



Intelligent, automated CCTV monitoring



Viseum UK Limited

Viseum - the company



Stuart Thompson
Managing Director of Viseum UK Ltd

Viseum UK Limited was founded by Stuart Thompson, a network solutions expert, to improve CCTV system efficiency and effectiveness. Viseum focuses on the reduction and elimination of crime in public areas, producing the most innovative security systems in the world for this purpose. Viseum has a two point approach to making this a reality. Firstly, to constantly assess security monitoring needs through feasibility studies, research and listening to CCTV users and operators. Secondly, to develop cutting edge software products to meet the identified needs. This approach results in highly effective products that fight crime and improve security.

Viseum, a complete approach

The Viseum development team always considers the following issues when designing new products:

- + Areas of weakness in current CCTV technology and support
- + CCTV system “evidence capturing” problems
- + Issues of privacy and the control of data
- + Costs of hardware, installation and maintenance
- + Costs of monitoring

The result is that Viseum has identified and understood the specific issues faced by CCTV users and how CCTV systems are actually used in the field. This has led to the development of revolutionary products that are at the forefront of CCTV capability today.

“Our products use advanced technologies to increase the effectiveness and efficiency of CCTV systems, which in turn drastically reduce the total operational cost of a security system”.

Stuart Thompson



University of East London,
Viseum international sales Head Quarters

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Issues in CCTV monitoring

Viseum has found that despite significant initial investment in CCTV systems, ongoing operational costs are often too high for these systems to be adequately staffed to watch all cameras all the time. This reduces their effectiveness in deterring and preventing crime and in the gathering of evidence for prosecution purposes.

Control room managers report that, despite the expertise of their staff, incidents do go unnoticed. The message this gives the public and would-be criminals is that the CCTV system is sometimes just there for show and not actually doing anything. At these times, areas can become insecure and their crime rates increase.

“Well designed and well managed CCTV systems in the UK have proved themselves time and time again to be valuable tools in the reduction of anti-social behaviour and criminal activity, and in the post incident identification of offenders. However the considerable costs of installing the number of cameras necessary to adequately monitor an area, the transmission system and provision of a control facility able to adequately record the images, have meant that up to now it simply has not been cost effective to introduce systems that monitor small local shopping parades or residential areas.

I was personally very impressed with the Viseum technology that has now overcome virtually all of these constraints and provides a well engineered system at a cost that makes it a viable solution for both smaller neighbourhood watch groups and groups of retailers”.

Peter Fry, Director of The CCTV User Group, after seeing Viseum technology operating in the London Borough of Bexley, 2004.

The CCTV User Group is a “not-for-profit” organisation leading world opinion in CCTV use and best practice.



Viseum - the products

Advanced intelligent computerised video analysis
9 layers of false trigger filtering
Fully automated intelligent and adaptive surveillance logic
Fully automated intelligent moving camera control
Automatic zoom
"Point and track" manual control override
DVR frame matched wide angle and close up images
One-touch and colour coded event navigation
Real-time event alerts
Wi-Fi and Ethernet LAN communication
Broadband communication
Remote system and user management
Communication security

Existing CCTV systems can be upgraded to use Viseum technology to make them consistently effective, whilst new installations can take full advantage of Viseum products from the outset.

Product objectives

All our products use innovative technology to:

- + Increase the number of cameras watched
- + Provide 24/7 surveillance
- + Increase staffing efficiency
- + Strengthen the crime deterrent effect
- + Maximise crime clear up capabilities

Viseum product range

Viseum Virtual Operator (VVO)

This is the software that detects incidents and controls the pan, tilt and zoom camera (PTZ), driving it to follow and record incidents in detail.

Viseum intelligent Digital Video Recorder (ViDVR)

The only DVR system to interact with Viseum's Virtual Operator software, recording captured incidents, archiving and retrieving them as required.

Viseum Auto-intelligent Camera Unit (VAiCU)

This is the physical camera array and PTZ camera used for panoramic surveillance, detailed identification and following incidents.

The VAiCU is available in the following options:

- 180° panorama – ideal for mid street applications
- 270° panorama – ideal for the corner of buildings
- 360° panorama – ideal for pole or column mounting

The VAiCU is built under licence by a number of leading CCTV equipment manufacturers.

Viseum Auto-intelligent Systems Unit (VAiSU)

This is the industrial computer platform which runs the VVO and ViDVR software. It is designed for maximum durability and on-site reliability.



Viseum Auto-intelligent
Camera Unit (VAiCU) -
Forward Vision "Bug"



VAiCU - Viseum/JVC



VAiCU -
Viseum/Panasonic

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The evidence gathered automatically by Viseum products meets Home Office Guidelines for recognition and identification.



How the products work

The Viseum Auto-intelligent Camera Unit (VAiCU) comprises an array of fixed cameras which constantly view a panorama of up to 360° coupled with a pan, tilt and zoom (PTZ) camera. The intelligent Viseum Virtual Operator (VVO) software analyses each fixed camera view, instructing the PTZ camera to detect, follow and record specific incidents in more detail. This is done entirely automatically, giving the user confidence that critical evidence has been captured. Each incident is recorded by the fixed cameras, giving a full scene view of the incident in context, while the PTZ camera records close up evidence for prosecution purposes. The system learns and remembers its environment, enabling it to ignore irrelevant activity such as animal or tree movement. The Viseum intelligent Digital Video Recorder (ViDVR) then manages the storage and retrieval of recorded data.

