

# Role of Geospatial Technology in Crime Prevention

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Hyderabad City Police

January 24, 2017



# About Hyderabad City

- Newly formed Telangana State in June 2014 is 29<sup>th</sup> state in India
- Hyderabad City is the Capital of Telangana State with a population of over 7 million and area of around 260 sq. km or 100 sq. mile



- Government of Telangana has set a vision to

*Transform the Hyderabad City into a Global City  
and Hyderabad City Police into a Global City  
Police*



Establish global policing standards of public safety and security through sustained efforts using *Technology, Mobility, and Community* partnerships as force multiplier for upholding dignity of life and improvement of living standards of Citizens



# Goals

- # 1 – Create safe & secured communities through planned and accountable policing
- # 2 – Provide reassurance on responsive police services
- # 3 – Effectively prevent and control organized crimes
- # 4 – Empower and partner with communities through community police for better living standards of citizens
- # 5 – Achieve best travel time, road safety and citizen compliance
- # 6 – Transform police into a people oriented and people friendly organization



# Principles

- ☒ Citizen Friendly
- ☒ Responsiveness
- ☒ Honesty
- ☒ Integrity
- ☒ Begin with end in mind



# Police Infrastructure

- Every Police Station and Offices are equipped with
  - at least 20 mbps internet connectivity
  - video conferencing facility integrated with Central Command Center (CCC)
  - mini control room connected with CCC
- Each field officers, Inspectors and senior officers are equipped with smart devices such as smart phones, tablets or iPads
- Around 200 patrol vehicles (2 & 4 wheeler) are equipped with GPS devices
- Around 10,000 IP based 2 megapixel HD community cameras are integrated with CCC & mini control rooms (expected to around 100,000 cameras)



# Crime data analytics

Periodic Geospatial and Temporal analysis on multi dimension factors to derive crime patterns and trends

- Crime vs types of crime vs criminal link analysis
- Crime vs types of crime vs hotspot
- Crime vs types of crime vs inter-state gangs
- Crime vs MO (modus operandi) vs crime type analysis
- ...situational based analysis

The analysis helps as Decision Support Tool to fine tune the Proactive / Predictive / Visible policing strategies





# Proactive / Visible Policing – Police Patrolling

Police Vehicles (2 & 4 wheeler) patrols on 24x7 basis based on the crime patterns and trend analysis in each police station jurisdiction

- crime hotspots and critical locations
- special focus on repeat crime locations
- targeted locations from time to time such as critical establishments, high fear of crime communities etc.,
- responsiveness on incidents occurred in the patrolling zone



# Proactive Policing – Sector SI Criminal Surveillance

- Sector SI's of each police station performs regular check on criminals visiting their residences
- Periodic cordon search and spot checks on criminals
- Special focus on criminals with repeat crime history
- Monitor through advance alert mechanism on near-future jail release criminals
- Track jail released or on-bail criminals / suspects
- Responsiveness and bias for action on no-show criminals during visits / checks
- Regular counselling and awareness sessions as part of change management



# Proactive Policing – Sector SI

## Community Policing

Partnering with communities as part of crime prevention to enhance the safety & security. It helps in

- Identify and action their needs for fear of crime
- Encourages cohesiveness among the neighbors to watch their neighborhood
- Empower community citizen patrol their neighborhood
- Motivates proactive participation from communities on safety & security related initiatives
- Build confidence and harmony between police and communities for safer neighborhood



# Responsive Policing

- Respond to emergency (Dial-100) situation / incident / accident
- Quick responsive to complaints / petitions



# Traffic data analytics

Periodic Geospatial and Temporal analysis on multi dimension factors to derive traffic & accidents patterns and trends through co-relation analysis

- Traffic density/congestion vs road geometry
- Road geometry vs types of accidents
- Traffic violators vs types of violations
- Repeat violators vs types of violations
- Road geometry vs traffic congestion vs travel time
- ...situational based analysis

