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UTILITY VALUE OF
COM-SUR™ FOR DRONES
WITH SPECIAL REFERENCE
TO UAVs (UNMANNED
AERIAL VEHICLES)

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"](#)

Drone (UAV) monitoring and surveillance is commonly used in several industry verticals, but footage is often only reviewed reactively. Our company realized this problem early-on and has developed the world's only drone (UAV) video footage auditing software that encourages daily auditing of drone (UAV) footage, filling the gap for a complete "workflow". The software works with existing drone (UAV) cameras, 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.

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 image 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 images, 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.

AREAS WHERE DRONES/UAVs (UNMANNED AERIAL VEHICLES) ARE USED

1. Defence:

Drones (UAVs) are used in surveillance and reconnaissance missions for the purposes of counterterrorism and counter insurgency operations as well as border security.

2. Law enforcement:

Drones (UAVs) are used to track criminal and illegal activities, monitor vehicular traffic, as well as monitor large crowds and rallies in order to ensure public safety.

3. Disaster management:

Drones (UAVs) are used to monitor areas that are vulnerable to natural disasters such as earthquakes, floods, landslides, etc. as well as assisting search and rescue operations by looking out for people and/or animals who may be trapped due to the same.

4. Agriculture:

Drones (UAVs) are used to monitor daily farming activities, crop growth as well as issues with respect to irrigation, soil variation, pests, and fungal infestations.

5. Construction:

Drones (UAVs) are used to monitor the progress of construction projects, occupational safety and health and compliance issues, as well as identifying potential issues related to construction.

6. Industrial asset inspection:

Drones (UAVs) are used to carry out inspections of industrial assets that are otherwise inaccessible to a human inspector.

7. Real estate:

Drones (UAVs) are used for aerial photography of real estate for the purpose of marketing. They are also used to carry out inspection and survey of real estate in order to identify any potential issues.

8. Oil and gas:

Drones (UAVs) are used to carry out 'remote visual inspection' of structures, equipment, and components that are otherwise inaccessible to a human inspector, as well as to monitor occupational health and safety and compliance issues.

9. Power:

Drones (UAVs) are used to carry out inspection of power infrastructure as well as to monitor and prevent issues such as power theft, vandalism, and attacks.

10. Mining:

Drones (UAVs) are used for surveying and mapping of mining landscapes as well as to monitor mining activities and occupational health and safety and compliance issues.

11. Insurance:

Drones (UAVs) are used for aerial site assessments of properties that enable owners to seek a reduced risk profile, which in turn helps in getting a discount on insurance premium. Besides this, UAVs are also used in the claims adjudication process in order to prevent any insurance fraud.

12. Wildlife:

Drones (UAVs) are used to monitor forests especially with respect to endangered species and poachers, and any other suspicious activities.

HOW DRONES (UAVs) ARE USED FOR MONITORING AND SURVEILLANCE

Drones (UAVs) are outfitted with cameras primarily for the purpose of providing a visual overview of areas that are inaccessible or dangerous for human beings. Generally, live video feed from a drone (UAV) is monitored from the respective console by the person who is remotely piloting the drone (UAV). Further, in case of multiple drones (UAVs), especially those that are used for surveillance and reconnaissance purposes by the defence or law enforcement agencies, live video feed from these drones (UAVs) is monitored from a dedicated control room with operators.

Generally, drones (UAVs) capture videos of their sorties. However, some drones also capture still images. These videos and still images are usually stored in an external storage device installed in

the drone (UAV). At the end of each sortie, the respective videos and/or still images are analysed in order to gain actionable insights from the same.

Besides videos and still images, drones (UAVs) also capture specialised images called orthophotos which have their respective georeference. These orthophotos are stitched together using specialised software to create an orthomosaic, a large map-quality image with high detail and resolution. Orthomosaics have various use cases such as mapping frequently accessed locations, documenting crime scenes, assessing damage after disasters, mapping of real estate, forests, as well as agriculture. In order to analyse orthomosaics, analysts require specific skill sets.

COMPLIANCE MONITORING AND AUDITING WITH DRONES (UAVs)

Compliance monitoring and auditing is an essential process for organizations to ensure that they are adhering to legal and regulatory requirements. Drones (UAVs) equipped with cameras can be used for compliance monitoring in various industries, such as construction, mining, and manufacturing. By capturing aerial footage of work sites, drones (UAVs) can provide a comprehensive overview of operations and detect potential compliance issues. In addition, drones (UAVs) can be used for compliance audits, which involve reviewing recorded footage to assess compliance with regulations and internal policies. Drones (UAVs) can capture high-quality video and still images that can be analyzed to identify non-compliance issues, such as environmental violations, safety hazards, or unauthorized access to restricted areas. By using drones (UAVs) for compliance monitoring and auditing, organizations can improve their compliance efforts and reduce

the risk of penalties or legal action.

