



APPLICATION STORY



Oubaai Golf Estate, in the heart of the famous South African Garden Route FLIR Systems thermal imaging cameras help to protect the perimeter

South Africa's Garden Route is world famous. It is a popular and scenic stretch of the southern coast of South Africa. It includes towns such as Mossel Bay, George, Knysna, Oudtshoorn, Plettenberg Bay and Nature's Valley.

The area is renowned for its magnificent mountains, indigenous forests, lakes, lagoons and rivers. It is along the Garden Route, in Heroldsbay that the spectacular Oubaai Golf Resort is situated. Recently, The Oubaai Homeowners Association, as part of a five year integrated security plan, has installed 6 FLIR Systems thermal imaging cameras to form part of its active protection plan for its residents, members and guests.

Oubaai Golf Course: designed by Ernie Els
The Oubaai Golf Estate is an exclusive residential development set in the heart of the spectacular Garden Route in South Africa. The development comprises of 450 residential units consisting of 128 Village apartments and 322 single residential properties. Inside Oubaai, the Hyatt Regency Group is constructing a luxurious 100 bedroom hotel which is to open in 2010.

having won more than 60 tournaments since turning professional in 1989, including two US Opens and an Open Championship, and a record seven World Match-play titles. Ernie has occupied a place in the world's top-10 for over 730 consecutive weeks, more than any other currently active golfer. Els himself has placed Oubaai as his favorite course in the world.

Oubaai Golf Club is a Championship Golf Course designed by the South African golf superstar Ernie Els. Els is one of the most successful golfers in the history of the game,

Oubaai is a beautiful piece of real estate. There are spectacular views of the Outeniqua mountains, the Gwaing river and its' sweeping valleys and the Indian ocean. The estate borders on the Indian Ocean and the Gwaing river just 18km from the picturesque town



of George. Herolds Bay, the nearby beach is famous for body boarding, swimming, surfing and sunning.





One of the FLIR Systems PTZ-50 MS thermal imaging cameras overlooking Oubaai.

Infrared illumination

"Another technology application we have looked at to secure the perimeter, definitely during the night, is infrared illumination."

Infrared illuminators beam infrared radiation into the area in front of a camera. The infrared beamers are often placed around the lens of the camera. The infrared radiation is reflected by objects and human beings and converted to an image which can be displayed on a screen.

"The initial cost is reasonable but you need to take into account that you need to replace the beamers regularly. Furthermore, if you want some good range performance, you need to install powerful beamers which consume a lot of power.", Andre continues.

"And infrared illumination has another major disadvantage. Oubaai is situated close to the sea and we are very often faced with very foggy conditions. When you switch on the infrared illuminators they worsen the effect of the fog. You can not see anything anymore."

Radio Frequency Intruder detection (RAFID)

"Another technology I looked at is RAFID," says Andre.

RAFID uses two specially designed cables – one transmitting a radio wave, while the other receives that wave. Changes in the amount of signal passing between the transmitter cable and receiver cable are analyzed by a signal processor. If the amount of signal changes, this means that someone or something is between the two cables and an alarm will go off. Due to the difference in the signal strength, the system can detect whether these changes are due to the presence of a human, a small animal, ...

Security is of extreme importance

"Although the Garden Route is a relatively safe area to live, definitely compared to other parts of South Africa, at Oubaai we do not want to take any risk.", explains Mr. Louis Olivier, Estate Manager at Oubaai. "We want all residents, their guests, and all people that come here to enjoy a round of golf at our magnificent course, to feel safe and secure. Therefore we have taken all the necessary security measurements and installed state-of-the-art security equipment."

A complete security network

"Security at Oubaai starts with ones arrival at the main entrance.", says Andre Steenkamp Regional Manager of Holbert Boikanyo Technologies, initiator and co-designer of the Oubaai Security System. "Not only are CCTV cameras installed at the entrance but biometric readers are in place to ensure accuracy of the access control function. No one enters Oubaai before their fingerprint is taken. If they are not a resident and/or a bona fide registered guest on the system, they may not enter. We will notify the people they are coming to visit and they need to confirm that they are expecting a visitor.", Andre explains.

