comsur™

the missing piece of CCTV

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"SEE WHAT THE CAMERA SAW"

THE FOOTAGE WHISPERER

'BETTER' AI VIA DAILY AUDITS
NO MORE DATA WALL

100+ TOPICS - AIRPORTS TO ZOOS

GAUTAM D. GORADIA

UTILITY VALUE OF COM-SUR™ FOR WATERFRONTS

WELCOME

AUDIT HOURS OF FOOTAGE IN MINUTES FIND OUT HOW COM-SUR, THE BEST 'MOUSETRAP' WILL HELP

"Seeing is believing - See what the camera saw"

CCTV and other forms of video surveillance are common in waterfronts 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/SURVEILLANCE VIDEO FOOTAGE AUDITING, SMART BACKUP, AND STANDARDIZED INTELLIGENT INCIDENT REPORTING SOFTWARE – THE MISSING PIECE OF CCTV/SURVEILLANCE VIDEO

COM-SUR is the world's only CCTV/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/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/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.

BETTER AI VIA DAILY AUDITS – NO MORE DATA WALL

COM-SUR delivers 'BETTER' AI by transforming how organizations approach CCTV video

surveillance, auditing, and post-event analysis. By generating a constant stream of real-time, site-specific data—Continuous Frontier Data—COM-SUR ensures that AI systems are never starved for fresh, actionable insights, which is key for building custom models and addressing key challenges like data exhaustion, data walls, and data cascades that often hinder AI from performing at full potential. A key to making AI more effective lies in continuous learning from real-world incidents through daily and post-event auditing. COM-SUR enables AI models to evolve based on audit findings and incidents that go beyond real-time detection. By auditing daily footage, capturing exceptions, and feeding this data back into AI models, COM-SUR significantly improves the accuracy of AI systems, helping to reduce false alarms and enhance detection capabilities. This continuous feedback loop ensures that AI learns from what might have been missed in real-time, making it smarter and more reliable over time.
By integrating Reinforcement Learning from Human Feedback (RLHF) and Explainable AI (XAI), COM-SUR ensures that AI systems are continuously refined, transparent, responsible, and contextually aware. However, recognizing that AI can only perform tasks it's programmed for, human intelligence and intervention remain essential in verifying and refining AI outcomes. With COM-SUR, businesses can leverage AI as a powerful tool while maintaining human oversight, ensuring more accurate and informed decision-making—ultimately leading to 'BETTER' AI. This not only enhances surveillance but also paves the way for Augmented Intelligence, where AI-driven insights empower human operators while keeping them at the center of decision-making.

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 AT WATERFRONTS

1. Vulnerability to intrusions:

Waterfront areas are susceptible to intrusions, trespassing, and unauthorized activities, especially during non-operational hours.

2. Surveillance challenges:

Waterfronts often have expansive areas that are difficult to monitor effectively. Ensuring comprehensive surveillance coverage can be challenging, and blind spots may exist, making it easier for illicit activities to go unnoticed.

3. Maritime security:

Ports and waterfronts with maritime traffic face specific security challenges related to the monitoring and protection of vessels, cargo, and infrastructure. This includes the risk of smuggling, piracy, and other maritime threats.

4. Crowd management:

Waterfronts, especially popular tourist destinations, can experience large crowds, especially during events or peak seasons. Managing crowds, ensuring public safety, and preventing overcrowding are critical challenges.

5. Intrusions and attacks by marine life and wildlife:

Waterfronts, particularly in regions with a known presence of marine life, face concerns related to intrusions and potential attacks, notably by species such as sharks. Additionally, other marine animals, such as seals or sea lions, may intrude into these areas. Bird intrusions, common in waterfronts with abundant marine life, can lead to issues like droppings and noise. Further, waterfronts in areas with diverse wildlife may experience human-wildlife conflicts. This can include interactions with terrestrial animals like monkeys, raccoons, possums, or even larger mammals that venture close to human activities.

6. Emergency response:

Waterfronts are at risk of emergencies such as accidents, medical incidents, or natural disasters. Coordinating emergency response efforts, including evacuations and first aid, is essential to mitigate risks and ensure public safety.

7. Waterborne threats:

Waterfronts are exposed to unique threats related to the water itself, including the risk of drowning, accidents involving watercraft, and challenges associated with water rescue operations.

8. Infrastructure vulnerability:

Key infrastructure components such as bridges, docks, and waterfront buildings may be vulnerable to sabotage, terrorism, or vandalism. Protecting critical infrastructure is crucial for maintaining the functionality of the waterfront.

9. Compliance issues:

Waterfronts must adhere to various safety and security regulations, including those related to maritime and port security. Ensuring compliance with regulatory requirements is essential for avoiding legal issues and maintaining operational continuity.

10. Public safety concerns:

Public safety is a significant concern at waterfronts, particularly in areas with recreational activities. Ensuring that visitors are aware of safety measures, such as proper signage and lifeguard services, is crucial.

11. Lost children and kidnapping:

The risk of children getting lost or separated from their parents or guardians is a significant concern in waterfronts. Further, children are also vulnerable to kidnapping.

12. Insider threats:

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

13. 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.