Communications

Viseum products store evidence locally, meaning that regular communication or remote access is not needed for its function. This can reduce or even remove the need for costly, high bandwidth communication services. However, Viseum can also be integrated into networks, including fibre optics, to give the operator remote viewing and control options and the ability to store evidence centrally if required

Automated surveillance

Viseum will perform a range of automatic surveillance tasks throughout each day, on a one week schedule. Operators local knowledge can be used in defining each days parameters, maximising the systems effectiveness across the week.

Overall, Viseum products increase the proportion of “watched” cameras in any CCTV application, making sure that cameras are looking in the right direction at the right time. They remain constantly vigilant and do not lose concentration.

The benefits of using Viseum products

Viseum products enable a PTZ camera to think for itself and react of its own accord.

The benefits of this on site are:

- + 24/7 surveillance, without the need for network communication
- + An entire panorama is constantly viewed
- + Full scene and close up images are recorded simultaneously
- + Incidents are captured, however distant, even when they are too small to be seen on screen
- + Multiple incidents are recorded providing a complete picture of events and their sequence
- + Continual, intelligent camera movement and response deters crime by replicating active operator control. This applies to systems with visible PTZ camera movement, such as the Forward Vision “Bug”
- + Relevant incidents are followed, avoiding unwanted footage and false triggers
- + Images meet Home Office Guidelines for recognition and identification

Viseum - applications



The Forward Vision "Bug"

Viseum technology truly excels in situations where crime levels could be serious and resources are stretched, compromising individuals' safety and security.

Viseum technology creates an environment whereby individuals know they are being watched constantly and crimes are being successfully detected. This environment deters criminals and reduces crime rates.

Case Study – Luton Borough Council

Viseum products were installed at Hockwell Ring, a residential high rise estate in Luton. Luton Borough Council (LBC) were concerned about the increasing crime rate, the high levels of antisocial behaviour and the fear and stress this was causing local residents.

Viseum products proved highly effective when integrated into the LBC control room. Within just a few months of installation, three separate serious crimes were detected. The evidence provided by each camera was time linked and encrypted (water marked), essential in proving it was original and unaltered. It met Home Office requirements for identification and was sufficient for prosecution. This evidence was gathered automatically, without using a moment of an operator's time.

The longer term outcomes included a general reduction in petty crime and the area becoming safer overall.

LBC found that the Viseum products were easy to use, time saving, cost saving and highly effective in reducing crime.



Top - Hockwell Ring, Luton Borough Council
Bottom - Erith, London Borough of Bexley

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Communities where Viseum systems are installed have become safer places to live and, according to police advice, crime has been reduced.



Viseum - it pays for itself

How does a Viseum solution pay for itself?

The principle of calculating pay back is simple. Viseum technology enables CCTV operators to “watch” a site 24/7, even when they are performing other duties. Viseum cameras in a system remain constantly on watch, and incidents are followed instantly by a pan, tilt and zoom camera.

By increasing staff efficiency.

The cost of buying and installing a Viseum solution is similar to the cost of a manned CCTV pan, tilt and zoom camera installation including its first year’s operating costs. Whereas the Viseum solution will operate in subsequent years with little or no recurring costs, the manned solution will always have annual staffing costs associated with its operation. A typical Viseum installation therefore pays for itself during the second year after installation.

By increasing monitoring capacity.

It has been estimated that in a typical CCTV monitoring centre, each operator is expected to watch between 30 and 50 screens/cameras at any one time. This high quantity forces experienced operators to choose which cameras demand most attention - often based on activity or the time of day. Unfortunately, this can mean the remaining cameras are less well monitored. Viseum technology overcomes this problem by enabling operators to confidently monitor fewer cameras, safe in the knowledge that Viseum driven cameras are still being monitored. The technology is so powerful that it will even pick up incidents that would otherwise have been missed by the human eye, ensuring that the PTZ camera records those incidents in detail.

For a commercially run Remote Monitoring Centre, this represents the potential to increase the number of chargeable sites using the same number of staff. For a Police or Local Authority run monitoring station, Viseum can help increase the proportion of “watched” cameras.



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To the future

Viseum is a dynamic company that is constantly improving and expanding its product range. Our designers are currently integrating Viseum technology with other intelligent security systems to meet increasing demand for efficient and effective CCTV monitoring.



Viseum's software dramatically improves the capability of existing CCTV hardware. Even with today's hardware options, Viseum is able to provide advanced detection with near single pixel definition and camera control accuracy. It can detect events so far away that a human could not even see them and can control a pan, tilt and zoom camera more precisely than any operator. The Viseum system's performance will increase further as hardware technologies improve. Our software will always keep pace with these new generations of hardware. Viseum technology is future proof.