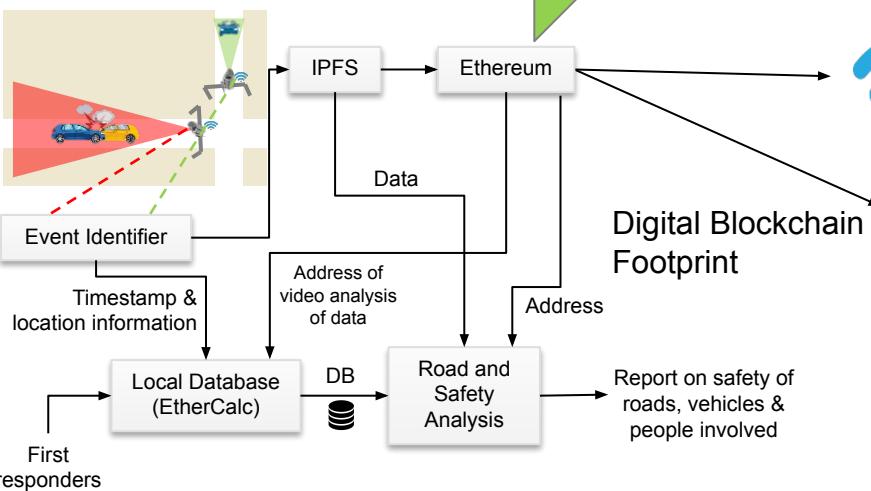


Data Generation



First responders



Camera Management - add/edit/delete cameras

Click "+" icon to add cameras; Click "-" icon to delete cameras; Click "i" icon to edit cameras; Prepopulated 4 Onvif demo cameras, 10 http/rtsp cameras and 1 iOS back facing camera.



Object Detection Video Analytics Configuration

Go to Settings->Object Detection->Model to select engine; Go to Object Filters to configure selected engine object types to detect or alarm; Turn on/off detect/alarm for each object or bulk change.



Live Streaming with Object Detection Video Analytics

Implemented FFmpeg http/rtsp player; Overlays include Logo / Camera name / detected object type and location bounding boxes / Engine name and current FPS; Raise alarms in red bounding box.



Alarm Viewer - view alarms and archive in details

Load saved alarms (green border) from IPFS/Ethereum; Metadata includes timestamp, camera name, object type and engine; Double click alarm to show in fullscreen; Select alarm (grey background color) to save.



Blockchain Alarm Storage - alarm metadata & image

Save/Delete alarm metadata and image to/from IPFS p2p distributed web; Store the hash returned from IPFS to Ethereum Test Network; Provided links to access alarms and blockchain transaction details.

Data Transmission



WIFI

Mobile Network

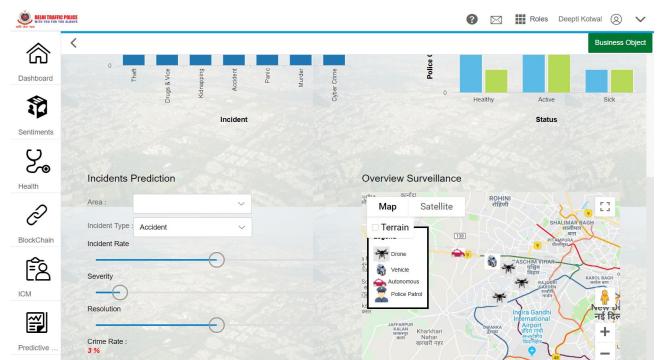
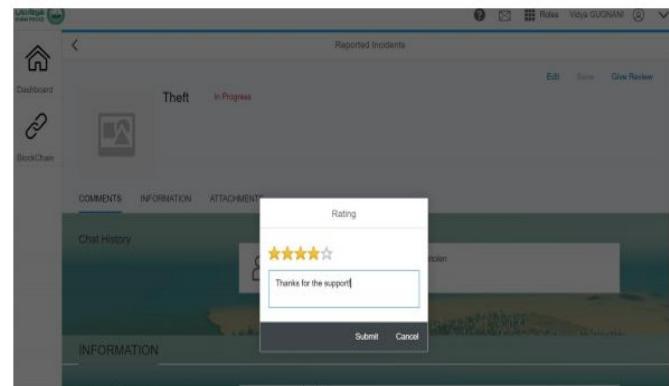
Ethercalc spreadsheet analytics

Data Processing

Verification and authorization using blockchain technology



Data Analysis



The Solution: How it works?

