

Sicura Systems in collaboration with Vital Technology installs monitoring and control system in Medway Tunnel

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SCADA system by Sicura at Medway is a GUI which interacts with various subsystems

Working with its sister company [Vital Technology \(VT\)](#), [Sicura Systems](#) has provided a multi-discipline SCADA system at the Medway Tunnel under the River Medway between Strood and Chatham in Kent for Medway Council. The solution has drawn on the versatility of the companies that work together to make up Vital Services Group.

The works at Medway have been a Supervisory Control and Data Acquisition (SCADA) system replacement project in which VT's SCADA specialists, Ematics, have installed a SCADA and PLC (programmable logic controller)-based control and monitoring system to facilitate tunnel operation. The custom-developed SCADA system at Medway is a Graphic User Interface (GUI) which interacts with a number of diverse subsystems including access control, lighting, ventilation, drainage, fire detection and suppression, intruder alarms, air movement, video surveillance, radio rebroadcast and VAID.

Making the tunnel safe by optimising driver conditions is a principal concern and particular attention has been paid to lighting. The tunnel lighting is adjusted such that it matches ambient light to the approach roads to the tunnel entrances and exits with graduation so that drivers do not find themselves dazzled or struggling to make out detail.

The SCADA system consists of a 'client-server' layer which provides the operator with

the GUI required for tunnel operations and a PLC control which handles the business logic and tunnel control activities. In the event of SCADA or PLC failure, the system automatically transfers to a back-up such that no single-point failure will interrupt tunnel operations.

The Medway Tunnel works include the supply and installation of 24 video surveillance cameras for which two independent video wall systems were provided in two separate locations. These video streams are processed and distributed to the video wall systems through our video wall software offering DigiWal. This software is also client-server based and is developed in-house by Sicura Systems. Sicura also specified and supplied analogue and IP-addressable CCTV cameras from [Bosch](#) which are used for both standard surveillance and VAID.

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A new VAID comprising 32 dedicated fixed focus cameras installed by VT was specified, evaluated and procured by Vital as part of the contract. The existing and now life-expired radio rebroadcast system in the tunnel was also replaced as part of the contract. VT used its consulting expertise to specify, evaluate and procure the latest offering from the industry and supervised the installation as well as providing control and monitoring on the SCADA system.

The tunnel sub-systems such as SCADA, PLC control, CCTV, VAID and radio rebroadcast were all brought together by high-availability gigabit fibre optic Ethernet network infrastructure that was designed and installed by VT. Using new fibre cables installed throughout the tunnel and ancillary buildings and the latest Cisco layer 2 and layer 3 switches, a managed network was created utilising Virtual Local Area Networks (VLANs) to provide network segregation between tunnel sub-systems such

that a fault on any one sub-system cannot interfere with any of the other sub-systems.