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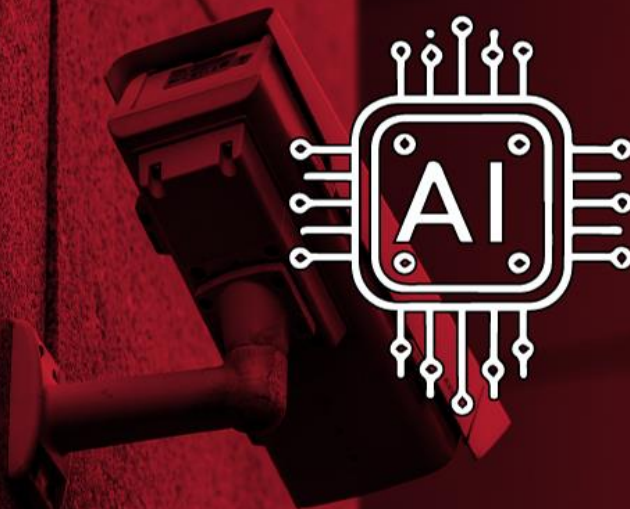
the missing piece of CCTV

"SEE WHAT THE CAMERA SAW"

THE FOOTAGE WHISPERER

AI

'BETTER' AI VIA DAILY AUDITS
NO MORE DATA WALL

100+ TOPICS - AIRPORTS TO ZOOS

GAUTAM D. GORADIA

UTILITY VALUE OF COM-SUR™ FOR ANIMAL SLAUGHTERHOUSES

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 surveillance is common in animal slaughterhouses 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 VIDEO FOOTAGE AUDITING, SMART BACKUP, AND STANDARDIZED INTELLIGENT INCIDENT REPORTING SOFTWARE – THE MISSING PIECE OF CCTV

COM-SUR is the world's only CCTV 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 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 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 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 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 ANIMAL SLAUGHTERHOUSES

1. Animal welfare concerns:

Ensuring the welfare of animals throughout the slaughter process is a critical issue. Challenges can arise in handling and restraining animals, preventing stress or injuries as well as animal cruelty, and complying with regulations to minimize pain and suffering.

2. Unauthorized access:

Unauthorized individuals gaining access to the facility can pose a significant security risk. This includes trespassers, activists, or even potential thieves who may attempt to disrupt operations, cause harm, or steal valuable equipment. Perpetrators often conduct pre-operational surveillance of the target area,

making it important to detect suspicious activity during this phase to prevent an incident.

3. Employee safety:

The work environment in a slaughterhouse can be hazardous, with heavy machinery, sharp tools, and the potential for slips, trips, and falls. Adequate safety protocols, training, and protective equipment are essential to protect employees from accidents and injuries.

4. Food safety and contamination risks:

Maintaining hygiene and preventing contamination are crucial in slaughterhouses to ensure food safety. Proper sanitation, waste management, and preventing cross-contamination between different areas are constant challenges.

5. Equipment and machinery failures:

Malfunctioning or inadequate maintenance of equipment and machinery can result in operational disruptions, production delays, and safety risks. Regular inspections and maintenance protocols are necessary to prevent equipment failures.

6. Fire hazards:

The presence of flammable materials, electrical equipment, and heating systems in animal slaughterhouses can increase the risk of fires.

7. Security breaches and theft:

Animal slaughterhouses may store valuable equipment, livestock, and processed meat products, making them potential targets for theft or vandalism.

8. Compliance issues:

Animal slaughterhouses must comply with various local, regional, and national regulations related to animal welfare, food safety, environmental standards, and worker safety. Ensuring ongoing compliance with these regulations is a continuous challenge.

9. Environmental Impact:

Animal slaughterhouse operations generate waste, such as wastewater, animal by-products, and packaging materials. Proper waste management, including treatment and disposal, is crucial to prevent environmental pollution and meet regulatory requirements.

10. Insider threats:

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

11. 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 ANIMAL SLAUGHTERHOUSES

Most animal slaughterhouses have video surveillance covering the following areas:

- Entry and exit points

- Animal holding areas

- Stunning and killing floors

- Processing areas

- Storage and loading areas

- Employee areas

- Areas containing critical infrastructure such as refrigeration units, water supply systems, electrical control rooms

- Waste management and disposal areas

Further, the concerned stakeholders at animal slaughterhouses generally need to review and 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/law enforcement agencies.

USE OF THERMAL CAMERAS

Thermal cameras use heat signatures to detect objects or individuals. Here are some instances where thermal cameras may be employed:

1. Animal Welfare Monitoring:

Thermal cameras help assess the body temperature of animals, which can be an indicator of their health and well-being. Monitoring temperature variations in holding areas or during transport can help identify any potential signs of stress, illness, or injury in the animals.

2. Heat Stress Detection:

Animal slaughterhouses often have areas where animals are held prior to processing, which can become hot and lead to heat stress. Thermal cameras can detect abnormal temperatures in these areas, alerting personnel to take necessary actions to prevent heat-related issues and ensure animal welfare.