The analysis helps as Decision Support Tool to fine tune better traffic travel time; road safety and citizen compliance strategies 

# Dashboards (critical metrics)

## Yearly/Monthly/Weekly

### Police Patrol

- % of crime spots covered vs. crimes prevented
- % of targeted spots covered vs suspects identified
- % of overall crime reduced

### Criminal Surveillance

- % of criminals covered vs no show
- No. of counselling sessions covered

### Community Policing

- No. of communities groups added
- No. of interactions vs community groups
- No. of initiatives added vs % of initiatives closed
- No. of Citizen patrol agents added vs incidents prevented



# Dashboards (critical metrics) ...2

## Yearly/Monthly/Weekly

### Crimes / Incident Case Analysis

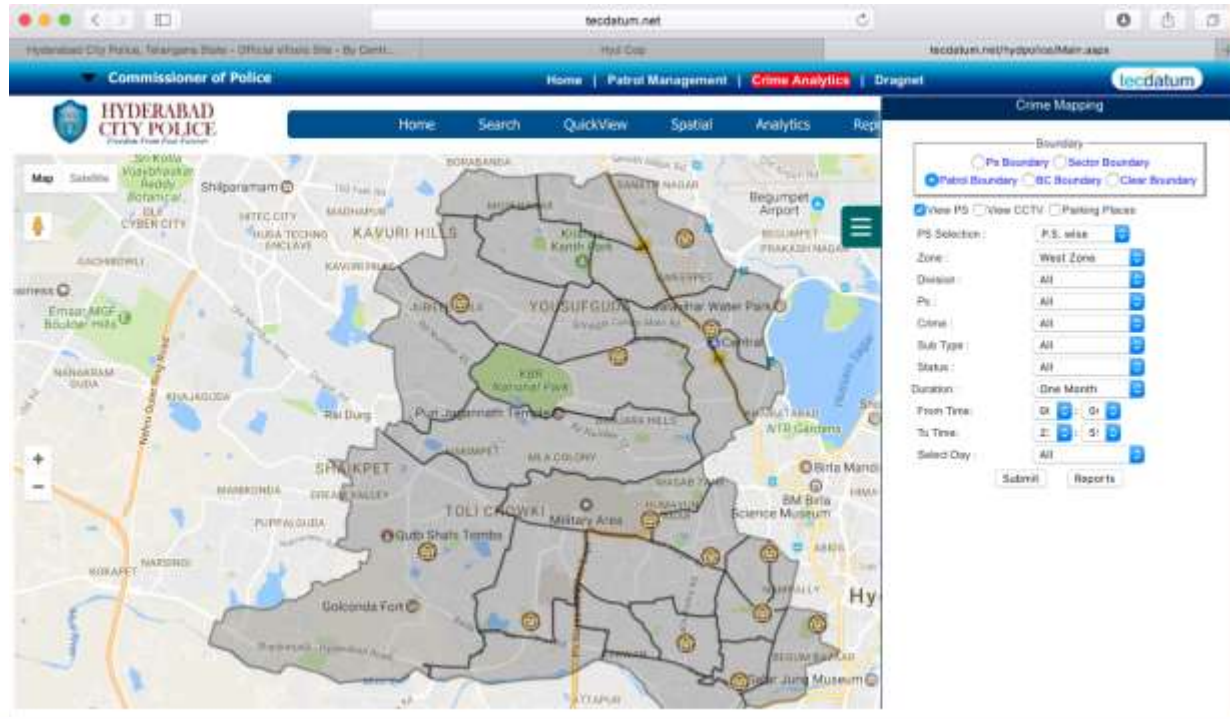
- No. of cases / incidents added
- % of overall cases solved
- % of targeted/Dial-100 cases solved
- Overall case status YoY

### Traffic Management

- No. of incidents / accidents added
- % of incidents / accidents solved
- % of road corrections done
- No. of traffic violations vs % of type of violations
- No. of critical violations vs % of type of violations
- Overall accidents, incidents and violations YoY



