

# MONTEBELO AGUIEIRA

## LAKE RESORT & SPA



### The Institution

Located between Viseu and Coimbra and having Aguieira Dam as a backdrop, the Montebelo Aguieira Lake Resort & Spa, Visabeira group, is a 5 star tourist resort and residential venue which develops recreational and leisure activities in a space where architecture and nature come together to provide moments of relaxation, comfort and retreat.



## The Challenge



The Montebelo Agueira Lake Resort & Spa is a tourist resort and residential venue with an area of 35 hectares, located on the Albufeira da Agueira and consisting of 152 Apartments and Villas, a hotel, a multi-purpose pavilion with a restaurant that can host 400 people and a Marina with 400 berths for nautical activities.

Within the facility there are also swimming pools, spa, tennis courts, playground and several walking and cycling paths, among other equipment present.

A 24-hour reception ensures that visitors and residents are always assisted on arrival at the resort.

In order to protect the people and property, and to ensure smooth functioning of the whole enterprise, it has become necessary to install a video surveillance system in order to provide global security and continued assistance in the resort, in existing roads, the inland areas and the Marina, particularly by addressing the following challenges:

- the creation of an extensive local network to connect cameras and image recorder with the added difficulty because there are no pipes or the ability to open ditches for the passage of cables;
- choosing a good camcorder with night lighting and weatherproof to allow for outdoor and indoor use in the multi-purpose pavillion;
- the choice of a discreet, yet stylish camera with night lighting and PoE capability to be used in existing UTP cabling.





## The Solution

Built in 2009, the tourist village and residential vicinity runs three technological methods to give way for the implementation of the system of video surveillance - CCTV-IP, WiMax and IP network.

The solution is implemented through a centralized system for monitoring and recording of images, obtained from 20 cameras in a single video server NVR with network access to a PC and browser on the same network.

The Wimax network and existing fiber optic link to the same IP network, multi-purpose pavilion, concierge, reception and Marina.

The creation of a wireless network based on WiMax technology in the unlicensed frequency range (5.470 to 5.725 GHz) was the initial response to the constraints arising from lack of pipelines in the venture or the possibility of creating an underground network to connect the exterior cameras.



WiMAX (Worldwide Interoperability for Microwave Access) system is a wireless digital communications system based on the IEEE 802.16. This pattern is similar to standard Wi-Fi (IEEE 802.11), already widespread, but adds the latest knowledge and resources, aiming at better communication performance. WiMAX can provide broadband up to 50Km away to fixed stations.





This IP transport network, which is linked by cable, the video cameras and IP cameras differ from the analogue cameras by incorporating the video encoder and therefore have an Ethernet output. For permanent recording of images was used NVR (Network Video Recorder) was used on the same network.

The solution for the distribution of IP signal throughout the resort consists of an multi-directional WiMAX Base Station with an area of 360 degrees, placed near the reception building and 11 units per customer, which carry the signal from the camera to the central location. The radio terminal equipment has a 10/100BaseT Ethernet output, so each customer unit is connected via cable to a video camera.

With the exception of the cameras mounted to the multi-purpose unit that share only one client's output and a pole unit which is shared by two cameras.

The Wimax antenna in the multi-purpose pavillion also carries the camera signals from the marina through its fiber optic cables.

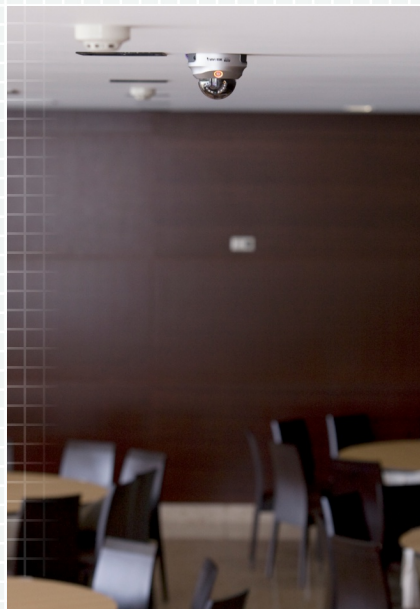
The outdoor cameras and outdoor WiMAX antennas were placed on lighting columns and adapted in order to have permanent electricity to power the equipment.

