

---

# Deep Tech Usage in IBI's ITMS

1

## ATCC (Automatic Traffic Counting & Classification)

# ATCC Sensors

- IBI's Proprietary Model of **Thermal Sensors** to suit all weather and lighting conditions
- Performance is Proven with **real time implementation** and operation
- One Camera can cover **two lanes and up to 200 m**
- User friendly interface to customize sensor settings
- **Quick Installation**

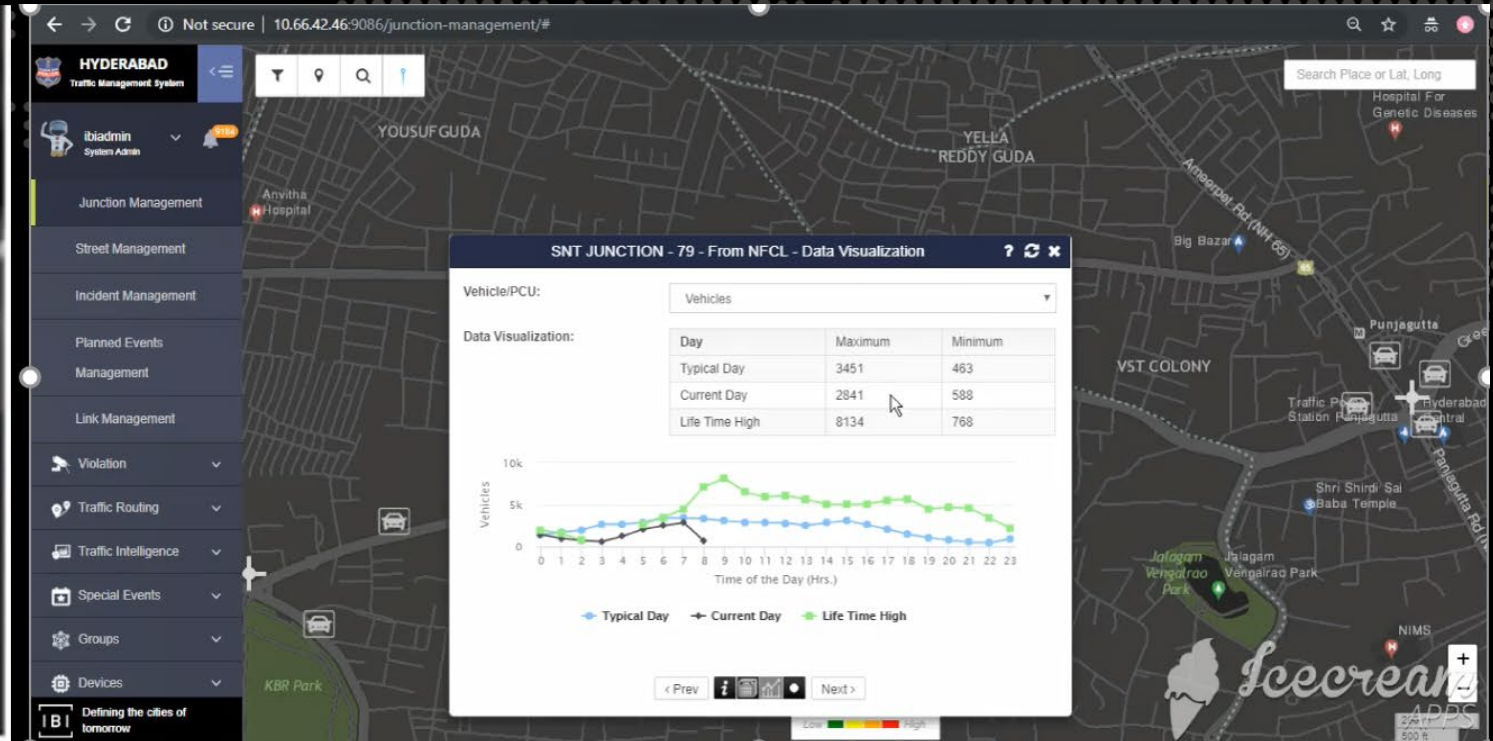


# Vehicle Counting & Queue Detection

- Greater Accuracy in **all weather / Climatic** conditions thermal imagery
- **BIGDATA** generated by Optical Classification Algorithms which have **self learning techniques**
- **Machine Learning** Algorithms for Counting & Classification of Vehicles with over **95%** Accuracy
- Queue length detection using **Artificial Intelligence Algorithms**
- Captures Various Traffic Engineering Parameters  
(Volume, Density, Headway, Gap, PCU, etc.)
- Central monitoring and **GIS based User Interface** to monitor congestion and black spots



# Vehicle Counting & Queue Detection





# SMS & Email Alerts with Intelligent Automatic Response Plan Engine using Configurable Template based Rules - Engine

Mon 11/26/2018 12:33 PM  
Smartcity TRAINING <itmshydtest@gmail.com>  
Response Plan: Event-2632

To Srinivas Ganji; santhosh.kadvu@ibigroup.com; santhosh.kadvu@ibigroup.com;  
santhosh.kadvu@ibigroup.com; santhosh.kadvu@ibigroup.com

Trello

 **Hyderabad Safe & Smartcity**  
HITMS

 **Response Plan**

Dear Sir/Madam,

Congestion at 44.0 m Environment Park and Training Area on Osman Sagar Road has been cleared for traffic. Road users can now use Osman Sagar Road.