3. Monitoring equipment and machinery:

Thermal cameras can be used to monitor the temperatures of machinery and equipment, such as boilers, heating systems, or cooling units. This helps identify potential malfunctions, overheating, or energy inefficiencies that may require maintenance or adjustment.

4. Fire detection and prevention:

Thermal cameras are effective in detecting heat sources and anomalies that could indicate the presence of a fire or smouldering material. By monitoring areas where fires are more likely to occur, such as electrical panels, storage areas, or boiler rooms, thermal cameras can provide early warning to prevent or mitigate fire incidents.

5. Security and intrusion detection:

Thermal cameras can assist in detecting human or animal intrusions in restricted or sensitive areas of animal slaughterhouses, such as perimeter fences or secure zones. They can

differentiate between heat signatures of living beings and the surrounding environment, enabling security personnel to respond promptly to potential security breaches.

REMOTE VIDEO AUDITING (RVA)

Some animal slaughterhouses implement remote video auditing (RVA) as part of their monitoring and compliance practices. Remote video auditing involves the use of video technology to conduct remote inspections and audits of various processes and areas within the slaughterhouse. Here are some purposes for which animal slaughterhouses carry out remote video auditing:

1. Animal welfare monitoring:

Remote video auditing allows independent auditors or designated personnel to remotely review video footage to assess animal welfare practices during the handling, stunning, and slaughter processes. They can observe and evaluate the compliance of slaughterhouse staff with animal welfare guidelines and regulations.

2. Compliance verification:

Remote video auditing enables third-party auditors or internal compliance teams to verify that standard operating procedures (SOPs), safety protocols, and regulatory requirements are being followed consistently throughout the slaughterhouse, such as the proper use of equipment, adherence to hygiene practices, and compliance with industry standards.

3. Quality control and process improvement:

Remote video auditing is used to monitor various stages of the processing lines, including cleaning, cutting, trimming, and packaging. By remotely reviewing video footage, supervisors or quality control personnel identify areas for improvement, assess product quality, and ensure compliance with food safety standards.

4. Training and education:

Remote video auditing can serve as a training tool for new employees or as a means of continuous education for existing staff. Video footage can be used to highlight best practices, demonstrate correct procedures, and identify areas where further training or improvement is needed.

5. Crisis management and incident investigation:

In the event of a safety incident, food contamination event, or animal welfare violation, remote video auditing provides a means to review video footage and conduct investigations remotely, thereby helping in identifying the root cause, assessing responsibility, and taking appropriate corrective actions.

6. Documentation and records:

Remote video auditing allows for the creation of a documented record of processes and activities within the slaughterhouse. This video documentation is invaluable for regulatory compliance, internal reporting, and external audits.

LIVE MONITORING – CHALLENGES

Some animal slaughterhouses have a dedicated control room with operators, set up for live monitoring of CCTV 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 CCTV video footage from time to time for investigating and preventing compliance issues. Auditing CCTV provides actionable insights on the level of compliance within the organization.

"CCTV 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 (which include animal cruelty)

- Biosecurity threats

- Occupational safety and health issues

- Productivity issues

- Equipment malfunction/other technical issues

- Recces/suspicious movements/activities

- Staff negligence

- Insider job/security lapses

- Unauthorized/unlawful activities/visitors

- Fraud/loss/corruption/theft

- Housekeeping issues

- Violence and vandalism

- Intrusions, especially by animals

- Inattentive staff (e.g. guard sleeping)

- Unruly staff/visitors/outside workers /security guards

- Unclaimed/unattended objects

- Issues with female staff or visitors

- Cameras/recorder malfunctions

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

1) <u>AUDIT CCTV VIDEO FOOTAGE DAILY</u>
<u>AS A STANDARD OPERATING PROCEDURE</u>

'Auditing' means 'seeing' what the cameras 'saw'. Auditing of CCTV 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 CCTV video footage auditors, and the audit teams should be rotated to avoid complacency/collusion. Daily auditing of CCTV footage can also help in adhering to the principles of Kaizen and TQM for business improvement.

2) <u>DOCUMENT AUDIT FINDINGS/INCIDENTS</u>

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 animal slaughterhouses report incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all animal slaughterhouses.

3) <u>ENSURE DISASTER RECOVERY OF CCTV VIDEO</u>
<u>FOOTAGE – LIKE A 'BLACKBOX'.</u>

CCTV video footage must be stored at multiple locations in order to ensure that even if the recorder 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) <u>DISPLAY DYNAMIC INFORMATION AT</u>
<u>RELEVANT PLACES</u>

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 animal slaughterhouse.

3. List of potential suspects/miscreants likely to visit the animal slaughterhouse's premises (a 'Watch out' list).

5) <u>USE A POWERFUL NEW SIGNAGE</u>

"WE AUDIT CCTV VIDEO FOOTAGE EVERYDAY".

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

<u>DE-CENTRALIZED SURVEILLANCE +</u>
<u>CENTRALIZED SURVEILLANCE = OPTIMAL</u>
<u>RESULTS</u>

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.'