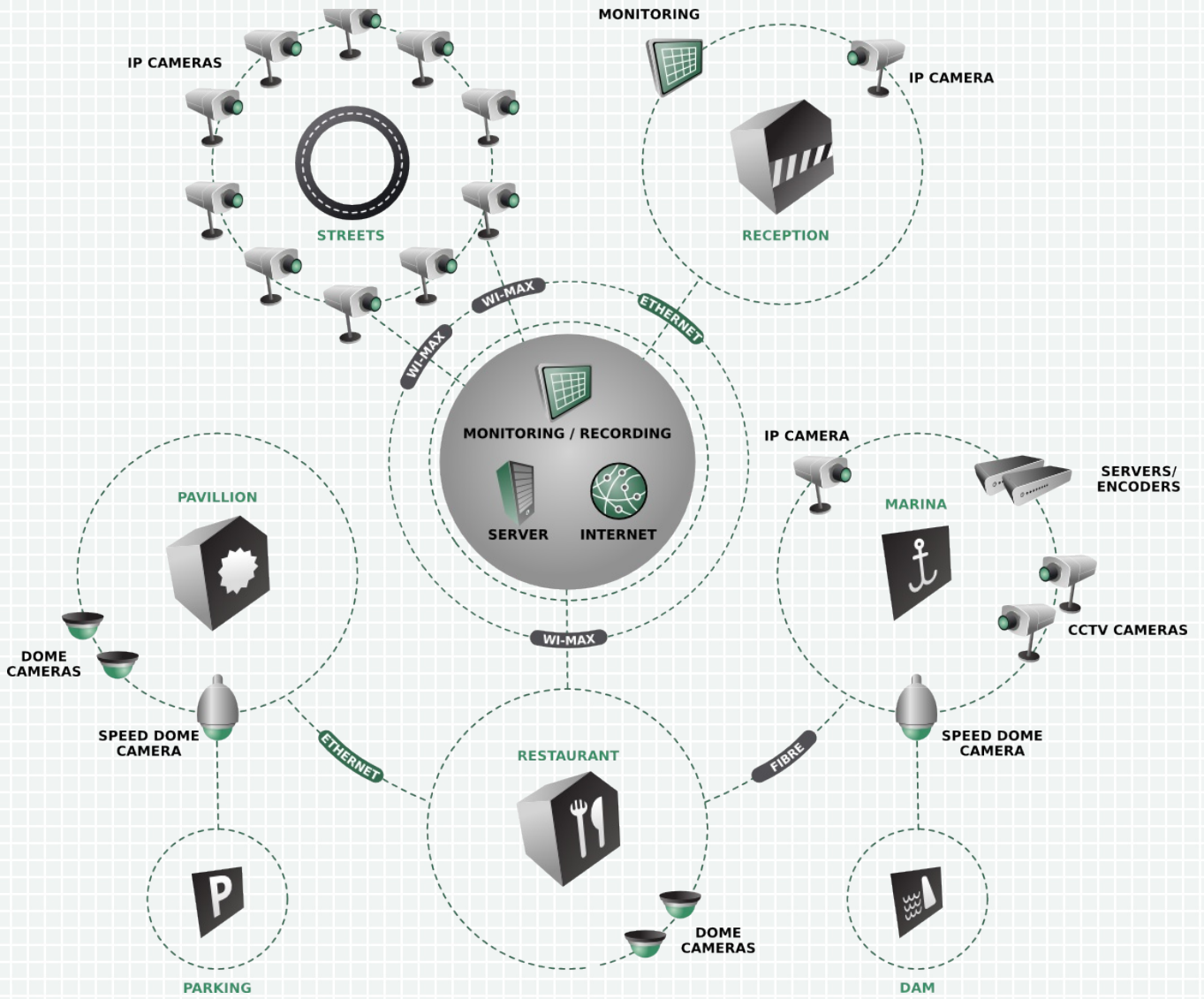
The height was increased to allow the camera to be placed on the lighting poles with an extra 1.5m which are clamped on the lighting poles.

The Wimax network, originally intended only to support the tele, also ended up being used to carry voice signals (VoIP) to the multi-purpose pavilion / restaurant.

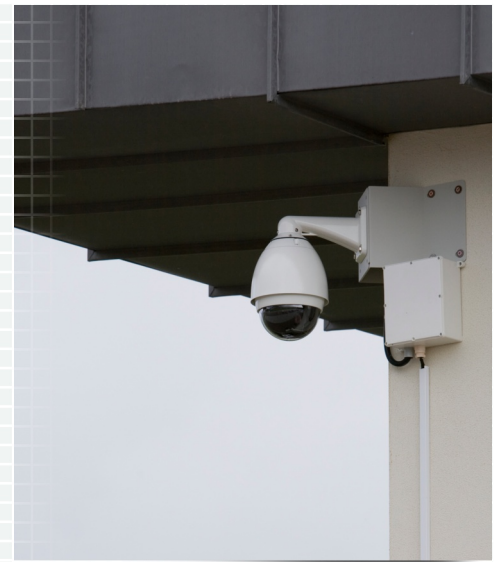
The video-surveillance solution was developed with IP cameras from Vivotek. In total were installed 18 cameras (IP Vivotek IP7142, SD7151 and FD7132), 14 of which are on the exterior, and two more servers (Vivotek VS7100) to integrate existing analog cameras in the Marina.

