

# Innovative solution to document highways project using sustainable systems.

Camera Control UK utilises Axis surveillance cameras as part of a renewable solution to track the progress of a major highways infrastructure project.

**Organization:**

MB Productions

**Location:**

Scotland/UK

**Industry segment:**

Transportation

**Application:**

Remote monitoring,  
remote troubleshooting

**Axis partner:**

Camera Control UK

**Mission**

Camera Control UK, launched in 2011 as ML2 Networkx, focuses on security, remote CCTV, access control, time-lapse imagery and site communication. A project from video production company, MB Productions, required surveillance cameras to be positioned along a route from Perth to Inverness, to document part of a highways infrastructure programme. The A9 Dualling Project would create a dual carriageway to greatly improve traffic flow and remove heavy congestion. Time-lapse video would be required to document the work for auditing purposes, provide evidence, and serve as example material for future projects. The required solution would need to operate in an area with no communication networks or local power, while coping with weather and construction logistics.

**Solution**

Working closely with Axis, Camera Control UK developed a system that would document high-quality time-lapse footage of the project in 10-minute intervals. The solution uses AXIS P1448-LE Network Cameras on 8 metre masts, delivering high quality 4K image capture even in low light and harsh conditions.

Each mast is powered by a combination of wind turbine and solar PV panels, which also provide charge to a back-up battery powerpack. The masts are linked to a central control location using a dedicated wireless network, and the whole system can be remotely monitored to continually check its status of operation. Remote management also enables the cameras to be fine-tuned for precision imagery of the work in progress.

**Result**

MB Productions was presented with an innovative solution that enabled it to gain a full overview in 4K resolution of the entire project. Not only could the system capture impressive time-lapse imagery, showcasing the enormous achievements in restructuring and reshaping the carriageway, but it also operated using 100% sustainable methods. With no need for power to be drawn from a local source, and the avoidance of using a diesel fuel generator, the solution demonstrates what can be achieved by harnessing the natural elements: an entirely environmentally friendly solution.



## Highways challenge

A major highways infrastructure project is currently underway to upgrade 80 miles of single carriageway between Perth and Inverness in Scotland. Production company, MBP, won a tender to produce a solution that could document the work in progress. MBP, in turn, contacted Camera Control UK to create the surveillance infrastructure and install the technologies to bring the project to life.

The brief was to document a 10 mile stretch that was to undergo widening, taking it from a single to dual carriageway, thereby increasing the efficiency of the route and allowing for smoother traffic flow. Initial discussions around how to power the cameras along the route involved the use of many miles of cable, combined with a diesel generator, which, as Martin Naylor, Director of Camera Control UK explains, was not a viable option:

"The initial recommendation was to install a diesel generator at a halfway point along this particular stretch of highway, with electrical cables running for 5 miles in either direction. Unlike a straight section of motorway, this route twists and turns, with junctions and even housing in the way. It wasn't going to be feasible. We had to find a better solution."

### Harnessing renewable energy

From a logistics point of view this would prove challenging, while from an environmental perspective, the use of a diesel generator would cause unnecessary pollutants, making it unsuitable for a long-term project. Yet, Martin relished the challenge. "After some initial consideration of different options, we realised it had to be an off-grid solution to avoid using local power; a solution that could incorporate wireless communications and utilise renewable energy sources to be environmentally friendly and sustainable over the longer term."

After initial surveys and proposals were agreed, a solution was decided upon which comprised Axis network cameras, a power box with rechargeable batteries, a wind turbine and a PV solar panel.

With both wind and solar energy being harnessed, and batteries to act as an emergency backup, the team was able to develop an entirely self-sufficient system requiring no local power, guaranteeing 100% uptime.

To bring the design to life, the required cameras needed to be capable of producing high definition imagery, even in low light conditions. MB Productions wanted to use 4K images to create a full cinematographic experience. Axis' 4K short bullet camera was the obvious choice due to its high definition image capabilities and durability in all weathers and extremes of temperature.

Martin elaborates: "The final system uses eight power packs, and eight towers, at various key touchpoints along the route, with one to two cameras employed per tower. The AXIS P1448-LE cameras offer incredible picture resolution, with remote zoom and focus, enabling fine tuning of the captured images. With no Wi-Fi coverage in the area we even had to create our own, installing masts to enable the all-important cloud connectivity that makes Axis' network cameras such a great solution for delivering incredible quality imagery using simple IoT connectivity."

### A high-quality solution

In addition to producing the required imagery, the system was also designed to be intuitive to operate. Surveillance data is sent to a central monitoring station for viewing, and also stored in the cloud for later retrieval. The system can be remotely monitored and controlled, with charge and consumption parameters for each power box being displayed to allow quick analysis of system status.





Close monitoring of the system allows for easy identification of issues which might affect power and therefore image generation, such as the changing position of the sun at different times of the year, or growing tree lines in the vicinity.

Martin Naylor commented on the relationship with Axis that has made this solution possible: "Axis really values innovation and is therefore an ideal partner, not only because the team takes the time to understand the challenges when trying to push the boundaries of what's possible in surveillance, but also because their drive towards sustainable and ethical practices is admirable and an inspiration to other technology companies."

The completed time-lapse video will provide evidence of working practices, accurate visual documentation of progress, and can be used for auditing purposes. In addition, it will serve as example material for future infrastructure projects. The solution serves to illustrate how, in the modern world, it's possible to utilise the natural elements for incredible, innovative projects with virtually zero carbon footprint.

Matt Brown, Director, MB Productions, commented, "We are now able to capture fantastic 4K imagery of the ongoing work on the A9. Camera Control UK has produced an entirely green solution which provides power and wireless connectivity in an area that was devoid of both; an incredible feat of engineering. The Axis cameras are highly robust and in a completely different league, in terms of quality, to others we've seen. This project has been a great success."

[www.axis.com/products/axis-p1448-le](http://www.axis.com/products/axis-p1448-le)  
<http://cameracontroluk.com/>  
<http://mbpltd.com/>

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# About Axis Communications

Axis enables a smarter and safer world by creating network solutions that provide insights for improving security and new ways of doing business. As the industry leader in network video, Axis offers products and services for video surveillance and analytics, access control, and audio systems. Axis has more than 3,500 dedicated employees in over 50 countries and collaborates with partners worldwide to deliver customer solutions. Axis was founded in 1984 and has its headquarters in Lund, Sweden.

For more information about Axis, please visit our website [www.axis.com](http://www.axis.com).

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