
com sur™
the missing piece of CCTV
THE FOOTAGE WHISPERER
"SEE WHAT THE CAMERA SAW"
100+ TOPICS - AIRPORTS TO ZOOS

UTILITY VALUE OF COM-SUR™ FOR SPACE EXPLORATION FACILITIES

WELCOME

AUDIT HOURS OF FOOTAGE IN MINUTES FIND OUT HOW COM-SUR WILL HELP

CCTV and other forms of video surveillance are common in space exploration facilities world over, but footage is often only reviewed reactively. Our company realized this problem early-on and has developed the world's only CCTV video footage auditing software that encourages daily auditing (hours in minutes) of CCTV footage, filling the gap for a complete "workflow". The software works with existing cameras and VMS, regardless of type/brand, and provides a standardized approach for intelligent incident reporting. Our software also offers exceptional investigative capabilities.

'COM-SUR' – THE WORLD'S ONLY CCTV/OTHER SURVEILLANCE VIDEO FOOTAGE AUDITING, SMART BACKUP, AND STANDARDIZED INTELLIGENT INCIDENT REPORTING SOFTWARE – THE MISSING PIECE OF CCTV/OTHER SURVEILLANCE VIDEO

COM-SUR is the world's only CCTV/other surveillance video footage auditing, smart backup, and standardized intelligent incident reporting software that serves as a complete workflow and force multiplier. It helps audit 24 hours of footage in minutes, reduces data size, creates standardized intelligent reports, and delivers business intelligence. COM-SUR helps unlock hidden information in CCTV/other surveillance video footage and enables people to gain actionable intelligence, improve homeland security, prevent crime and losses, identify and mitigate threats and hazards, and improve operational efficiency. It empowers people to gain new jobs as CCTV/other surveillance video footage auditors and start new businesses of auditing video footage. Like MS Office, COM-SUR is an enabler that makes it easy to work with CCTV and other surveillance cameras in a standardized way, leading to better decision-making. It also offers exceptional investigative capabilities.

HOW COM-SUR SMARTLY REDUCES 'VIDEO' STORAGE SIZE

COM-SUR employs an innovative approach to smartly reduce the amount of video to be audited and consequently the storage size of videos. Regardless of the video's frame rate, COM-SUR captures a single screenshot of the consolidated 'moment' of 'that' one second, when the I, P, and B frames come together. This method significantly reduces data size without sacrificing vital information. It goes without saying that when multiple cameras are displayed in a grid view, say 4x4, the storage size is further reduced since all the cameras are captured as a single image. Since no suggestion is being made to replace the actual video with screenshots, COM-SUR acts as a wonderful supportive technology both to audit (review) just 86400 frames representing 24 hours and reducing the data size at the same time.

CHALLENGES FACED BY SPACE EXPLORATION FACILITIES

1. Unauthorized access:

Space exploration facilities are highly restricted areas with limited access. Controlling and monitoring access to these facilities is crucial to prevent unauthorized individuals from entering sensitive areas and to protect valuable assets.

2. Technological espionage:

Space exploration involves cutting-edge technology and research. The risk of espionage, where unauthorized entities attempt to gain access to proprietary information or technology, is a significant concern.

3. Sabotage and vandalism:

The potential for intentional damage to equipment, vehicles, or infrastructure is a security concern. Sabotage or vandalism could compromise the success of space missions and result in financial losses.

4. Terrorist threats:

Space facilities may be targets for terrorism due to their symbolic importance and potential impact on national security. Protecting against terrorist threats requires comprehensive security measures and collaboration with law enforcement agencies.

5. Cybersecurity threats:

Space facilities rely heavily on computer systems and networks to control operations, communicate, and process data. Cybersecurity threats, including hacking and data breaches, pose a risk to the integrity of mission-critical systems and sensitive information.

6. Wildlife Interference:

Wildlife, including birds, insects, and/or small animals, can pose significant challenges, including environmental impact, physical damage, and biosecurity concerns. Launch pad contamination and safety risks during launches are notable issues.

7. Occupational safety and health issues:

Space exploration facilities need to monitor the safety and health of workers within their premises, ensuring that they are following proper safety protocols and identifying potential hazards that may need to be addressed.

8. Compliance issues:

Space exploration facilities must comply with various regulations and standards related to environmental monitoring.