As the Marina already had a fibre optic link to the multi-purpose pavillion, the two video servers and camera Speed Dome in the Marina use this link to integrate into the Wimax network.





**INSTALLATION PROJECT**



In summary, for video-surveillance, cameras were installed in the following:

- 10 IP7142 cameras to cover the resort's streets, mounted on nine lighting columns with Wimax antennas;
  - 1 IP7142 camera to cover the area of the gatehouse, wall mounted and connected to an antenna mast installed on Wimax antenna TV;
  - 1 IP7142 camera outside, mounted on the wall to cover the access to the Marina and connected to the multi-purpose pavillion via fiber optic cable;
  - 4 cameras with infrared DOME FD7132, to cover the entries within the multi-purpose pavillion sharing the same antenna Wimax;
  - 1 mobile Speed-dome SD7151 camera, attached to the Wimax antenna in the multi-purpose pavillion, allowing the coverage of the nearby environment and parking space;
  - 1 mobile Speed dome SD7151 outdoor camera, wall-mounted to cover the Marina which is connected via fiber optic cables to the multi-purpose pavillion;
  - 2 Vivotek VS7100 video servers for the integration of two existing analog cameras in the Marina and connected to the fiber optic cables to the multi-purpose pavillion;
- In the reception, the video surveillance monitoring center has been installed,

giving access to all the surveillance points scattered across the whole vicinity. The recording center consists of a rack with a video server Qnap VS-5020V, with the capacity for 20 cameras and five 500 GB disks for recording and monitoring of images.

This equipment is connected to the same IP network used by the cameras. The NVR is accessible through the browser and associated IP address from anywhere on the network, to monitor and query images.

The gatehouse also has installed a monitoring system of video surveillance and is in constant contact with the monitoring center installed at the reception.





### VIVOTEK IP7142

IP Camera Outdoor Day/Night  
w/CMOS sensor, extended dynamic range

Designed for continuous 24-hour surveillance, Anti-Vandalism, the Vivotek IP7142 allows construction of a system of video surveillance over IP, with an excellent cost-effectiveness, without the need to add accessories. It features a removable IR cut filter and IR illuminators up to 15m - enables automatic removal of the filter and the binding of IR illuminators during the night in order to accept IR illumination for sensitivity to the absence of light. The IP66 shell protects the camera against harsh weather conditions.

The Vivotek's IP7142 with WDR function (wide dynamic range - wide dynamic range) is capable of capturing both light and dark areas, combine the differences in a scene that generates a highly realistic image and with quality video capabilities close to that of human vision.

Excellent for building entrances, parking lots, ATM, areas of loading/Unloading and more.

Incorporates advanced features like dual streams, 3GPP mobile surveillance, 802.3af standard for PoE, 2-way audio by SIP protocol, RS-485 connection for scanning or pan / tilts driver and HTTPS encrypted data transmission.

[> Read more.](#)



### VIVOTEK SD7151

IP Camera with Sony progressive  
CCD sensor - Dome with 18x Zoom

The SD7151 is one of Vivotek network speed dome camera, high-performance day / night adequate not only to take close-up images of long distance with exceptional detail, it also offers razor sharp pictures and high definition of fast moving objects without clipping image.

The mechanism of pan / tilt movement provides accurate and continuous 360° and 90° tilt. The lenses can be controlled through the mouse or joystick to track a subject of interest and has up to 128 presets for patrolling. The function day / night makes this camera ideal for operating under various conditions of illumination. If the light conditions become weak the removable IR cut filter is automatically removed in order to accept the connection of IR illuminators. This triggers a switch on the automatic system which changes from color to black and white to ensure a constant image quality.

The SD7151 incorporates 3GPP mobile surveillance, two-way audio by SIP protocol and digital I / O for external sensor and alarm. Excellent for projects of large structures such as airports, motorways, car parks and shopping malls, where you always need a high degree of reliability and accuracy.