# Geo Map samples - Police Station locations



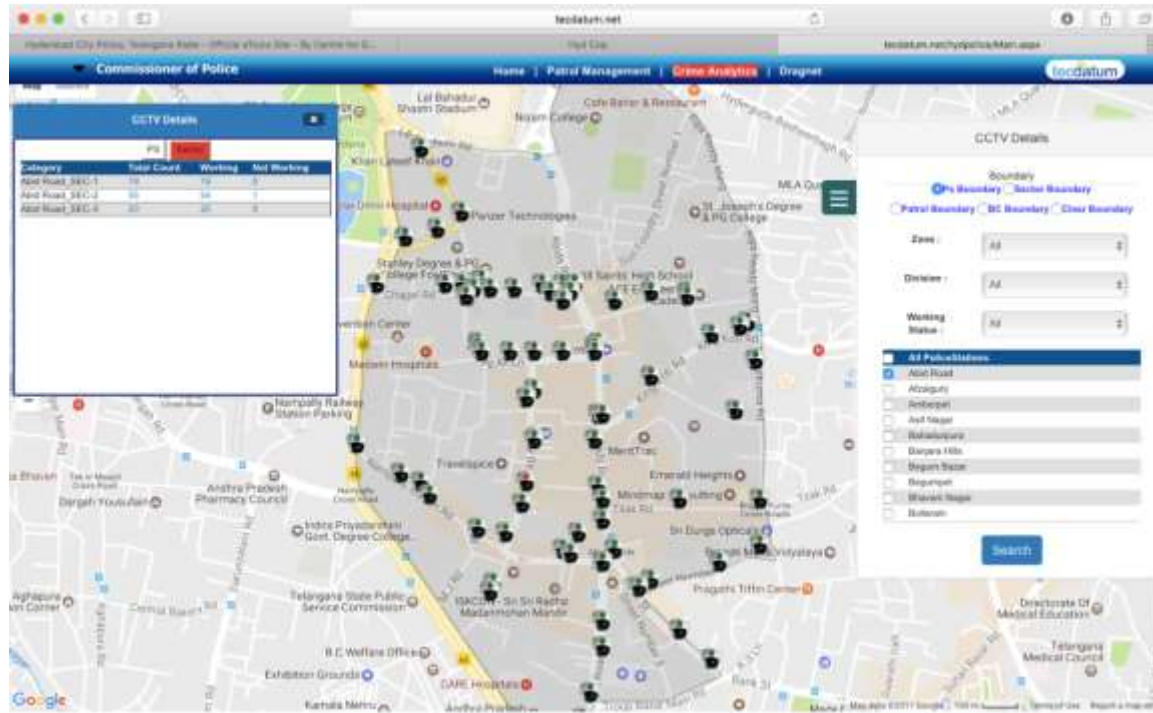
The screenshot displays the Hyderabad City Police Crime Analytics web application. The browser address bar shows 'lecdatum.net'. The application header includes 'Commissioner of Police' and navigation links for 'Home', 'Patrol Management', 'Crime Analytics', and 'Dragnet'. The main map area shows the Hyderabad city layout with police station boundaries highlighted in grey. The 'Crime Mapping' panel on the right includes the following controls:

- Boundary:  Ps Boundary,  Sector Boundary,  Patrol Boundary,  BC Boundary,  Clear Boundary
- View PS,  View CCTV,  Parking Places
- PS Selection: P.S. wise (dropdown)
- Zone: West Zone (dropdown)
- Division: All (dropdown)
- Ph: All (dropdown)
- Crime: All (dropdown)
- Sub Type: All (dropdown)
- Status: All (dropdown)
- Duration: One Month (dropdown)
- From Time: 00:00 (dropdown)
- To Time: 23:59 (dropdown)
- Select Day: All (dropdown)
- Buttons: Submit, Reports





# Geo Map samples - Video camera geo mapping



The screenshot displays a web application interface for video camera geo mapping. The main map shows a city area with numerous black camera icons. A 'CCTV Details' table is visible on the left, and a search panel is on the right.

