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the missing piece of CCTV

THE FOOTAGE WHISPERER

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UTILITY VALUE OF
COM-SUR™ FOR
FORESTS

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"](#)

Several forms of video surveillance are common in forests world over, but footage is often only reviewed reactively. Our company realized this problem early-on and has developed the world's only CCTV/other surveillance video footage auditing software that encourages daily auditing (hours in minutes) of 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/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.

CHALLENGES FACED BY FORESTS

1. Illegal logging:

Unauthorized and unsustainable logging activities pose a significant threat to forests. It results in deforestation, habitat destruction, and loss of biodiversity.

2. Wildlife poaching:

Poaching of endangered species for their body parts, fur, or as trophies can disrupt ecosystems and lead to the decline of vulnerable animal populations.

3. Forest fires:

Uncontrolled wildfires, whether natural or human-induced, can destroy large areas of forests, leading to the loss of vegetation, habitat destruction, and the release of carbon into the atmosphere.

4. Invasive species:

The introduction of invasive plant species,

pests, or diseases can have a detrimental impact on native flora and fauna, disrupting natural ecosystems and reducing biodiversity.

5. Land use changes:

Conversions of forests into agricultural land, urban areas, or other land uses contribute to deforestation and habitat fragmentation, impacting the overall health of ecosystems.

6. Climate change:

Changes in temperature, precipitation patterns, and extreme weather events associated with climate change can stress forest ecosystems, affecting the distribution of plant and animal species.

7. Human encroachment:

Unauthorized settlements, agriculture, and infrastructure development can encroach upon forested areas, leading to habitat loss, increased human-wildlife conflict, and degradation of ecosystem services.

8. Air and water pollution:

Pollution from industrial activities, agriculture, and urban areas can negatively impact the air and water quality in forests, affecting the health of both flora and fauna.

9. Lack of sustainable management:

Inadequate or unsustainable forest management practices, including overharvesting and poor land-use planning, can contribute to the degradation of forest ecosystems.

10. Human-wildlife conflict:

As human activities encroach upon wildlife

habitats, conflicts between humans and wildlife may arise, particularly when animals damage crops or pose threats to human safety.

11. Lack of public awareness:

Limited awareness about the importance of forests and sustainable practices may contribute to destructive activities. Public education and awareness campaigns are essential to promote conservation efforts.

12. 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 FORESTS

Here are the various types of video surveillance deployed at forests:

1. Fixed cameras:

a. Trail cameras: These are rugged, weather-resistant cameras commonly used for wildlife monitoring. They are often placed along animal trails in forests to capture images or videos of wildlife activity.

Camera traps, a form of trail cameras, are motion-activated devices equipped with cameras and, in some cases, additional sensors.

They are widely used in ecological and wildlife research, to capture images or videos of animals and their behavior.

b. Pan-Tilt-Zoom (PTZ) cameras: These cameras can be remotely controlled to pan, tilt, and zoom, providing a wide range of coverage. They are useful for monitoring large areas.

2. Aerial surveillance:

a. Unmanned Aerial Vehicles (UAVs or Drones): Drones equipped with cameras are used to monitor large forest areas from above, providing a unique perspective. They are useful for rapid assessments, identifying potential threats, and mapping.

b. Satellite Imagery: While not exactly video surveillance, satellite imagery provides a broader view of large, forested regions. It helps monitor changes in land cover, detect deforestation, and assess the overall health of forests.

3. Mobile cameras:

a. Vehicle-mounted cameras: Cameras mounted on vehicles are driven through forests to monitor different areas efficiently.

b. Body cameras: Forest rangers or personnel may wear body cameras for on-the-ground surveillance, documenting their activities and encounters.

4. Underwater cameras:

In cases where water bodies are present within or near forests, underwater cameras are used to monitor aquatic life and activities.

5. Thermal cameras:

Thermal cameras play a vital role in detecting forest fires. These cameras are designed to detect heat signatures associated with intense fires. They are commonly used in fixed positions, mounted on drones, or integrated into surveillance systems to enhance early detection capabilities.

LIVE MONITORING – CHALLENGES

In some cases, there is a dedicated control room with operators, set up for live monitoring of 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.

“VIDEO SURVEILLANCE IS 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:

- Animal welfare issues
- Illegal logging
- Wildlife poaching
- Forest fires
- Invasive species of plants and animals
- Issues due to climate change
- Recces/suspicious movements/activities
- Human encroachment

- Unauthorized/unlawful activities/visitors
- Potentially hazardous material
- Cameras/recorder malfunctions

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

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

'Auditing' means 'seeing' what the cameras 'saw'. Auditing of 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 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 all forests report incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all forests worldwide.

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

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) DOCUMENT AND SHARE DYNAMIC INFORMATION

Document and share details of information that is dynamic in nature in. For example:

1. List of habitual offenders/suspects likely to visit the forest (a 'Watch out' list).
2. List of wildlife sightings in the respective areas of the forest (in order to track animal movements).
3. List of invasive species of plants and animals.

5) USE A POWERFUL NEW SIGNAGE

"WE AUDIT CCTV VIDEO FOOTAGE EVERYDAY".

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

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.'**