

Axis cameras help Croatia with wildfire protection.

Critical areas of Croatia are monitored by Axis cameras to prevent wildfires.

**Organization:**

Transmitters and Communications Ltd. (OIV)

Location:

Croatia

Industry segment:

Government

Application:

Remote monitoring, early fire detection/prevention

Axis partner:

King-ICT

Mission

Croatia is one of the European countries most affected by wildfires. These devastating natural disasters often cause vast damage on property and environment, but most importantly, threaten the health and lives of Croatian citizens. In 2017, the worst season by far in Croatia for more than a decade, more than 7x the average area burnt, 104 fires of over 30 hectares and 329 fires in total. Transmitters and Communications Ltd. (OIV), the provider of national TV and radio broadcasting services in Croatia, in cooperation with Croatian Forest, thus decided to utilize the dense network of antenna towers for fire detection and monitoring of critical areas.

Solution

In cooperation with Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture in Split (FESB), a specialized video surveillance system called Stribor was created.

To get the crucial, high-quality images to the system, 92 Axis cameras were installed in the fire surveillance locations. With the help of a geographic information system (GIS), the surveillance network hubbed in four surveillance operational centers providing essential information about fire locations to increase the efficiency and speed of fire-fighting forces.

Result

OIV's project of fire detection has been rewarded as the best security project in Croatia. In direct consequence of the technology improvements, OIV reduced the areas ruined by forest fires. In addition to decreasing environmental and property damage, there are significant cost savings in air fleet fuel when fires are managed well in early stages.

“The system is based on high-resolution Axis cameras with precise control and great zoom capability that ensure good visibility both in day mode and in night mode. Automatic switching to near infrared further enhances the precision of the fire protection surveillance.”

Mihael Ilić, head of the optical infrastructure and transmission networks department at OIV.

Devastating Croatian wildfires

Active detection and site monitoring of Croatian countryside began to develop about 16 years ago, after an extremely severe fire season in 2003. “Fire detection is traditionally based on human observers. During the fire season, they are deployed on the surveillance locations, trying to spot every emerging fire. Observers are usually equipped with binoculars and a means of communication, and when they spot visible fire signs, they immediately alert the fire department,” explains Mihael Ilić, head of the optical infrastructure and transmission networks department at OIV.

Another push to increase the efforts of early fire detection came in 2017. This year became known as the worst fire season in more than a decade. According to European Forest Fire Information System (EFFIS), more than 48,500 hectares (485 km²) of country was devastated by 329 wildfires in total, an area larger than the largest Croatian island. “After the 2017 fire season, we decided we need to implement an geographical information system, intensify the IP camera network and connect all the involved subjects in one monitoring system,” said Mihael Ilić.

Difficulties of Mediterranean environment

The cameras chosen for the task were AXIS Q6155-E, AXIS Q6045-E MK II PTZ and AXIS Q6055-E PTZ. “The system is based on high-resolution Axis cameras with precise control and great zoom capability that ensure good visibility both in day mode and in night mode. Automatic switching to near infrared areas further enhances the precision of the fire protection surveillance,” says Ilić.

However, the Croatian landscape turned out to be a very challenging environment even for the high-end technology. The relief features of the natural landscape together with the atmospheric conditions and the time of the day made it demanding to set up reliable and robust monitoring.

Moreover, all the cameras had to be installed in places highly exposed to harsh Mediterranean climate. Strong wind, storms and lightning strikes or snow have put the cameras to the test – but with positive outcome. “The cameras have proved to be quite robust,” confirms Ilić.

The cameras, however, aren’t the only element in the system. Highly-sophisticated monitoring had to be completed with a solid transmission network, software support, geographical information system and virtualization platform. To string all these elements together, a specialized system called Stribor was created in cooperation with Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture in Split (FESB). The push for a complex system was intensified because several parties are involved in fire detection and extinguishing, such as Croatian Forests and the fire brigades.

Future of video fire prevention

Right now, there are four supervisory operational centers across Croatia to manage the monitoring and firefighting intervention from 46 critical locations analyzed in this project, three of which were added this year.

“The system proved to be effective and efficient. Adding new locations to the network system is smooth. We are ready for the expansion not only in Croatia, but even across the borders,” concludes Mihael Ilić. The Croatian Ministry of Environment and Energy reflects the trend of higher frequency and length of the forest fire season – which means that the system of video fire prevention might be even more critical in the future.



 **OIV** Digital signals and networks

 **FESB**

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