9. Insider threats:

Space exploration facilities have to deal with insider threats from disgruntled employees or even unwitting staff who fail to follow proper security and safety measures.

10. Humongous growth of surveillance video:

The exponential growth of surveillance cameras has resulted in an unprecedented surge in surveillance video. Effectively managing this data has become a daunting challenge due to the massive storage capacity required, especially considering the prolonged retention periods necessary for security, incident investigation, or legal purposes.

Furthermore, the prevalence of high-resolution video with increasing megapixels compounds the storage demands, making efficient data management an urgent priority for organizations grappling with the immense volume of surveillance footage.

COVID-19 PANDEMIC

The pandemic significantly impacted space exploration facilities worldwide. Many space missions faced delays due to disruptions in manufacturing, testing, and integration processes caused by lockdowns, supply chain interruptions, and workforce challenges. Economic uncertainties and government budget shifts during the pandemic led to financial challenges for space agencies and companies. Guidelines were issued to prevent the spread of COVID-19, but outbreaks still occurred.

USE OF VIDEO SURVEILLANCE AT SPACE EXPLORATION FACILITIES

Most space exploration facilities have video surveillance covering the following areas:

- Entry and exit points
- Launch pads
- Control rooms
- Data centers and server rooms
- Vehicle assembly and integration areas
- Testing and integration facilities
- Laboratories and research areas
- Vehicle processing areas
- Storage facilities
- Visitor centers
- Maintenance and service areas
- Parking areas

Further, in order to investigate incidents and/or accidents or other issues, officials of space exploration facilities check surveillance video recordings of the relevant cameras from time to time.

USE OF THERMAL CAMERAS IN SPACE EXPLORATION FACILITIES

Thermal cameras are deployed in various areas of space exploration facilities, including launch pads, testing facilities, and equipment storage areas. Their applications include:

1. Equipment monitoring:

Thermal cameras monitor the temperature of critical equipment, ensuring that it operates within specified temperature ranges.

2. Fire detection:

These cameras can detect abnormal heat patterns, aiding in the early detection of potential fires or equipment malfunctions.

3. Energy efficiency:

Thermal imaging helps assess the efficiency of cooling systems and identify areas where energy may be dissipated as heat, contributing to energy-saving measures.

USE OF CAMERAS IN SPACE STATIONS IN ORBIT

Cameras on space stations in orbit serve various functions related to mission operations, safety, and scientific objectives. Here are some applications of cameras on space stations:

1. Exterior monitoring:

Cameras on the exterior of the space station monitor the external structure, solar panels, and various components. This surveillance helps ground control assess the overall health of the station, identify potential damage, and ensure that critical systems are functioning as expected.

2. Docking and undocking operations:

Cameras play a crucial role during spacecraft docking and undocking procedures. They provide real-time views of approaching spacecraft, enabling astronauts and ground control to monitor the alignment and ensure a safe connection.

3. Earth observation:

Some cameras on space stations are specifically designed for Earth observation. These cameras capture high-resolution images and videos of Earth's surface for scientific research, environmental monitoring, and public outreach.

4. Crew interactions:

Internal cameras within the space station monitor crew activities and interactions. This surveillance can be used for documentation, research purposes, and as a tool for troubleshooting or assessing equipment malfunctions.

5. Security and safety:

Cameras contribute to the security and safety of the crew by monitoring internal spaces. This is important for situational awareness, especially during emergency situations, to assist ground control in providing guidance to the crew.

6. Public engagement:

Cameras are sometimes used for public engagement and educational purposes. Live video feeds from space stations are made available to the public, allowing people on Earth to observe life aboard the station and experience space exploration.

7. Scientific experiments:

Cameras are integrated into scientific experiments conducted on the space station. They capture data and visuals related to experiments in microgravity, contributing to scientific research in various fields.

8. Equipment and systems monitoring:

Cameras are strategically placed to monitor critical equipment, systems, and components within the space station. This surveillance helps detect anomalies, assess the functionality of instruments, and guide maintenance activities.

9. Documenting spacewalks:

Cameras are used to document extravehicular activities (spacewalks) conducted by astronauts. These recordings serve as valuable documentation for analysis, training, and public outreach.

