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**sur**

the missing piece of CCTV

# THE FOOTAGE WHISPERER

# "SEE WHAT THE CAMERA SAW"

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GAUTAM D. GORADIA



UTILITY VALUE OF  
COM-SUR™ FOR  
POLICE/OTHER LAW  
ENFORCEMENT  
AGENCIES AND PRISONS

## 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 commonly used by Police/other Law Enforcement agencies as well in prisons 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.

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.

### DELUGE OF INFORMATION

Videos, photos, and images are an integral part of policing across the world. With the proliferation of surveillance videos from diverse sources such as CCTV, body worn cameras, drones/UAVs, mobile phones etc., there is a deluge of this medium of 'information'. Trillions of hours of surveillance video are generated on a daily basis across the world. While such humongous amount of rich visual 'information' will continue to grow, there is neither a standardized 'workflow', nor are there standardized tools being used by Police/other Law Enforcement Agencies to ensure that not only can this 'information' be efficiently converted into actionable intelligence; but that, it can also be stored smartly, and shared in a standardized manner.

### CHALLENGES THAT POLICE/LAW ENFORCEMENT AGENCIES NEED TO ADDRESS

#### 1. Crimes:

Police/other Law Enforcement Agencies are tasked with maintaining public safety and

combating criminal activity such as thefts, robberies, murders, kidnappings, frauds, crimes on women and children, illegal movement of weapons, drugs, contraband, and people, and so on. They face the risk of encountering violent individuals, armed offenders, and dangerous situations during their operations.

#### 2. Terrorism:

Police/other Law Enforcement Agencies need to address the threat of terrorism, both domestically and internationally. This involves intelligence gathering, risk assessment, prevention, and response to acts of terrorism, including attacks on critical infrastructure, public spaces, or high-profile events. 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. Organized crime:

Dealing with organized criminal networks involved in activities such as drug trafficking, human trafficking, money laundering, and cybercrime is a significant challenge for Police/other Law Enforcement Agencies. These criminal organizations often have extensive resources, sophisticated networks, and the ability to adapt to law enforcement tactics.

#### 4. Custodial issues:

Police/other Law Enforcement Agencies have to constantly deal with custodial issues such use of excessive force/mistreatment of detainees, human rights violations, abuse, violence, custodial deaths, escape, and so on.

#### 5. Officer safety:

Ensuring the safety of Police/Law Enforcement

officers is a paramount concern. They face the risk of injury or harm while carrying out their duties, particularly in high-crime areas or during high-risk operations.

#### 6. Insider threats:

Police/other Law Enforcement Agencies have to deal with insider threats from disgruntled officers or even unwitting staff who fail to follow proper security and safety measures.

#### 7. 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.

#### CHALLENGES FACED BY PRISONS

Prisons and other correctional facilities face a plethora of issues such as overcrowding, inmate violence, abuse, inmate suicides/self-harm, insider jobs/security lapses, inmate escape, inmate access to weapons, drugs, mobile phones, health and safety issues, human rights violations, and so on.

#### HOW COMMUNITY POLICING HELPS POLICE/LAW ENFORCEMENT AGENCIES ENHANCE HOMELAND SECURITY

Community policing involves Police/other Law Enforcement Agencies/other Government

Agencies proactively engaging with citizens to prevent potential crimes and gather intelligence. This approach complements homeland security initiatives by providing Police/other Law enforcement agencies with vital information to prevent terrorist activities and other threats. Private CCTV cameras in businesses and residential complexes offer a massive opportunity for law enforcement agencies to monitor vulnerable areas and gather intelligence. Several community policing initiatives have been launched globally to monitor these cameras and thereby enhance homeland security. In this context, if every citizen audits their own CCTV footage on a daily basis, it will greatly reduce policing burden and save governments huge amounts of funds.

#### COVID-19 PANDEMIC

#### Effect on Police/other Law Enforcement Agencies

The COVID-19 global pandemic significantly impacted the operations of police forces worldwide. Police personnel took on additional responsibilities which entailed ensuring public compliance to COVID-19 guidelines/advisories laid down by relevant authorities, spreading awareness about hygiene and other health and safety issues, inspecting patients who have been isolated or were in quarantine, assisting in contact tracing activities, and ensuring access to medicines and other essential items/services to the needy. This additional work burden has amplified the already existing occupational stress faced by police personnel. Further, several police personnel also had to deal with the peril of contracting the COVID-19 virus themselves, with several having lost their lives.

### Effect on prisons

The COVID-19 global pandemic severely impacted prisons and other correctional facilities worldwide. Several outbreaks were reported. The issues of overcrowding and lack of sanitation measures in many prisons led to an increased risk of contracting the virus as compared to the general population.