Different technologies for perimeter security

"But securing an estate of this magnitude means more than just installing equipment at the entrance gate. Without installing ugly fencing, we want to be sure that the entire perimeter is monitored and that we are aware of everyone that is approaching the estate's boundaries. In order to secure the perimeter, I did a thorough study and compared different technologies. Although cost is important when evaluating different systems, my main goal has always been to provide Oubaai with a good solution. In my opinion, saving money on security is not always the best option.", Andre continues.

Fences

"Although we are using fences at some parts of the perimeter this is not always the ideal solution. Fences are costly to install since much civil works are required. Furthermore, they are not always the most aesthetic solution at a luxury estate like Oubaai. We also need to keep certain areas of the fence open since animals need to be able to move freely from one area to another. They do not care about whose property the land is and need to be able to roam around freely."

"Furthermore, if you want to see what is happening around the fence, it needs to be complemented by CCTV cameras. In order to see during the night, CCTV cameras need light. Installing light poles everywhere around the fence is definitely not the correct way to go for an estate like Oubaai. Lighting is considered to be too intrusive by the residents."



Mr. Tinus Diedericks, Timeless Technologies - Mr. Louis Olivier, Estate Manager at Oubaai - Mr. Andre Steenkamp, Regional Manager Holbert Boikanyo Technologies



For aesthetical reasons some FLIR Systems thermal imaging cameras are mounted on a house instead of on a mast.

"RAFID is a more aesthetical solution than fences but it is a fairly expensive system. Not only are full civil works needed to install the cables, once in operation the system requires a lot of maintenance. And although the system can make a difference between a man and a small animal entering the security perimeter, a lot of false alarms can happen. This means that the RAFID needs to be complemented with a CCTV system so that an operator can determine if an alarm is false or not," Andre explains.

Thermal imaging cameras

"I first came into contact with Mr. Tinus Diedericks of Timeless Technologies when I was gaining information about a scanning system that can penetrate fog. Also this technology was not exactly what I was looking for and furthermore it is extremely expensive."

"Tinus explained me that he is a distributor of FLIR Systems thermal imaging cameras in South Africa and demonstrated the cameras at Oubaai. I was extremely impressed and learned more about the technology. That the cameras are performing well during a clear night was immediately clear to me but I was especially interested in their performance in foggy weather conditions."

"Together with Andre we made an initial study of how many cameras would be needed to secure the perimeter," explains Mr. Diedericks of Timeless Technologies. "Andre's initial plan was to install a large number of fixed mounted, short range cameras along the area. We looked at it together and quickly found out that it would be better to install a limited number of longer range performance thermal imaging camera of which the majority needed to be installed on a pan/tilt. Although we needed to use more expensive thermal imaging cameras to do this, the total investment would be a lot

cheaper. Furthermore, since we needed less cameras we did not have to install so many poles to install the cameras on. This again saved money."

FLIR Systems thermal imaging cameras secure the perimeter

"Today we have completed the first phase of the installation," Andre Steenkamp continues. "Along a big part of the perimeter we have installed multiple FLIR Systems thermal imaging cameras."

"Three FLIR Systems PTZ-50 MS thermal imaging cameras are installed. The PTZ-50 MS contains a thermal imaging camera and a daylight camera. Both are mounted on a robust pan/tilt so that we can look at every direction we want. They provide excellent range performance since they can detect a man-sized target at a distance of practically 800 meters."

"At a longer stretch of the perimeter, we decided to install a FLIR Systems PTZ-35x140 MS thermal imaging camera. The PTZ-35x140 MS is equipped with two thermal imaging cameras. It detects man-sized targets at a distance of over 2 kilometers and has the ability to zoom in on suspect activities. It also contains a daylight/lowlight camera which we can use during the daytime. We have installed the PTZ-35x140 MS in the center of the perimeter. Since it is installed on a pan/tilt, we have the ability to see whatever direction we want. We can see the fence, across the fairway towards the river, as well as a high risk area along the sea."

"For two very short stretches along the perimeter we opted for a fixed mounted PatrolIR thermal imaging camera. It is always overlooking the same area. Although its range performance is a lot less than the one of the other installed cameras, it is exactly what I need to guard two very short lines along the perimeter."