SPACE-BASED SURVEILLANCE

Space-based surveillance refers to the use of satellites and other spaceborne systems to monitor and gather information about activities on Earth's surface or in space. These surveillance systems utilize various sensors, such as optical and radar instruments, to capture images, videos, and data from space. Space-based surveillance serves multiple purposes, including military, intelligence, environmental monitoring, scientific research, and commercial applications. Here are key aspects and applications of space-based surveillance:

1. Earth observation:

Space-based surveillance satellites capture high-resolution optical and infrared imagery of Earth's surface. This imagery is used for applications such as urban planning, agriculture monitoring, disaster response, and environmental studies.

2. Remote sensing:

Satellites equipped with remote sensing instruments collect data beyond the visible spectrum, including infrared and microwave wavelengths. This data is valuable for monitoring environmental changes, assessing crop health, and studying natural phenomena.

3. Military and defense:

Space-based surveillance is a critical component of military and defense strategies. Satellites equipped with advanced sensors provide real-time intelligence, surveillance, and reconnaissance (ISR) capabilities, supporting military operations, threat detection, and situational awareness.

4. Global navigation and positioning:

Satellite constellations like the Global Positioning System (GPS) provide space-based surveillance of Earth's surface for precise navigation and positioning. These systems have applications in transportation, logistics, and location-based services.

5. Space traffic management:

With the increasing number of satellites and space activities, space-based surveillance is crucial for monitoring and managing space traffic. This includes tracking satellites, debris, and other objects in Earth's orbit to prevent collisions and ensure the safe operation of space assets.

6. Maritime surveillance:

Satellites play a role in monitoring maritime activities, including tracking ships, detecting illegal fishing, and enhancing maritime security. Synthetic Aperture Radar (SAR) on satellites is particularly useful for monitoring ocean areas, irrespective of cloud cover.

7. Border and border security:

Space-based surveillance aids in monitoring borders, providing governments with the ability to detect and respond to illegal activities, border crossings, and potential security threats.

8. Environmental monitoring:

Satellites equipped with various sensors contribute to environmental surveillance by monitoring changes in land cover, deforestation, pollution levels, and climate variables. This information supports environmental protection and conservation efforts.

9. Disaster response and management:

Space-based surveillance is crucial for assessing and responding to natural disasters. Satellite imagery helps identify affected areas, assess damage, plan relief efforts, and monitor recovery progress.

10. Scientific research:

Satellites contribute to scientific research by providing data for studies in areas such as atmospheric science, oceanography, geology, and climate change. Instruments on satellites capture valuable information for understanding Earth's processes.

11. Commercial and industrial applications:

Commercial entities use space-based surveillance for applications such as monitoring infrastructure, conducting geological surveys, and supporting activities in industries like agriculture, forestry, and mining.

LIVE MONITORING – CHALLENGES

Several space exploration facilities have a dedicated control room with operators, set up for live monitoring of CCTV and other cameras. However, live monitoring comes with its own set of challenges of video blindness, poor attention span, boredom, operator bias, false alerts, and so on.

Moreover, these cameras continuously capture and record humungous amounts of video data. It therefore becomes a daunting task for the operators to review and analyse this data whenever the need arises. Thus, it may be noted that benefits from video surveillance systems can accrue only when they are used optimally, suggestions for which are enumerated further on, in this document.

COMPLIANCE - GENERAL

Conformity or compliance in any organization means adherence to laws and/or rules and regulations, various standards, as well as data storage and security requirements as laid down by government bodies, governing bodies of the respective industry, or the management of the organization. When an organization complies with the requirements mandated by government and/or governing bodies, then it is termed as ‘regulatory compliance’ which enables the organization to run in a legal and safe manner.

COMPLIANCE - AUDITS

Several organizations carry out compliance audits on a regular basis to avoid the potential consequences of non-compliance. A compliance audit examines how well an organization adheres to compliance requirements.
Some organizations use video surveillance to monitor compliance issues and audit recorded video footage from time to time for

investigating and preventing compliance issues. Auditing video provides actionable insights on the level of compliance within the organization.

