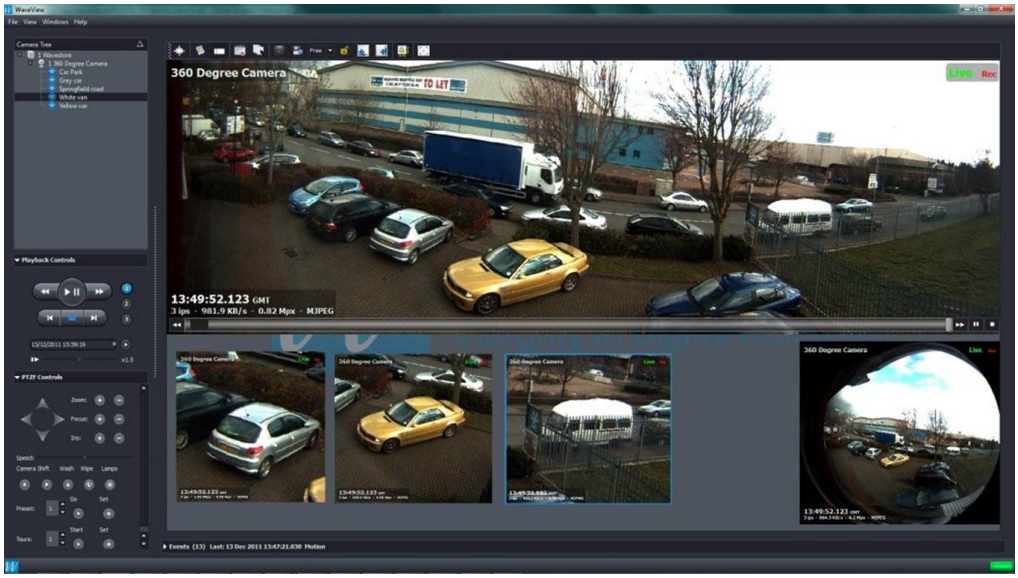
wavestore
integrity in digital recording

De-warping

Wavestore de-warps 360 degree cameras

With the latest Wavestore video management software (VMS) it is now possible to integrate 360 degree camera into existing surveillance systems. Wavestore's VMS facilitates the recording of the original fisheye images captured by a 360 degree camera and simultaneously displays the de-warped images from the same camera, as well as images from other network and analogue cameras, in a multi-image display. The original images captured by the 360 degree camera images are stored unaltered so that, if required, specific video data can be presented and verified in a court of law.

The use of 360 degree camera can significantly reduce the quantity of cameras and infrastructure and security personnel needed to monitor a large area.



In applications such as retail surveillance, airport security, manufacturing processes or public space, the benefit of installing these cameras is that a single device is able to monitor an entire area continuously.

Even if fixed cameras are carefully installed blind areas can still occur, which in a retail environment, for example, shoplifters will be keen to exploit. Whilst PTZ cameras can help negate his problem, they cannot provide an uninterrupted record of all events simultaneously and may not of course be monitoring where an incident is taking place.

A 360 degree camera exceeds the capabilities of a PTZ camera by recording activity over a wide area, in every direction at the same time. Whilst reviewing recorded video an operator can use a digital PTZ to investigate specific areas of interest without losing the whole picture.

In addition, the Wavestore de-warping function enables the original fisheye image from a wide range of cameras to be recorded and specific areas of interest to be dynamically selected and viewed as events require.

The Wavestore de-warping feature not only integrates the 360 camera video streams but also handles the digital PTZ controls without any need of third party SDK integration. You can move throughout the 360 image simply by using a 3 axis mouse and have the option to overlap the whole image in the panoramic view.

Users can directly control the 360 degree camera from the Wavestore GUI as well as the other connected cameras. After an initial setting up to choose the appropriate mounting, users can create new 360 degree camera virtual views quickly and easily whilst monitoring ordinary cameras. Security personnel will not notice any difference in the layout of 360 degree camera virtual views compare with analogue, network or HDcctv cameras, where the PTZ control is similar to conventional cameras.

Wavestore 360 degree camera de-warping functions

The Wavestore 360 degree camera dewarping feature provides various functions as follows.

- Easily configured to display both the fish-eye and the de-warped images of the area covered.
- The distorted hemispherical image of the fisheye camera is converted into a conventional rectilinear projection.
- The original image is recorded by Wavestore and can include Authentication, where evidence is required.
- The original image can be displayed together with one or more "fixed virtual views" simultaneously (highlighted in red bounded area, if required).
- The original image can be displayed together with one or more "PTZ virtual views" simultaneously (highlighted in green bounded area, if required).
- Identical images from the same 360 degree camera view can be displayed simultaneously (live and archived).
- The horizon can be set according to the application (useful for video conferencing where the faces are faithfully reproduced).
- Set up routines are provided to display images from the camera if 360 degree cameras are wall, ceiling or desk mounted.
- A configurable user layout provides for each image size, position and aspect ratio to be individually set and saved as one of many "unique user views".
- An option to display the full panoramic (de-warped) image is provided, which can be presented as a "letter-box" image.
- Multiple data streams can be configured dynamically.
- No need to use specific end to end video management package.

360 degree cameras testing programme

Wavestore has an on-going integration programme for CCTV cameras. Below is a summary of the 360 degree camera and fisheye lens tested with the Wavestore de-warping feature.

The **AMGPanogenics** 360 5MP network camera provides up to fourteen simultaneous electronic-Pan-Tilt-Zoom and panoramic video streams which may be recorded or viewed live. No software is required for live viewing, apart from a standard web-browser. When combined with the Wavestore video manager software, retrospective PTZ means you can go back and follow subjects as if you were there live.

The **GeoVision** GV-FE420/GV-FE421 is a fisheye camera that allows you to monitor all angles of a location using just one camera. In addition, this camera seamlessly integrates with the Wavestore video and audio recording system, providing advanced monitoring and video management features. This 4MP progressive scan CMOS 360 degree camera is featured with electronic day-night function, auto pan function, privacy mask, visual automation, tampering alarm, built-in micro-phone and speaker, one sensor input and alarm output, and micro SD/SDHC Card Slot.

The **LightSpace 360** camera has the ability to capture and process 360 degree video, images streams and images at HD resolution and above, and de-warp, un-distort and un-wrap these images in real time. This technology is based on advanced software utilising standard available parabolic mirrors and commercially available CCTV cameras. The vector mapping and simultaneous management of multiple PTZ systems provide LightSpace 360 with a dominant position in the surveillance and security market.

The **MOBOTIX** Q24M is a 360 degree camera that provides immersive viewing and control over a 360 degree field of view. With the 11mm lens option the MOBOTIX camera provides a fisheye image, which the Wavestore VMS is able to record using either MJPEG or MxPEG codecs delivering the maximum resolution of 3MP.

The **Oncam Global** 360 degree cameras utilise Grandeye's multi-megapixel image sensors and high-quality fisheye lenses that offer a hemispherical view of the world and also include Grandeye's own on-board video analytics software allowing them to perform motion detection, motion tracking and even simultaneous tracking of multiple targets.

The **VIVOTEK** FE8171V is a fixed dome network camera featuring detailed 3.1MP-resolution sensor with superb image quality. The VIVOTEK day-night camera features a removable IR-cut filter, maintaining clear images 24 hours a day. Its vandal-proof IK10-rated housing effectively provides robust protection from vandalism. The FE8171V comes with 802.3af compliant PoE, microSD/SDHC/SDXC card slot for on-board storage, and EN50155 mobile surveillance.

For further information, please contact us at: info@wavestore.com