"Most of the thermal imaging cameras are installed on a pole. Thanks to excellent range performance of the FLIR Systems thermal imaging cameras we did not need to install too many of them. Aesthetics are important here at Oubaai. In order to avoid installing poles as much as possible, two of the thermal imaging cameras have been installed on a house. We communicated with the owner, and he preferred that we installed the cameras on his house instead of on a pole. Not only does he not have a mast blocking his view, it is probably the best protected house in the estate as well."

Thermal imaging, more than security only

"The main reason for purchasing the FLIR Systems thermal imaging cameras was securing the Oubaai estate. Once they were installed it became clear however that they can have another, sometimes live saving, capabilities."



The FLIR Systems PTZ-35x140 MS. It contains 2 thermal imaging cameras and one daylight/lowlight camera. It overlooks a big part of the Oubaai estate.



An overview of Oubaaï estate. The FLIR Systems thermal imaging cameras that are currently installed are indicated on the map. Oubaaï is planning additional installations in the future.

"Just underneath Oubaaï is the sea. People tend to stand on the rocks while fishing. They sometimes forget that the sea is dangerous. Tides can come up very quickly and big waves can be formed. These waves can easily hit people of the rocks, into the sea."

"When an accident happens and we are aware of it, we can easily turn the PTZ-35x140 MS in the direction of the sea. We will communicate with the National Sea Rescue Institute (NSRI) which sails out with special rescue boats to save the person. We can spot the person floating in the water with the thermal imaging camera, almost 2km away and direct the crew of the boat in the right direction."

Thermal imaging cameras work in all weather conditions

When asked about the performance of the thermal imaging cameras in foggy weather conditions, Andre is very clear. "The performance of thermal imaging in foggy conditions is extremely good. Although the thermal image is slightly obstructed by the fog and we are not getting the same high quality image that we see during clear weather conditions, we still get good range performance. A person walking around in the fog will be hotter than the cold surroundings. Since the thermal imaging cameras are producing an image based on the small temperature differences they are detecting, we can clearly see people walking

around. We might not see all the detail, but we will certainly see that a person is there. And that is the most important thing."

"For detecting intruders in total darkness, in practically all weather conditions, there is no better technology than thermal imaging. Different estates have come to Oubaaï already to look at the performance of the FLIR Systems thermal imaging cameras and they were amazed when they saw the clear images they produce. Some other estates along the Garden Route are thinking about installing thermal imaging as well!"

Feeling safe at Oubaaï

"Sometimes when I walk through Oubaaï I see houses with the doors wide open. Sometimes expensive material is just standing unprotected in gardens. When we notify the owners that they forget to close their home they are often very surprised. They do not normally do this."



To me, it is however the best proof that all the security we have at the gate and alongside the perimeter works. The FLIR Systems thermal imaging cameras definitely contribute a lot to the safety and security we have here at Oubaaï," Andre concludes.

Holbert was the first technology installer to utilise FLIR Systems thermal imaging cameras on estates of this magnitude, within the Republic of South Africa. The system is user friendly and maximizes the technical aspects without compromising on the staffing quotient, ie. enough guards, but not too many, which is the design approach that Holbert follows in its estate solutions. The relationship between Timeless Technologies and Holbert Boikanyo Technologies is very unique where the distributor and integrator join forces in the research, design, project management and implementation of a tailor made solution for the customer. As the systems and technologies are installed and implemented, Holbert aligns itself with an organization that can monitor the system and utilise the imaging to its maximum outputs, ie. specific control centre operations. This ensures a total turnkey solution and peace of mind to the customer.

If you require more information please contact Timeless Technologies: www.timetech.co.za/ or Holbert Boikanyo Technologies: www.holbert.co.za/



A PatrollIR and PTZ-50 MS mounted together on a mast to secure the perimeter



The Control Room at Oubaaï.

For more information about thermal imaging cameras or about this application, please contact:

FLIR Commercial Vision Systems B.V.
 Charles Petitweg 21
 4847 NW Teteringen - Breda - Netherlands
 Phone : +31 (0) 765 79 41 94
 Fax : +31 (0) 765 79 41 99
 e-mail : flir@flir.com
www.flir.com