AUTOMATED SOFTWARE – WHY THEY WILL NOT WORK IN ISOLATION

In the wake of the Christchurch shooting incident, several high-profile places of worship considered deploying gun detection technology. However, there are concerns about its efficacy, since it may not be able to detect all types of weapons, or the perpetrator could still create damage before being detected. Similarly, automated systems like video analytics, AI/ML can only detect what they have been programmed for. What about the rest? Again, these technologies are prone to triggering huge amounts of false alarms. Also, since the permutation combinations of exceptions can be vast and varied, it becomes almost impossible to automate every kind of exception. Facial recognition technology also raises ethical and privacy concerns, and has been found to produce inaccurate results, especially for certain ethnic groups. Therefore, experts suggest that while automated technologies will continue to grow, human intervention and intelligence will still be necessary to verify alerts and ensure their efficacy.

"CCTV AND OTHER FORMS OF VIDEO SURVEILLANCE ARE NOT ENOUGH – WE MAKE IT WORK FOR YOU"

While it is not being suggested that optimal usage of video surveillance can cure all issues, several issues of the following kind can be addressed by doing just a little 'more' with respect to making the optimal use of video surveillance systems:

- Intrusions, especially by animals
- Vandalism
- Tampering of equipment
- Recces/suspicious movements/activities
- Staff negligence
- Insider job/security lapses
- Accidents/Causes of potential accidents
- Unauthorized/unlawful activities/visitors
- Inattentive staff (e.g. guard sleeping)
- Fraud/loss/corruption/theft
- Potentially hazardous material
- Compliance issues
- Housekeeping issues
- Issues with female staff
- Cameras/recorder malfunctions

So, what is the 'more' that needs to be done?

1) AUDIT CCTV AND OTHER SURVEILLANCE VIDEO FOOTAGE DAILY AS A STANDARD OPERATING PROCEDURE

'Auditing' means 'seeing' what the cameras 'saw'. Auditing of CCTV and other surveillance video footage should be done daily (continuous investigation) to identify potential issues and threats. Auditing is a dedicated and systematic process that helps address challenges related to

live monitoring and alert-based systems. Auditing helps in evaluating analyzing incidents to improve existing policies, procedures, and processes. Concerned personnel should be trained to become video footage auditors, and the audit teams should be rotated to avoid complacency/collusion. Daily auditing of CCTV and other surveillance video footage can also help in adhering to the principles of Kaizen and TQM for business improvement.

2) DOCUMENT AUDIT FINDINGS/INCIDENTS

Audit findings/incidents should be documented in a standardized template to find the root cause to prevent future recurrences. Historical data of such findings/incidents can reveal patterns that can help take better informed corrective and preventive action. If all space exploration facilities report incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all stakeholders.

3) ENSURE DISASTER RECOVERY OF CCTV AND OTHER SURVEILLANCE VIDEO FOOTAGE – LIKE A 'BLACKBOX'

CCTV and other surveillance video footage must be stored at multiple locations in order to ensure that even if the recorder/storage device is stolen, destroyed or tampered with the data is never lost. Further, any backed-up data must easily be searchable and retrievable; else, it is going to be a nightmare finding the relevant video.

4) DISPLAY DYNAMIC INFORMATION AT RELEVANT PLACES

Document and display details of information that is dynamic in nature in relevant areas. For example:

1. List of authorized staff.

2. List of authorized security personnel deployed at the space exploration facility.

3. List of habitual offenders/suspects likely to visit the space exploration facility's premises (a 'Watch out' list).

5) USE A POWERFUL NEW SIGNAGE

"WE AUDIT CCTV VIDEO FOOTAGE EVERYDAY".

One size, one color, one powerful message. Across the nation.

DE-CENTRALIZED SURVEILLANCE + CENTRALIZED SURVEILLANCE = OPTIMAL RESULTS

Organizations with multiple locations struggle with centralized video surveillance due to infrastructure cost, internet bandwidth, and operator limitations. De-centralized surveillance offers higher accountability at each location and better situational awareness, leading to more chances of discovering exceptions.

CONCLUSION

"You see, but you do not observe" is a quote by Sherlock Holmes in A Scandal in Bohemia (1891, written by Sir Arthur Conan Doyle). COM-SUR makes 'observation' far effortless and effectual leading to superior results.

"Cameras don't lie" - but how will you know unless you 'see' what the cameras 'saw'? Audit video - why suffer!

Get award-winning COM-SUR now. Don't wait for things to go wrong!