Category	Total Count	Working	Not Working
Police Stations	10	8	2
Police Stations	10	8	2
Police Stations	10	8	2

Search Panel:

Boundary:  Police Boundary  Sector Boundary  Patrol Boundary  DC Boundary  Other Boundary

Zone:

Division:

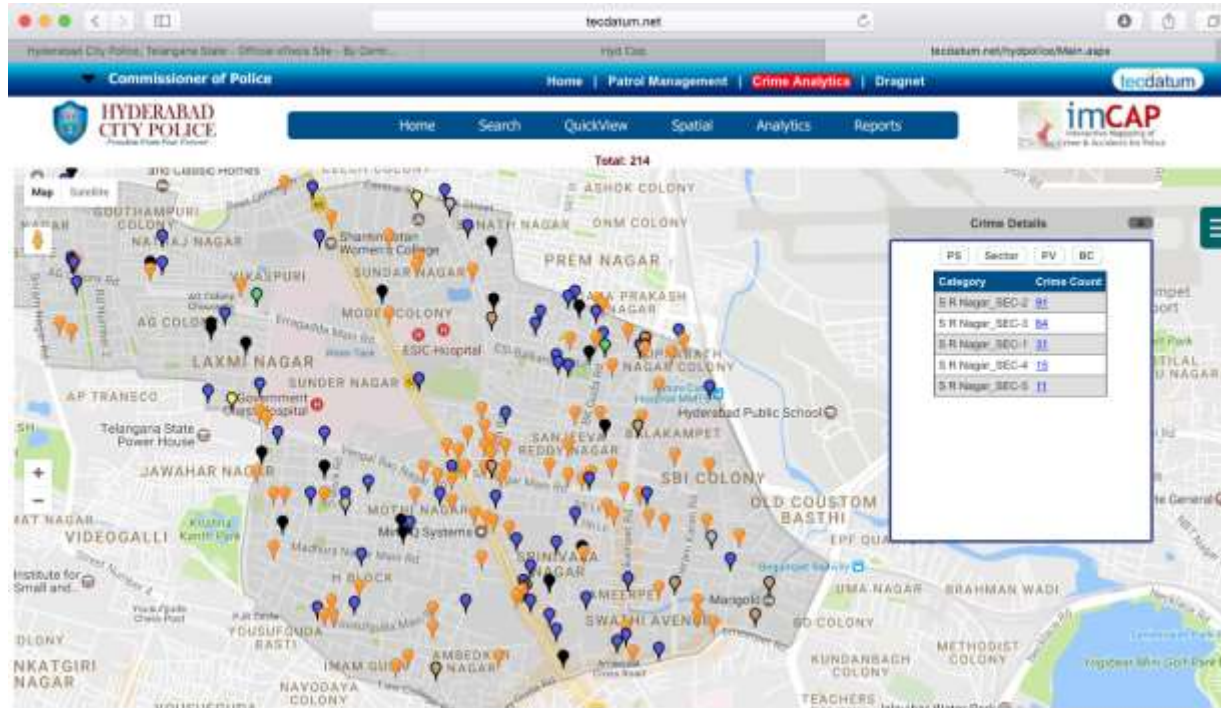
Working Status:

All Police Stations:

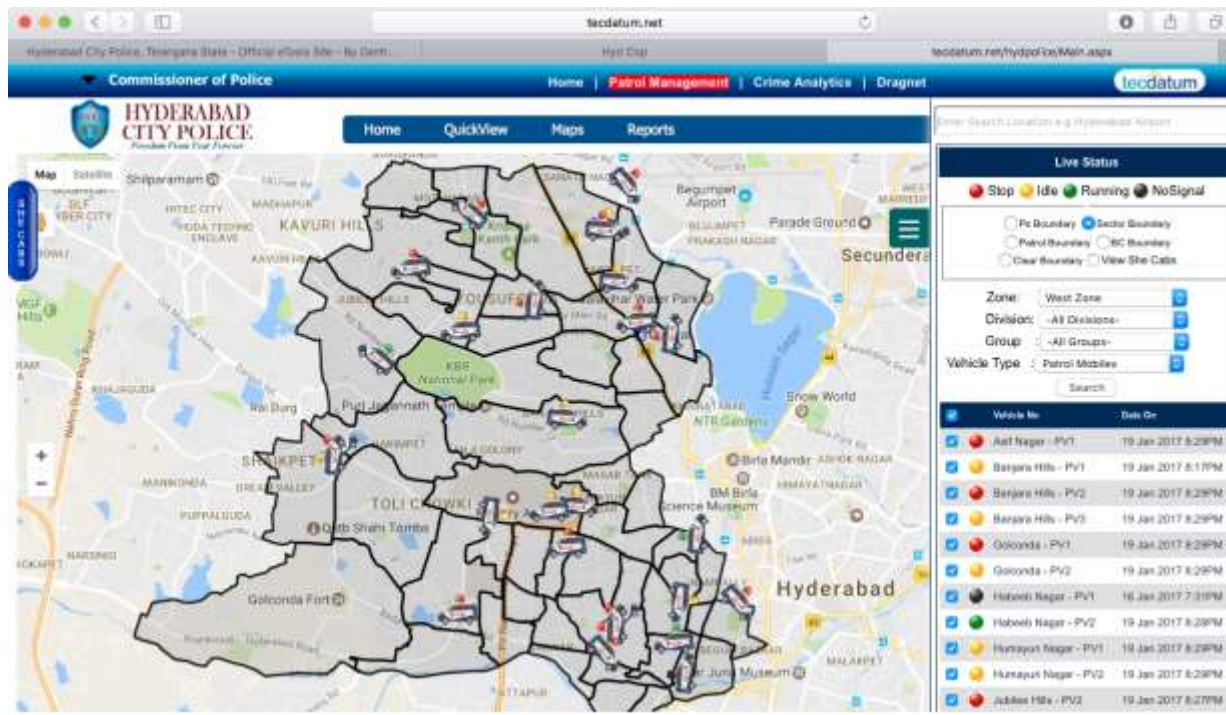
- Allot Point
- Alibeguni
- Ashoknagar
- Ashok Nagar
- Badliapally
- Durgam Hills
- Durgam Chok
- Durgam
- Durgam
- Durgam



