THE NATIONAL TRUST

Light monitoring in Heritage Building

The challenge

Charlecote Park is a Tudor house requiring monitoring of light for conservation management. Many of the house objects are very sensitive to UV and visible light and will fade if they are subjected to high light levels over extended periods of time.

They required a system to monitor how much light certain items within the house are being subjected to on a cumulative basis. They required a discrete wireless solution that would not be obvious to the visitors, and one that could provide enough range to cover many rooms. Live access was also required so that an assessment of the current light doses of their site could be calculated at any time by the property staff, or conservators, who may work from distant location.

The Senceive Solution

We integrated UV and visible light sensors into our FlatMesh product, and deployed a network of 12 nodes. Installation here was straightforward as our mesh technology enabled us to connect a large network spanning several rooms without any cabling required. We used a mains-powered FlatMesh GPRS unit to transmit data to our data server where the light sensors can be monitored in real time.

Our web monitor software also provides alarms for when certain light conditions have been exceeded, allowing them to react quickly to events such as direct sunlight falling on objects.

Our Findings

The conservation management team are now in a position to start building up profiles of what sort of light doses their artefacts are being subjected to. Using this information they are able to manage the light entering rooms to prolong the lifetime of objects whilst providing sufficient light for visitors to see them. The total light dose in lux hours will be logged cumulatively and compared with an annual light quota. Light levels would be reduced for objects or rooms exceeding their light quota. Conversely, areas which are below their light quota may have the level of illumination increased. We are now in the process of discussing how we can integrate this light computation to be built into the node itself, so that a node can raise alarms when it knows it has exceeded its quota.

Light (lux)

Date/time

■ Billiard Room Fireplace
■ Ebony Bedroom Fireplace
■ Great Hall Fireplace

UCL

Senceive