### USE OF VIDEO SURVEILLANCE BY THE POLICE/OTHER LAW ENFORCEMENT AGENCIES AS WELL AS AT POLICE STATIONS AND PRISONS AND CORRECTIONAL FACILITIES

Police/other Law Enforcement Agencies use video surveillance for the following purposes:

1. Determining whether the reported offence/incident has occurred.
2. Determining the time and place of the incident.
3. Confirming/identifying suspects/perpetrators as well as victims or other third parties (as applicable).
4. Corroborating statements.
5. Observing relevant events related to the offence/incident.
6. Looking for intelligence/investigative leads.

Most police stations have video surveillance covering the following areas:

- Entry and exit points
- Lock-ups

- Rooms for police officials
- Corridors
- Lobby/reception area
- Verandas/outhouses

Further, most prisons and other correctional facilities have video surveillance covering the following areas:

- Entrances and exits (gates)
- Parking area
- Prisoner cells
- Corridors
- Visitor area
- Kitchen
- Dining area
- Recreational area
- Other areas that are deemed to be critical

Further, the authorities at Police/other Law Enforcement Agencies and prisons constantly need to review and analyse recorded video footage from time to time for investigating incidents and/or accidents, and other issues in order to corroborate evidence.

Also, to monitor areas that are remote /inaccessible where installing CCTV cameras is not feasible, as well as rallies/gatherings, drones are used.

### LIVE MONITORING – CHALLENGES

Police/Other Law Enforcement Agencies and prisons have a dedicated control room with operators, set up for live monitoring of CCTV and other cameras such as drones.

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.

### 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 at a police station, prison or other correctional facility, 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:

- Inmate violence, psychological victimization, rapes/other sexual assaults, and verbal abuse
- Import of drugs, weapons, and any other objects (like mobile phones)
- Self harm/suicide attempts
- Prison break/attempts/security breaches
- Tampering of security equipment including CCTV cameras
- Authority misconduct
- Recces/suspicious movements/collusion of prisoners.
- Unauthorized/unlawful activities/visitors
- Inattentive staff (e.g. guard sleeping)
- Human rights violations
- Compliance issues and wastage of resources
- Health and safety issues
- Thefts
- Housekeeping issues
- Issues with female staff/prisoners/visitors
- Camera/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 Police/other Law Enforcement Agencies and prisons report incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all concerned 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:

For Police stations:

1. List of history-sheeters (which includes their photos, names and other details).
2. List of missing persons (which includes their photos, names and other details).
3. List of suspected terrorists or offenders which includes their photos, names, and other details (a 'Watch out' list)

For Prisons and other Correctional Facilities:

1. List of visitors (which includes their photos, names, and contact details) expected to visit prisoners on a particular day.
2. Guard details for each jail (which includes their duty timings and their allotted position).
3. List of prisoners who need to be moved in or

out of the prison premises based on parole/furlough/case hearing/medical reason.

4. List of activities/tasks allotted to prisoners on a given day.

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.

SEVERAL AREAS WHERE COM-SUR WILL BE EXTREMELY USEFUL TO THE POLICE/OTHER LAW ENFORCEMENT AGENCIES

Investigations and forensics

Whether it is a serious incident like a terror attack, or a petty crime like chain snatching, often there is no 'direct' CCTV footage covering the incident. Therefore, in order to investigate such incidents, the Police/Other Law Enforcement Agencies have to:

1. Depend on public videos, or city CCTV surveillance cameras, if available.
2. Painfully go through hundreds/thousands of



hours of video (one by one), and put relevant videos together.

3. Share the findings with other agencies.

To solve the above problem, a very unique ability that COM-SUR offers is to read 'extracted' frames from recorded videos and display multiple videos simultaneously in a 'dashboard' view (side by side), duly frame-synced. This makes it very easy for the police/other Law Enforcement Agencies to 'join the dots'.

Another wonderful utility that COM-SUR offers is the huge ease of aggregating relevant scenes from multiple video sources and quickly converting them into reports using PowerPoint. With respect to forensics, COM-SUR offers immense flexibility, color filters, zooming, panning and cropping of relevant areas without having to toggle between different software.

#### Law and order maintenance

Law and order is the first priority of a police force, especially during events like VIP visits, sports, religious, and cultural events, rallies, etc. CCTV cameras, body worn cameras, drones etc. are key video inputs that are deployed to manage such events with video feeds being viewed live in mobile surveillance units. This activity is carried out both before (for the purpose of sanitization) and during such events.

With COM-SUR, the Police/other Law Enforcement Agencies can easily analyse such surveillance video minutely at regular intervals, ensuring that what may have been missed-out during live monitoring, is discovered during the analysing activity. This can help in:

1. Discovery of recesses.
2. Better crowd control.
3. Quick action in case of an incident; example: bomb blast, stampede, etc.
4. No chance of loss of evidence in case the recording device is destroyed/stolen/fails/is tampered with.
5. Debriefing.

