SMARTset: SPECS Speed Cameras

Remote monitoring and control of road-side SPECS/ANPR average speed camera masts and their related electronics via 3G

Background

The first speed camera was patented all the way back in 1905, but it was only when a Dutch rally driver Maurice Gatsonides invented the forerunner of the “GATSO” speed camera in the 1960’s that became so popular with police forces around the globe.

SPECS is an average speed measuring speed camera system originally manufactured by Speed Check Services Limited (now Vysionics), from which it takes its name. It is one of the systems used for speed limit enforcement in the United Kingdom.

First introduced in 1999, SPECS cameras operate as sets of two or more cameras installed along a fixed route that can be from 200 metres (660 feet) to 10 kilometres (6.2 mi) in length.

They work by using an automatic number plate recognition (ANPR) system to record a vehicle's front number plate at each fixed camera site. As the distance is known between these sites, the average speed can be calculated by dividing this by the time taken to travel between two points.

The cameras use infrared photography, allowing them to operate both day and night.

Problem

SPECS masts are relatively easily accessible but by their very nature are geographically dispersed and although along side a road, can be hazardous to work on and service, so early warning of an issue or need for maintenance is very useful.

The electronics that drives the mast is contained within a cabinet that is fed from an un-metered supply. The supply may optionally have electrical backup in the form of an Uninterruptible Power Supply (UPS). Measuring the power both in AC and DC forms is important from a billing perspective but also to be able to potentially participate in energy efficiency optimisation programmes.

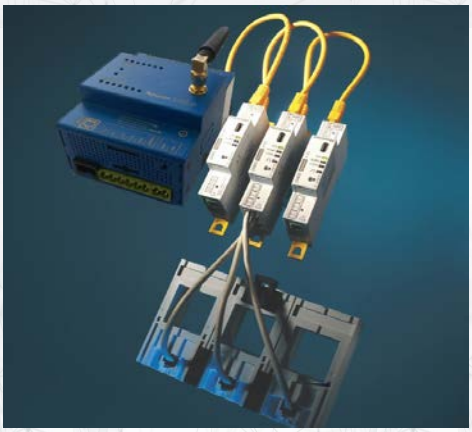
Given the nature of the application, there are environmental and security considerations to take into account, such as overheating, water ingress and door status.

Most masts will be fitted with an existing modem to provide camera telemetry but access to this infrastructure may vary so the monitoring solution needs to be able to provide its own network.

The number of sites is large and growing so the solution must be easy and very quick to install with minimal electrician participation.

Solution

The solution is to combine the Industrial Internet of Things (IIoT) capabilities of SMARTset with the Socomec DIRIS Digiware range of compact, plug and play metering. Socomec is a close partner of SMARTset and this combination is a tried and tested configuration that provides best of breed metering, simple plugin installation as well as the reach and visualisation of SMARTset.



Socomec DIRIS Digiware meters use plugin, split core, DC CT clamps combined with voltage sensing to monitor current, voltage, power and energy.

The SMARTbox connects the Digiware meters via a local RS485 network and makes this data, combined with optional environmental/ security sensors (water leak, door status, temperature, humidity etc.) available to the controls system within the device.

When a SMARTbox switches on, it automatically registers with the cloud server and immediately starts sending data. All data is sent on-demand to SMARTset in the cloud in real-time via the 3G cellular link using MQTT.

KEY POINTS

- **Plug and Play**
  Very low cost of installation with all components 'pluggable'
- **3G Comms**
  Off-grid communications to the cloud via very low latency cellular network
- **Real-time**
  Data is available real-time to the user via the web front-end
- **Remote Control**
  Local control, remote management via cloud based SMARTset platform

SMARTset Cloud

SMARTset is used both locally (on device) and in the cloud to orchestrate control and provide a rich dashboarding and reporting interface to users via a secure web front-end. The service can be hosted in-house, by the customer, supplied as an appliance or entirely managed in the cloud by 4NG.

Real-Time Data

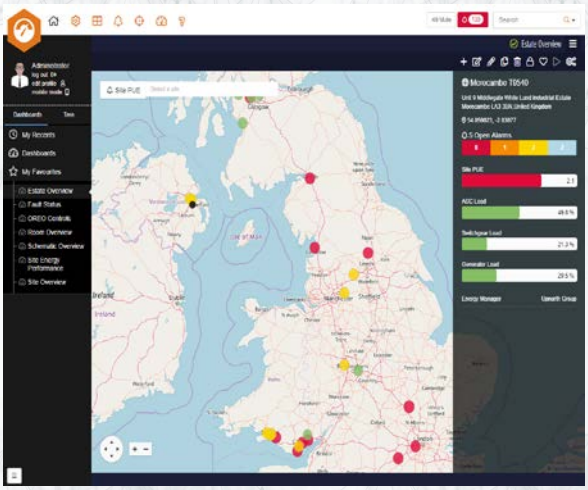
All data is delivered to the front end in real-time and is always up to date

Unlimited Dashboards

Users can create their own dashboards, share them, style them how they wish and visualise only the data they are interested in

First Class Alarms

Alarms can be created on any condition or combination of conditions including forecasting and maintenance event schedules



Further Reading

For more information about SMARTset and its applications, visit the solutions page on our web site; https://4ng.co.uk/solutions

www.4ng.co.uk

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