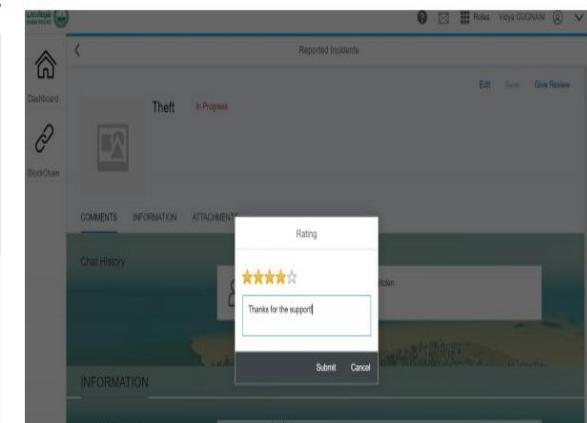
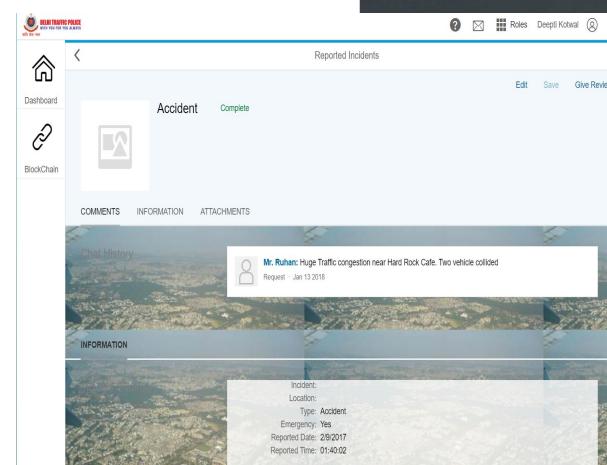
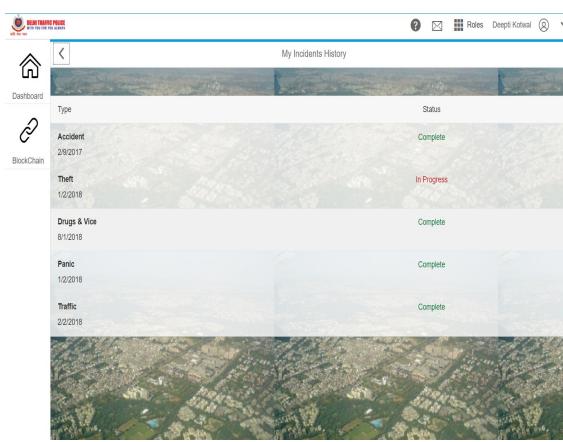
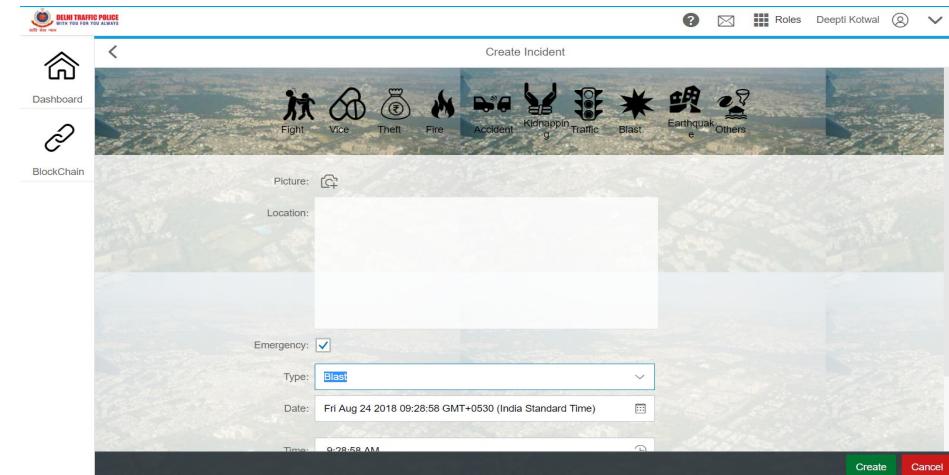
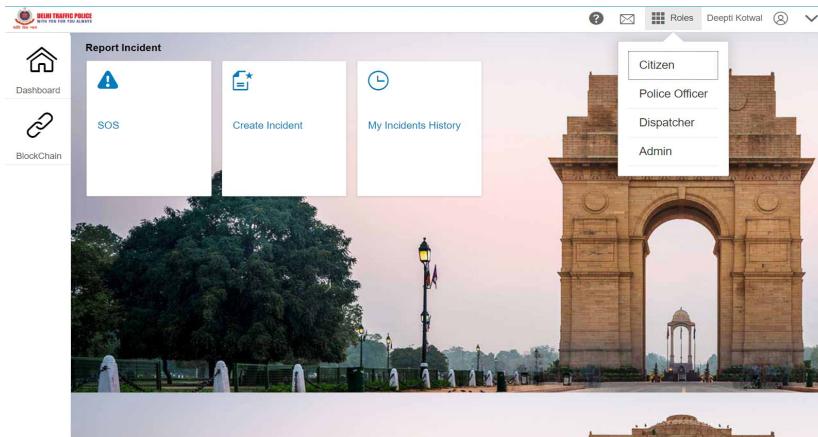
The technical solution demonstrates capabilities which are pluggable, extendable to 4 different personas :