#### Command and control centres

While command centres are a very crucial part of centralized city surveillance, they come with some typical problems such as:

- (a) Operator issues like poor attention span, video blindness, fatigue, boredom, lack of situational awareness, bias, and false alerts.
- (b) Lost video feeds.
- (c) 'Refresh' rate of cameras.
- (d) Difficulty in extraction of video and the ability to easily create a 'story' that depicts multiple cameras.
- (e) No standardized 'next steps'.

With COM-SUR, the police/other Law Enforcement Agencies can:

1. Audit hours of video in minutes. Auditing at regular intervals will help them to discover exceptions that can be missed out by alert-based systems.
2. Share exceptions in standardized templates

created using PowerPoint.

3. Tag important findings to create institutional libraries for future use.

Homeland security enhanced through crowd sourced surveillance and community policing

COM-SUR encourages users of CCTV to audit their own CCTV video footage as a standard operating procedure. Regular auditing of CCTV by the public means that the Police/other Law Enforcement Agencies have more 'eyes' working for them. This enables the Police/other Law Enforcement Agencies in identifying potential threats and dangerous situations before they can occur.

Also, in case of a crime, if a standardized incident report is delivered to the Police/other Law Enforcement Agencies by the affected party in PowerPoint carrying the entire story (what, where, when, why, who, how, and the video clip), crime would get solved faster.

Super recognizers – Scotland Yard

It may not be out of place to mention that the London Metropolitan Police officially formed a team of 'Super recognisers', and assigned them to work to identify individuals whose faces are captured on CCTV. COM-SUR makes this activity very easy and efficient, including the analysis of micro-expressions and body language.

Police station management (case made out in this paper)

In the wake of the directives from the Hon'ble Supreme court of India (2005) to install CCTV cameras in all police stations across India, the angle of auditing CCTV video footage as an SOP,

would help in several issues such as preventing custodial deaths, identifying suspicious activity, as well as maintaining transparency in day to day police public interaction.

Traffic management

With COM-SUR, the police can increase revenues by better monitoring of offences, especially, when COM-SUR is installed at a command-and-control center.

Prison management (case made out in this paper)

COM-SUR will be very useful in prisons for:

1. Better prisoner monitoring and abuse prevention.
2. Continuous auditing in order to prevent regular meetings of prisoners at a particular location.
3. Creating photographic lists of prisoner information.
4. Ensuring that there are no cases of human rights violations.

Predictive policing

With COM-SUR, the Police/other Law Enforcement Agencies can gain intelligence such as what kind of incidents are taking place, on what days, time, location, and so on. This would help the Police/other Law Enforcement Agencies in predicting similar incidents that are likely to take place in the future; and take the appropriate corrective and preventive measures.

### Sharing of mugshots and other photos/images

With COM-SUR, the Police/other Law Enforcement Agencies can create standardized lists of hundreds of mug shots and other relevant photos/images with just a click for easy sharing. Since photos of the above categories are very dynamic in nature, this feature would be very useful for the Police/Other Law Enforcement Agencies to share information quickly. For example, information received on suspected terrorists or offenders to 'watch-out for', or missing persons can quickly be put together and shared at various border points etc.

### Artificial Intelligence/Machine Learning/Deep Learning

COM-SUR can be integrated with artificial intelligence, machine learning and deep learning technologies for purposes such as training data, image recognition, face recognition, pattern recognition, predictive analytics and so on. Moreover, the images created by COM-SUR will become 'relevant' training data for AI/ML/DL models, allowing for better solutions. This will help address the issue of 'hidden bias' often observed in AI/ML/DL systems which can lead to false positives.

### E-discovery of video evidence

With COM-SUR, the police/LEA can 'tag' screenshots of surveillance video in order that they can be searched and retrieved easily in the future. This would greatly help in retrieving particular incidents and comparing them with other incidents.

### Elegant, ease of use and multiple use cases

COM-SUR is elegant, completely menu driven, non-complex, easy to use, and can be mastered very quickly. COM-SUR standardizes many activities and outputs. Since COM-SUR delivers outputs in popular\_formats like PowerPoint, Word, and PDF, there is no additional learning curve.

COM-SUR can also be used by the Police/other Law Enforcement Agencies to create training material on various topics. The ease with which it creates outputs like PowerPoint makes it easy for even non-skilled staff to work with it.

### NATIONAL SERVICE - COM-SUR 'ULTIMA' (HIGHEST VERSION) IS FREE OF COST

In line with our National Service, COM-SUR 'ULTIMA' version (highest version) *per se*, is available without cost (conditions apply) on an 'as is' basis to the entire Indian Police, Para Military, and Defence Forces. The spirit of the national service is to offer a Made in India product to those forces that protect our country from internal as well as external threats.

### 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!

Finally, allow us to present three important mantras that change the landscape of video surveillance:

1. Auditing is fundamental – everything else is peripheral.
2. Cameras have lenses – humans have eyes.
3. Let's make cameras 'accountable'