

CASE STUDY: TRAFFIC CAMERAS

Solution: CAN communication via Bluetooth
Country: The Netherlands / Hong Kong
Company: Sensys Gatso Group
Summary: IXXAT CANblue II is used to enable wireless Bluetooth communication between radar boxes and traffic cameras.



The effects

- ✓ Wireless Bluetooth connection between radar box and camera.
- ✓ Lowered costs for the end customer — no need for digging down a cable.

Synchronizing red light cameras with Bluetooth

Traffic cameras have proven to be a very effective way to lower speed and decrease traffic violations. We may not like them, but we can't say they're not effective. The Sensys Gatso Group in the Netherlands is a leading manufacturer of traffic cameras and is constantly using new, innovative technology to improve their systems. One example of such technology is the IXXAT CANblue II from HMS Industrial Networks which makes it possible to photograph red light offenders from the rear.

The Sensys Gatso Group's traffic surveillance cameras and systems are used all over the world to monitor speed, red lights and other traffic situations. Their clients are often cities, fleet owners or even entire nations and needless to say, requirements vary greatly — from speed control on American highways, to car counting in Amsterdam.

One example of a particular local requirement can be found in Hong Kong where Sensys Gatso's cameras are used to spot red-light violations. In Hong Kong, pictures should be taken of the rear of the car since the rear license plate is bigger and often less dirty, making for easier identification. Hence, you need two parts: A radar light to detect if someone runs a red light, and a camera 50-60 meters further back.

The problem

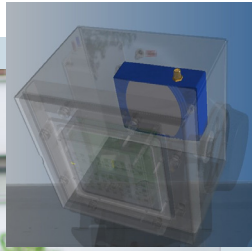
The radar box and the camera need to be synchronized in order to take pictures of the violating car. This poses problems as digging down a 60 meter cable is costly and difficult, especially if you are in the middle of a city. So instead, the Sensys Gatso Group started looking for wireless solutions.

"We started investigating the market for good wireless solutions which could provide a robust connection between the CAN-based radar box and camera," explains Enrico Damen, Engineering Manager at Sensys Gatso. "We soon came down to four different solutions that we decided to test in our test lab."



"The CANblue II was the only wireless solution that could handle the 60 meters we needed."

Enrico Damen,
Manager Engineering, Sensys Gatso



Wireless CAN communication

The radar box on top of the traffic lights detects if the driver runs a red light. The CANblue II inside the radar box sends a command via Bluetooth that it is time to take a picture. The camera is the slave and is also equipped with a CANblue II.

Sensys Gatso carried out extensive testing for signal strength, reliability and range. Their test report clearly stated that the IXXAT CANblue II was the best choice. "It was mainly the connection stability over a long distance that impressed us," says Enrico Damen. "The CANblue II was the only wireless solution that could handle the 60 meters we needed. In fact, our tests showed that it worked up to 400 meters."

How it works

The radar box, which is positioned at the traffic light detects if a car crosses the white stop line at the traffic light. If that happens, a signal is sent from the radar box to the camera that it is time to take a picture. The signals are sent via two IXXAT CANblue II units inside the radar box and camera in a split second.

For this project, the CAN experts at IXXAT also worked together with Sensys Gatso and the local Dutch embedded network specialist Twincomm to ascertain the security of the Bluetooth communication. This was especially important as the cameras are out in the open and potentially subject to unauthorized access. Together, they could tweak the firmware of the CANblue II to make sure that unauthorized access is prevented, at all times.

Lowering costs for the end customer

With the IXXAT CANblue II as an integrated part of their solution, Sensys Gatso gets a more competitive offering. "The benefits are primarily cost-related," states Enrico Damen. "Laying down wires in the ground is expensive, especially in urban areas, so with wireless Bluetooth communication, we can offer a much more cost-effective solution."



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