Citizen, Police Officer, Dispatcher, Admin

Persona based Capabilities:

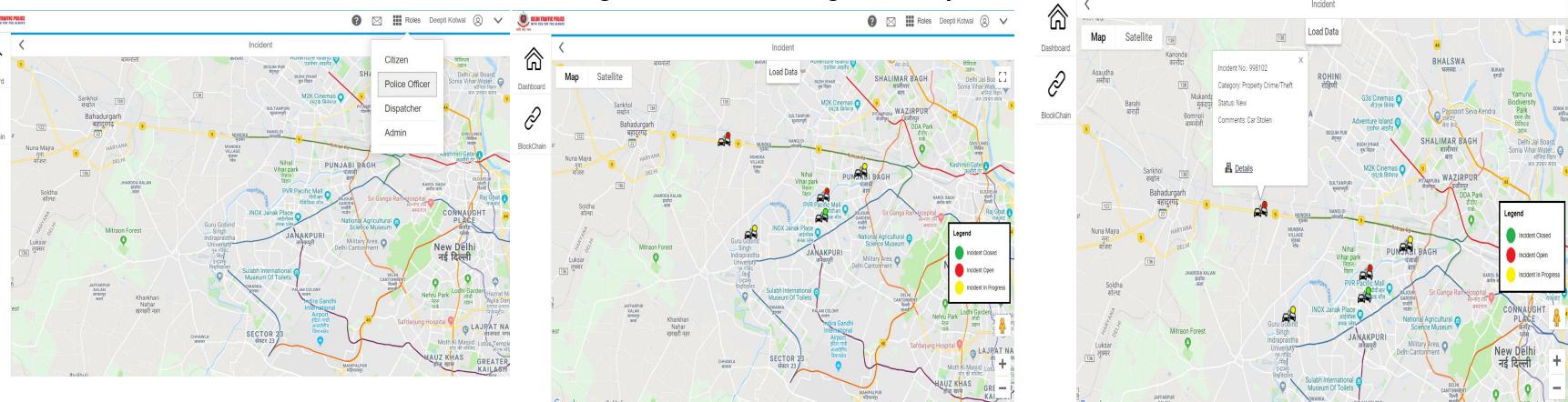
- 1) **As a citizen:** → Ability to create SOS: incident created automatically, added to ICM (Investigative Case management)
→ Create incident: Can directly create an incident/ticket on different categories.
→ Track the status of the incident (in progress/complete)/navigate to details of the same.
→ Provide feedback/view happiness review on the same.

