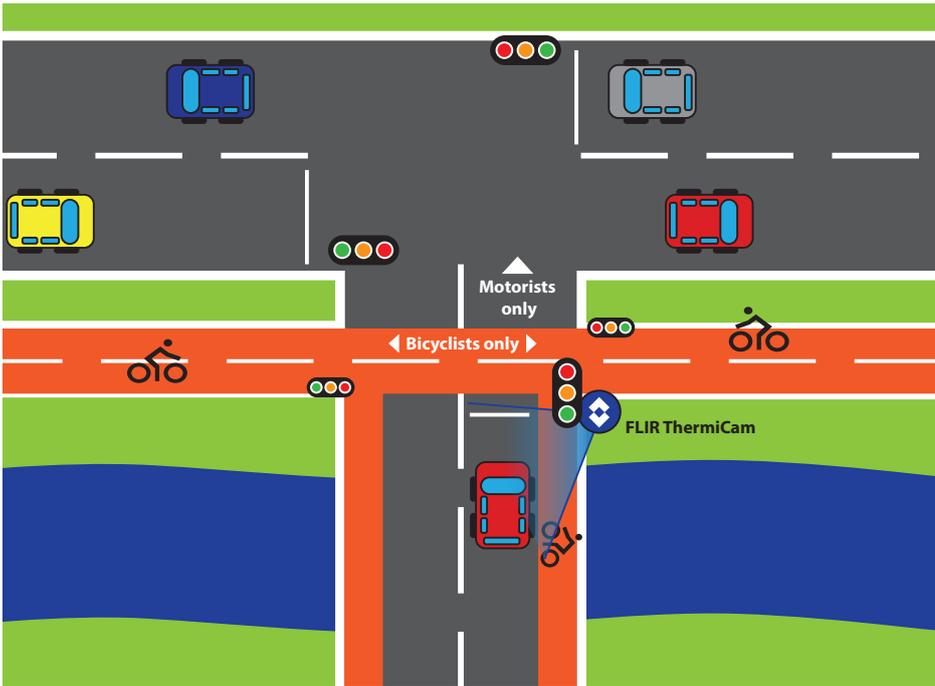
### **THERMICAM THERMAL IMAGING SENSOR**

ThermiCam is an integrated thermal camera and detector for vehicle and bike presence detection and counting at signalized intersections. ThermiCam detects vehicles and bicycles at and

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nearby the stop bar. The intelligent ThermiCam sensor will transmit its detection information over contact closures or over IP to the traffic light controller and will thus allow a more dynamic control of traffic lights. The sensor picks up heat energy coming from the cyclists and motorists and uses this to make a distinction between the two. This way, green times can be adapted depending on the type of road user.

ThermiCam will also detect cyclists and vehicles at night or when the sun is low, whether the road users are moving or stationary. The thermal sensor can also be used to count cyclists, even when they are riding in group. This functionality can work simultaneously with the presence detection functionality and uses the same detection zones and regions.

ThermiCam is a very interesting alternative for detection loops. In the case of the Utrecht intersection, it was even impossible to use detection loops, because the intersection's different roads connected on a bridge deck. In addition, today's most common detection loop solutions cannot make an efficient distinction between cyclists and vehicles. Conventional,

visible-light video cameras were also not a good solution, because detection from these products is often not reliable at night and during hours when the sun is low on the horizon.

### SMOOTH TRAFFIC FLOW

The ThermiCam installations at the intersection along the Utrechtseweg serve two purposes. First of all, they make sure that bicyclists receive sufficient green time for the traffic lights giving access to the bicycle lanes along the Utrechtseweg. Second, they make sure that bicyclists do not generate green time for motorists that want to cross the Utrechtseweg. This set-up has already proven to be an effective way to minimize traffic blocking on the Utrechtseweg, and to maximize the traffic flow for the different types of road users.

"The ThermiCam bike and vehicle detection works perfectly, also in the darker hours and in cold weather conditions," comments Guus Sluijsmans. "We are happy to have found an efficient detection solution for this difficult, mixed traffic situation and that we have been able to contribute to a smooth traffic flow at this intersection in the city of Utrecht."



Vehicle-only detection: ThermiCam is a very interesting alternative for detection loops. In the case of the Utrecht intersection, it was even impossible to use detection loops, because the intersection's different roads connected on a bridge deck.



ThermiCam picks up heat energy coming from the cyclists and motorists and uses this to make a distinction between the two.



ThermiCam will transmit its detection information over contact closures or over IP to the traffic light controller and will thus allow a more dynamic control of traffic lights.

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

[www.flir.com/traffic](http://www.flir.com/traffic)

The images displayed may not be representative of the actual resolution of the camera shown. Images for illustrative purposes only.