# Geo Map samples - Crime Analysis



# Geo Map samples - Police Patrol

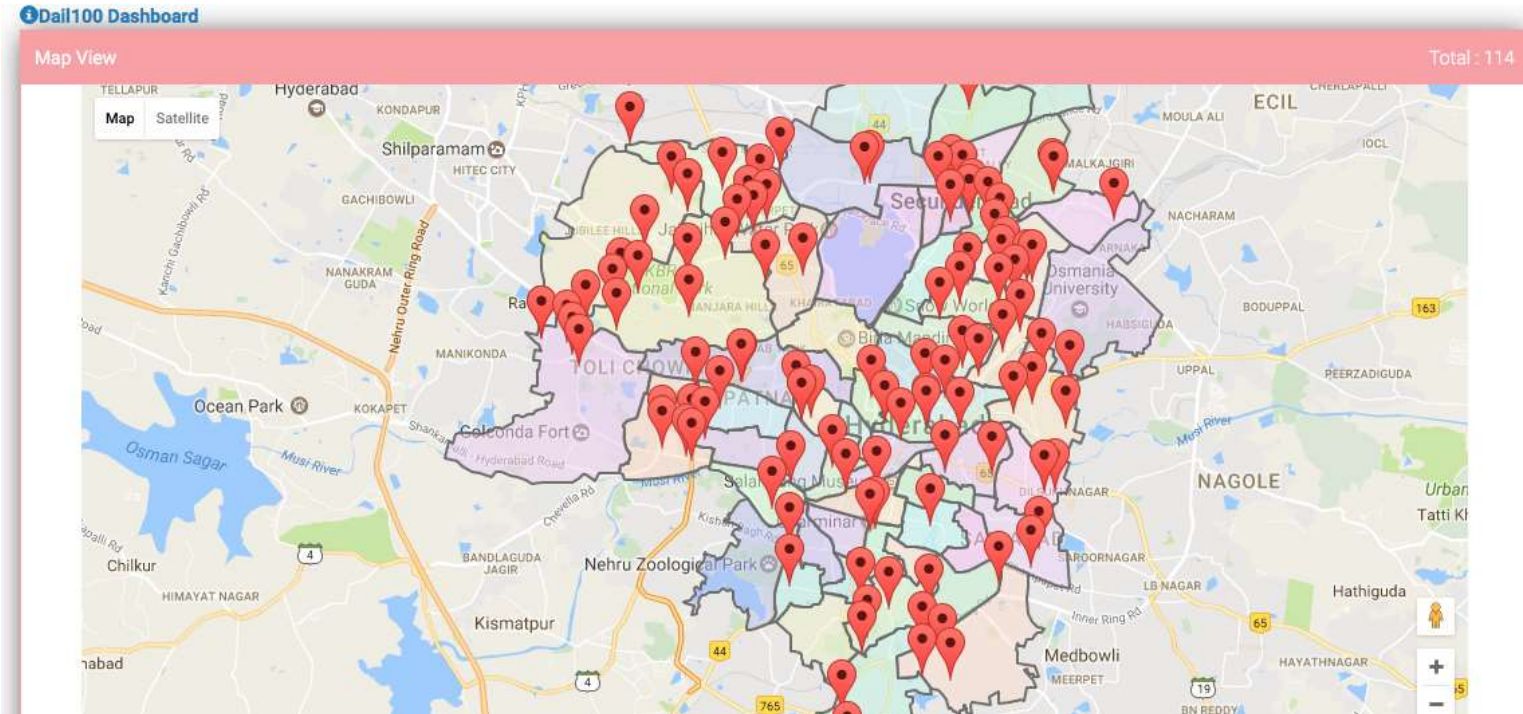


The screenshot displays the Hyderabad City Police Geo Map interface. The main map shows the city of Hyderabad divided into various zones and divisions, with patrol routes indicated by colored lines and icons. The interface includes a navigation menu with options like Home, QuickView, Maps, and Reports. A search bar is located at the top right, and a sidebar on the right contains filters for Live Status (Stop, Idle, Running, NoSignal), Zone, Division, Group, and Vehicle Type. A table at the bottom right lists patrol vehicles with their status and last update time.

Vehicle No	Dist On
Asif Nagar - PV1	19 Jan 2017 8:29PM
Banjara Hills - PV1	19 Jan 2017 8:17PM
Banjara Hills - PV2	19 Jan 2017 8:29PM
Banjara Hills - PV3	19 Jan 2017 8:29PM
Golconda - PV1	19 Jan 2017 8:29PM
Golconda - PV2	19 Jan 2017 8:29PM
Hobash Nagar - PV1	16 Jan 2017 7:31PM
Hobash Nagar - PV2	19 Jan 2017 8:29PM
Humayun Nagar - PV1	19 Jan 2017 8:29PM
Humayun Nagar - PV2	19 Jan 2017 8:29PM
Jubilee Hills - PV2	19 Jan 2017 8:27PM



# Geo Map samples - Incident Management



# Achievements

- Overall crime reduced by – 8%
  - Murders reduced by - 25%
  - Major crime reduced by - 31%
  - Chain Snatching reduced by 66%
  - Property thefts reduced by - 16%

(% will be derived from Annual Report)



# Conclusion

- At Hyderabad Police, technology based policing is the major contributor for year-on-year crime reduction
- Geospatial and temporal based analysis has contributed majorly to fine tune our policing strategies
- We continue to focus on technology investment that brings value to the citizens in enhancing their standard of living; safety and security.



# Q & A