The citizen functionalities are also made available on the mobile, which can provide live interactivity.

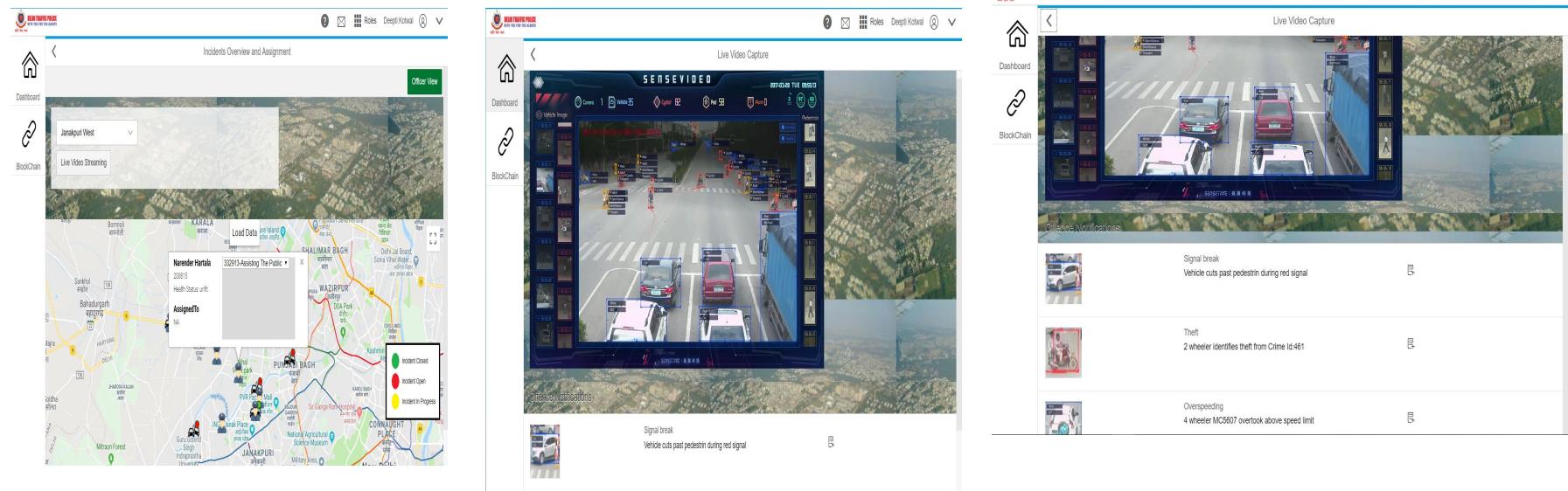


How it works?

2) As a police officer: A police officer can view incidents to which s/he is assigned. the ones new, in progress and can also upload evidence to close the same. S/he can view the same on the map and click on details to navigate further, view details, add details. All of this will be recorded in central investigative case management system



3) As a dispatcher assigning cases : Video analytics brings in capabilities of what you could understand from the vehicles/license plates and identify suspicious object/issues.



How it works?

4) As an administrator /police head: As an administrator, the police head could get complete overview of :

- Analytics of the police force, citizens
- Analytics of the incidents
- Understand social media trends.
- Health summary of the police officer

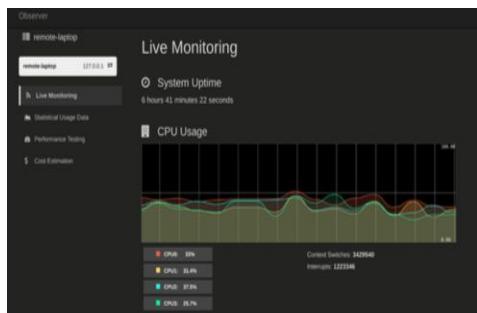
The image displays a grid of nine screenshots from a police management software, illustrating the system's features:

- Top Left:** Officer Report dashboard showing a list of officers with details like age, gender, ranking, and base location. It includes a large image of a cityscape and a sidebar with navigation icons.
- Top Middle:** Home dashboard featuring four main modules: Social Media Sentiments, Health Summary, Incidents Analysis, and Analytics. Each module has a small icon and a brief description. A sidebar on the right shows user roles: Citizen, Police Officer, Dispatcher, Admin, and the current user, Deepthi Kotwal.
- Top Right:** Personal Health & Training dashboard for Prabal Kumar, showing his profile picture, rank (Senior Inspector), and contact information. It also includes sections for Office and Health.
- Middle Left:** Sentiment Analysis dashboard showing a network graph of positive, negative, and neutral sentiments related to police officers and traffic accidents.
- Middle Middle:** Incidents Overview and Assignment dashboard, displaying a map of a city with various incident types and case records overlaid.
- Middle Right:** Incidents Analysis dashboard showing a map of the Noida area with highlighted zones for different incident types and severity levels.
- Bottom Left:** Incidents Prediction dashboard, showing bar charts for Incident Type (Traffic, Drop & Drive, Collision, Person, Motor, Other Crime) and Status (Healthy, Active, Sick).
- Bottom Middle:** Overview Surveillance dashboard, showing a map with various monitoring points and a legend for Drone, Vehicle, and Autonomous Police Patrol.
- Bottom Right:** Incidents Overview and Assignment dashboard, similar to the middle-middle one but with a different map view.

Solution Features

Vehicles become IoT devices which can connect to smartphones, take voice commands, change the user interface.

The Cloud-Connected Car Drives IoT Monetization. Real-time access to car availability and mobile connectivity enables better decisions making systems.



Built-in GPS technology useful in fleet management and tracking. Black box car tracking to be able to pre-empt and diagnose breakdowns more quickly.

Incident-based reporting & Collision detection (even when a vehicle is parked) and video footage associated with it.

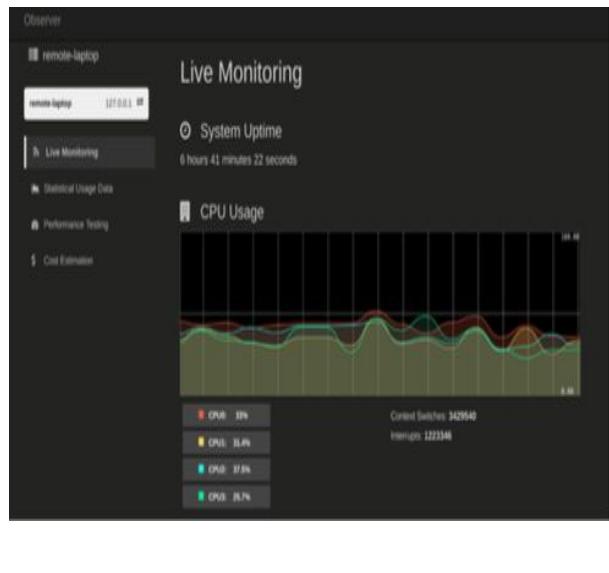
Video footage for abnormal driver behavior (complete view of the car with 2 cameras – front and back)

Real-time alert and live streaming. Any abnormal behavior/activity can be displayed on the smart dashboard in the vehicle.

Camera Live Streaming



- Decorations: Logo, camera name, detect bounding boxes with object type name, red alarm bounding boxes with alarm label, engine name and current FPS.
- Video decoded by FFmpeg library
- Video streaming runs in fullscreen mode. Tap on screen to bring top navbar and bottom tabbar back.
- Maximum 10 objects detected or alarmed per frame
- Alarms generate snapshots and kept in memory temporarily.

