

Bridges and locks



BOSCH

Invented for life

Industry:

Transportation

End User:

Bridges and locks, Zaanstad

Two waterways flow through the Dutch municipality of Zaanstad: the Zaan River, which is a branch of the North Sea Canal, and the Nauernasche Vaart canal. There are 10 road bridges and 1 railroad bridge spanning the Zaan, which has 15 crossings in total. On average, each bridge is opened 9000 times to allow the passage of waterway traffic carrying a total of 3.8 million metric tons of freight per year.

Business Objective:

The goal was to limit disruption for road traffic by developing a rapid crossing method for waterway traffic. This is achieved by instigating centralized control of all bridges and locks in the municipality of Zaanstad. The entire series of bridges and locks is now operated by a limited number of people. This makes it possible to anticipate events more quickly and with greater accuracy. Before this system was introduced, each bridge and each lock was operated by a different person.

Solution:

The solution provided is a fully automated control system in which cameras play a supporting role. In this case, the SCADA (Supervisory Control And Data Acquisition) system was selected. The SCADA system produces a visual display for the bridge operator and can be integrated with other control systems. Some of the bridges and locks already had cameras and some of the bridges were equipped with new cameras. The following cameras are positioned on each bridge/lock:

- 2 cameras for road traffic
- 2 cameras for shipping traffic
- 1 PTZ camera to provide an overview

The cameras positioned at each bridge and lock are analog, and a multichannel MPEG-2 encoder is used to convert the camera data to a TCP/IP signal. These multichannel encoders at the bridge or lock are linked to a dark fiber optic network (rented line), thus delivering cost savings of 300% over the option of creating a dedicated infrastructure. At the central control post, all the signals from the encoders are reconverted to analog video using VIPXD decoders and the signals are then displayed at the appropriate workstation.

These switching operations are initiated from the SCADA system to the VIDOS system. The VIDOS system is a highly advanced video TCP/IP system for displaying and switching video signals. The VIDOS system ensures that the right images are routed to the decoders. VIDOS is a TCP/IP management system developed by Bosch Security Systems specifically for CCTV via TCP/IP.



The opening of a bridge

Result:

The perfect solution for meeting the business objective was a centralized operational control post comprising 4 workstations for controlling 15 bridges. These workstations are made up of 7 monitors, 1 of which provides a visual display of all the bridges and locks; the remaining monitors are used for video display. The fact that local bridge operators are no longer necessary has generated impressive cost savings. The TCP/IP system features a phased design, which brings with it a whole host of advantages in terms of future infrastructure extensions. As a result, the process of adding bridges or locks to the system has become simply a matter of establishing a network connection. Bridge and lock operation is now also an intuitive process because everything is displayed visually.

Installed by:

UNICA ICT Netwerks Zwolle
Schrevenweg 1-1
8024 HB Zwolle, Netherlands
www.unica.nl

Dare-Tronics
Heesterakker 2
5281 LV Boxtel, Netherlands
www.daretronics.com

Kroneman Industriële Automatisering BV
Ommerkanaal 9
7701 RC Dedemsvaart, Netherlands
www.kroneman.nl

Bosch Security Systems B.V.
Building SX 1, Glaslaan 2
5616 LW Eindhoven
+31(40)2577 201
www.boschsecurity.nl