UNDERWATER DRONES

Underwater drones, also known as remotely operated vehicles (ROVs) or autonomous underwater vehicles (AUVs), are used for a range of purposes in underwater environments. They are utilized for exploration and research, search and rescue operations, inspection and maintenance of underwater infrastructure, environmental monitoring, filmmaking and photography, underwater archaeology, defense and security, and in the oil and gas industry. These drones enable scientists to study the ocean depths, map the ocean floor, and collect samples for research. They assist in locating and recovering objects or individuals underwater during search and rescue missions. Underwater drones also play a crucial role in inspecting and maintaining underwater infrastructure, monitoring environmental parameters, capturing underwater footage and images, documenting submerged archaeological sites, aiding in military operations, and supporting the oil and gas industry in inspections and maintenance tasks.

LIVE MONITORING – CHALLENGES

Several organizations have dedicated control room with operators, set up for live monitoring of drone (UAV) 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.

AI - HOW TO MAKE IT MORE EFFECTIVE

The solution to making AI more effective lies in continuous learning from real-world incidents through post-event auditing. COM-SUR provides exactly this capability, enabling 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, the accuracy of AI systems can be significantly improved, helping to reduce false alarms and enhance detection capabilities. Auditing ensures that AI learns from what might have been missed in real-time, allowing it to adapt to the unique requirements of different environments. Whether it's improving facial recognition accuracy or refining anomaly detection, this continuous feedback loop makes AI smarter and more reliable over time. However, it's essential to recognize that AI, like any automated technology, can only perform tasks it's programmed for. It cannot account for every possible scenario or exception, leaving certain areas outside its programmed scope. This is why human intelligence and intervention will always play a vital role in verifying and refining AI outcomes.

“DRONE CAMERAS ARE NOT ENOUGH – WE MAKE IT WORK FOR YOU”

Several issues of the following kind can be addressed by doing just a little 'more' with respect to making the optimal use of drone video surveillance systems:

- Recces/suspicious movements/activities

- Security lapses
- Violence
- Unauthorized/unlawful activities/visitors
- Accidents/Causes of potential accidents
- Loss/theft
- Unclaimed/unattended objects
- Health and safety issues
- Compliance issues
- Fraudulent insurance claims

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

1) AUDIT DRONE (UAV) VIDEO FOOTAGE DAILY AS A STANDARD OPERATING PROCEDURE

'Auditing' means 'seeing' what the cameras 'saw'. Auditing of drone (UAV) 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 drone (UAV) video footage auditors, and the audit teams should be rotated to avoid complacency/collusion. Daily auditing of drone (UAV) 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 the entire industry reports incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all stakeholders of an organization.

3) ENSURE DISASTER RECOVERY OF DRONE (UAV) VIDEO FOOTAGE – LIKE A 'BLACKBOX'.

Drone (UAV) 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 border areas that are potential points for enemy intrusion.
2. List of structures of an oil and gas or a power plant that need repairs and/or maintenance.
3. List of habitual offenders/suspects likely to visit an organization's premises (a 'Watch out')

list).

IMAGERY INTELLIGENCE (IMINT) – HOW COM-SUR COMPLEMENTS IMINT INITIATIVES

IMINT, short for Imagery Intelligence, is a critical defense intelligence discipline that leverages imagery from a variety of sources, including satellites, aerial photographs, and drones (UAVs). Its primary purpose is to identify and assess objects and entities within these images.

Click the link below to read a short paper on how COM-SUR complements IMINT initiatives:

[https://comsur.biz/How_COM-SUR_complements_IMINT_\(Imagery_Intelligence\)_initiatives_-_Template_no._5.54.pdf](https://comsur.biz/How_COM-SUR_complements_IMINT_(Imagery_Intelligence)_initiatives_-_Template_no._5.54.pdf)

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.

AI WHERE YOU NEED IT, HI ALL THE TIME – THE AUGMENTED INTELLIGENCE MANTRA

The true power of COM-SUR lies in its ability to

seamlessly integrate AI and Human Intelligence (HI) into a cohesive, Augmented Intelligence system. With COM-SUR, AI can be leveraged when needed to enhance analysis and generate insights, while HI remains at the core of the system's operation, ensuring that the technology is always accessible, intuitive, and responsive to human needs. This balance between AI and HI is what defines Augmented Intelligence, making COM-SUR a revolutionary tool that elevates the entire surveillance industry.

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.'**