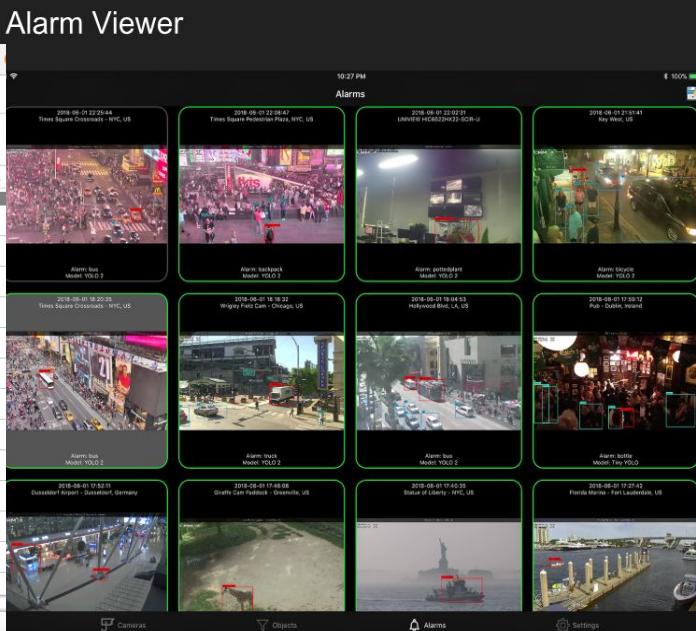


Secure | https://ethercalc.org/lhywko04ste8

← → C Edit Format Sort Audit Comment Names Clipboard Form Graph

Alarm Viewer

Alarms												
	A	B	C	D	E	F	G	H	I	J	K	L
id	vehicle	timestamp	latitude	longitude	area_name	road_name	response_team_id	dispatcher	police_id	analysis_address		
1	31	16.07.2018	23.002243	72.547849	Vasna	5U_Vasna - Naroda Gam_NORMAL	91	36	64	ScBhh[EU9cmegHhKYP		
2	34	16.07.2018	22.97298	72.589567	Narol	6E_Narol - Odhav Talav_NORMAL	89	83	94	I3L8o2AzCnUYqhnTaP		
3	31	16.07.2018	23.002243	72.547849	Vasna	5U_Vasna - Naroda Gam_NORMAL	94	92	65	GfhIHU5cpQthAqoytC		
4	34	16.07.2018	22.97298	72.589567	Narol	6E_Narol - Odhav Talav_NORMAL	20	56	59	YayWIL4ipv0AIM9dmK		
5	31	16.07.2018	23.002243	72.547849	Vasna	5U_Vasna - Naroda Gam_NORMAL	94	85	41	9jhT76EXQ7wUrUuu		
6	31	16.07.2018	22.97298	72.589567	Narol	6E_Narol - Odhav Talav_NORMAL	41	85	24	yzAUh0huqcPDvsiVCo		
7	31	16.07.2018	23.002243	72.547849	Vasna	5U_Vasna - Naroda Gam_NORMAL	59	74	35	ask406En1ZmCYswKxi		
8	34	16.07.2018	22.97298	72.589567	Narol	6E_Narol - Odhav Talav_NORMAL	15	64	70	szdysbke0OqKFpxt		
9	34	16.07.2018	22.97298	72.589567	Narol	6E_Narol - Odhav Talav_NORMAL	58	14	38	66ZKYB2X8XXkscEGCV		
10	34	16.07.2018	22.97298	72.589567	Narol	6E_Narol - Odhav Talav_NORMAL	45	41	82	BCRdbKSHVBB50Q64		
11	34	16.07.2018	22.97298	72.589567	Narol	6E_Narol - Odhav Talav_NORMAL	49	47	78	ar0KFvgQ5kh33LSR06		
12	131	16.07.2018	23.027419	72.545104	Gulbal	4D_Commerce Six Road - Zundal	78	43	87	jeqTSOp5Sk2MpjyG55		



- First time visit this view per app launch loads saved alarms from IPFS & Ethereum
- Saved alarms have green border
- Unsaved alarms have gray border
- Only supports single selection
- Selected alarm has gray background
- Double click cell to show in fullscreen
- Each cell shows alarm timestamp, camera name, engine name, object name triggers the alarm, snapshot
- Tap Save icon at top right navbar to save / delete alarm or view details