USE OF VIDEO SURVEILLANCE AT WATERFRONTS

Most waterfronts have video surveillance covering the following areas:

- Entry and exit points
- Marinas and docks
- Boardwalks and promenades
- Public spaces and parks
- Commercial and entertainment/event venues
- Beach areas
- Transportation hubs
- Cruise terminals
- Waterfront infrastructure (such as bridges, piers, lighthouses, etc.)
- Remote or less accessible areas
- Boat launches and ramps
- Parking areas

Further, the concerned stakeholders of waterfront facilities analyse recorded CCTV video footage from time to time for investigating incidents and/or accidents, and other issues in order to corroborate evidence as well as assist Police/other Law Enforcement Agencies.

USE OF DRONES

Drones are increasingly used to monitor waterfronts due to their versatility and capability to provide aerial surveillance. Here's how drones are commonly used to monitor waterfronts:

1. Aerial surveillance:

Drones provide a unique vantage point for aerial surveillance, allowing operators to capture high-resolution images and videos of large waterfront areas. This perspective is valuable for monitoring activities, events, and overall conditions.

2. Rapid deployment:

Drones can be rapidly deployed to specific locations along the waterfront, providing quick response capabilities. This agility is crucial for monitoring dynamic situations, events, or emergencies in real-time.

3. Patrolling and reconnaissance:

Drones are used for patrolling and reconnaissance along the waterfront. They can cover expansive areas efficiently, identifying potential security threats, monitoring crowds, and assessing the overall situation.

4. Monitoring waterborne activities:

Drones are employed to monitor waterborne activities, including boats, ships, and water

sports. This includes surveillance of vessels entering or leaving ports, ensuring compliance with maritime regulations and enhancing maritime security.

5. Emergency response:

In emergency situations such as search and rescue operations or water-related incidents, drones provide a rapid and efficient means of assessing the situation. They can cover large areas quickly, aiding in locating individuals in distress.

6. Environmental monitoring:

Drones equipped with specialized sensors can be used for environmental monitoring along waterfronts. This includes assessing water quality, detecting pollution, and monitoring changes in the natural habitat.

7. Infrastructure inspection:

Drones are employed for inspecting waterfront infrastructure, including bridges, piers, and coastal structures. They provide a cost-effective and efficient way to assess the condition of structures without the need for manual inspections.

8. Security and surveillance:

Drones enhance security surveillance by providing a bird's-eye view of critical areas. They can be used to monitor entry points, access gates, and other vulnerable areas to detect and deter potential security threats.

9. Crowd monitoring at events:

During events along the waterfront, drones assist in crowd monitoring. They capture aerial views of large gatherings, ensuring crowd safety, and assisting event organizers in managing the flow of people.

10. Regulatory compliance:

Drones contribute to regulatory compliance by monitoring and enforcing maritime regulations, safety protocols, and adherence to local laws along the waterfront.

11. Tourism and marketing:

Drones capture stunning aerial footage that can be used for tourism promotion and marketing waterfront attractions. This visual content showcases the beauty of the waterfront and encourages tourism.

12. Training and simulation:

Drones are utilized for training purposes, simulating emergency scenarios or security drills. This aids in preparing security personnel for various situations and enhancing their response capabilities.

LIVE MONITORING – CHALLENGES

Some waterfront 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.

"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:

- Recces/suspicious movements/activities

- Crowd management issues

- Unattended children

- Kidnapping/kidnapping attempts

- Unruly staff/security guards/visitors

- Accidents/Causes of potential accidents

- Potential causes of fires

- Housekeeping issues

- Violence

- Vandalism

- Staff negligence

- Inattentive staff (e.g. guard sleeping)

- Insider job/security lapses

- Unauthorized/unlawful activities/visitors

- Loss/theft

- Intrusions, especially by animals and marine life

- Unclaimed/unattended objects

- Issues with female staff or visitors
- 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 stakeholders of waterfront facilities (including amusement parks) report incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all waterfront facilities worldwide.

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 waterfront facility.

3. List of habitual offenders/suspects likely to visit the waterfront facility (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.

NEW SKILL – 'CCTV VIDEO FOOTAGE AUDITOR'

In a groundbreaking move, the Ministry of Skill

Development of India has established National Occupational Standards for the crucial skill of CCTV Video Footage Auditing. The Ministry of Education has also introduced a course to teach this skill to students in grades 11 and 12. This initiative will not only create new job opportunities and business ventures for those seeking a fresh career path but also for retirees from both the armed forces and the private sector. Additionally, this skill will help activate the millions of CCTV cameras currently underutilized, bringing them out of 'sleep mode' and enhancing their effectiveness.

CONCLUSION

"You see, but you do not observe"—a famous quote by Sherlock Holmes in A Scandal in Bohemia (1891, by Sir Arthur Conan Doyle)—perfectly illustrates the need for human insight in surveillance. While computers can 'see,' it is human observation that truly interprets and acts on what is seen. COM-SUR simplifies and enhances this critical process, leading to more effective and insightful results.

"Cameras don't lie"—but how will you know unless you 'see' what the cameras 'saw'? Don't wait for things to go wrong. Start auditing your CCTV footage with award-winning COM-SUR today.

In closing, we present three guiding principles that will revolutionize video surveillance:

1. Auditing is fundamental—everything else is peripheral.

2. Cameras have lenses—humans have eyes.

3. Let’s make cameras ‘accountable.’