[> Read more.](#)



Imprint



### VIVOTEK FD7132

IP Camera Day/Night - Dome fixed 3-axis

The Vivotek FD7132 is a dome network camera designed for 3-Axis indoor video-surveillance inside. Equipped with vari-focal lens 3.3 ~ 12mm auto-iris gives an enlarged view for maximum coverage. The sophisticated mechanical system of three-axis provides an easy hardware installation on either ceiling or wall. In order to prevent false alarms, it is equipped with PIR sensor (Passive Infrared), which can detect temperature changes in infrared emitted by surrounding objects.

The VVTK Vivotek-1000 SoC, it allows you to support two simultaneous streams with different resolutions up to 30fps in VGA resolution on a separate multimedia devices allowing real-time viewing.

The FD7132 is built with a combination of cutting-edge features: such as 3GPP mobile surveillance, 802.3af standard for PoE (Power over Ethernet), 2-way audio by SIP protocol, etc., Easily allowing to build a system with optimal cost-effectiveness for IP video surveillance for indoor facilities.

[> Read more.](#)



### VIVOTEK VS7100

Server / Converter video dual codec

The Vivotek's VS7100 video server has a channel designed for remote surveillance.

Allows dual-video compression codec in MPEG-4 and MJPEG to efficiently optimize image quality and bandwidth used, as well as to provide two streams with different resolutions up to D1 and video quality on separate devices.

Making it easy to migrate to a digital IP from an existing analog system to suit the needs of viewing and recording in real-time.

Comes equipped with versatile functions to meet the 3GPP mobile surveillance applications, digital I / O for external sensor and alarm, RS-485 interface for PTZ camera control and privacy masks amongst other functions.

Together with the free software which permits recording on 16 channels, this video server becomes the perfect solution for cost-effective transition to a CCTV system from a system of video over IP.

[> Read more.](#)



### QNAPVS-5020V

VioStor NVR with 5Tb disk.

QNAP NVR VioStor VS-5020 is a server for video surveillance monitoring, and a high performance IP video recording in real time.

CPU Intel 1.6GHz, 1GB DDRII memory and integrated Linux, supports recording in H.264, MxPEG, MPEG-4 and M-JPEG across 20 channels with security cameras of various brands including: AXIS, ACTi, Arecont Vision , AVTech, Canon, Cisco, D-Link, Edimax, ELMO, EtroVision, GANZ, HikVision, iPUX, IQeye, LevelOne, Linksys, Messoa, Mobotix, Panasonic BB / BL / i-Pro, SANYO, SONY, TOA, TOSHIBA, TRENDnet, VIVOTEK & Y-CAM.

Five-swappable SATA hard drives, the VS-5020 VioStor NVR offers continuous operation and high performance megapixel recording (up to 8 megapixels) in several IP cameras anytime / place on the network and independent of any PC.

Protection with advanced RAID as RAID 0/1/5/6 +, replacements online / 6 / JBOD, the NVR offers secure protection of data, being easy to use and maintain at the same time.

[> Read more.](#)





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*Good price-quality equipment and an excellent partner in supporting and implementing complex solutions. The implemented solution is perfectly adapted to the functional requirements and demands of the customer.*

Turrion Leite (Enginner) from Portugal Telecom.

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Turrion Leite (Engineer) from Portugal Telecom and José Câmara (Business Manager) from Optivisus.



## About

The **Visus Video (OptiVisus)** is a company operating in the ICT market since 1989 which is dedicated in importing, distribution and servicing of CCTV systems, IP (transmission equipment for video over IP and digital recording), Telecommunications / Networking and equipment for ISDN / ADSL and Cable, the products and brands it represents, being for several years a major company in the National CCTV market.

Optivisus:  
José Câmara and Miguel Câmara

TriServic3:  
Paulo Caronho

The **PTC (PT Comunicações)** is a company of Portugal Telecom. It boasts the largest telecommunications infrastructure in the country - with a 100% digitalized network - surpassing the 4 million telephone accesses, and an expert and experienced advanced team. It is a leader in telecommunications and it offers extended solutions to landline network services, data communications, TV broadcasting, video conferencing and broadband solutions.

Design and drawing of the solution:  
José Turrion Leite

Technical follow:  
Carlos Santos and José Pires Antunes



## More info

Montebelo Aguieira Lake Resort & Spa: <http://www.montebeloaguieira.pt>

PT Comunicações: <http://www.ptcom.pt>

Vivotek: <http://www.vivotek.com>

QNAP: <http://www.qnap.com>



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