**Associated Event Details:**  
Event ID: 2632  
Severity: Major  
Impact: Expect Heavy Delays  
Cause: Poor Visibility  
Description: Approximately 44m from Environment Park and Training Area  
Location Link:  
<https://www.google.co.in/maps/place/17.3766740287,78.3868499312>

ITMS Team,  
Hyderabad City Police.

← BZHYDPOL

Wednesday, 20 Jun • 10:04 AM

The congestion index has surpassed the maximum threshold. Junction name: SNT JUNCTION. Law & Order Police Station: Banjara Hills. Congestion Index: 1.51. Location: <https://www.google.co.in/maps?q=17.4270833333,78.4397222222>

13:07 4G 88%

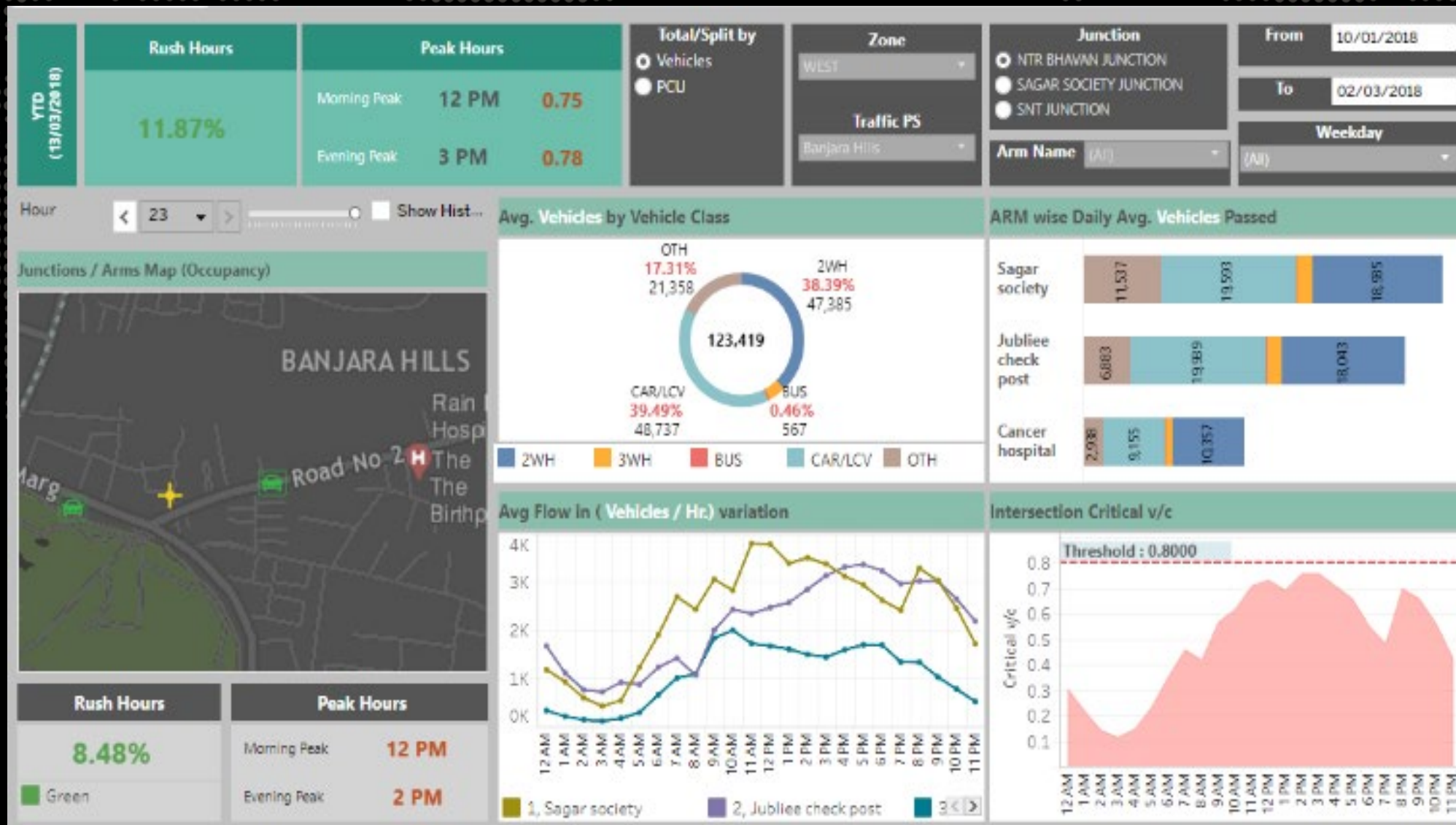
← VK-HYDPOL

Thursday, 6 Dec • 18:56

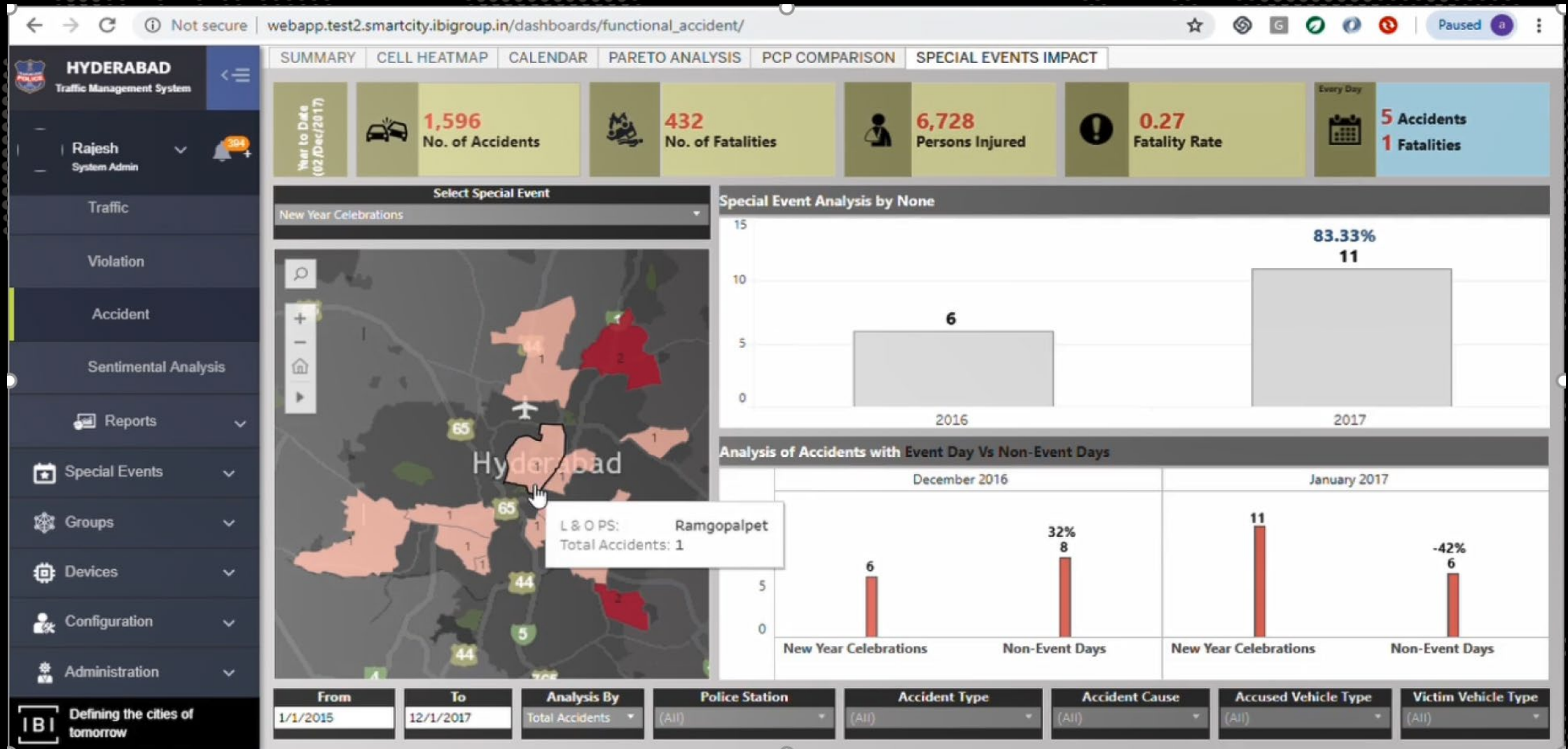
Information: Congestion at 130.0 m NTR Garden Bus Stop on NTR Road has been cleared for traffic. Road users can now use NTR Road.  
Associated Event Details:  
Event ID: 127  
Location Link: <https://www.google.co.in/maps/place/17.4138110891,78.470620687>

ITMS Team,  
Hyderabad City Police.

# Advanced Analytics & Visualizations for Deeper Insights with high capability of Filtering to the micro level details...



# Advanced Analytics & Visualizations for Deeper Insights which uses Traffic conditions & Advanced Statistics ...





2

## Intelligent Routing Algorithms based on Time, Accident & Crime data sets

# Intelligent Routing Algorithms for based on Time, Accident & Crimes on routes and Advanced Analytical Algorithms

IBI's ITMS **routing algorithms** works intelligently to suggest the best route from origin to destination not only just by **travel time** but also the **crime rates** and **accidents intensities** on the routes.

The screenshot displays the IBI Hyderabad Traffic Management System (ITMS) routing interface. The interface is divided into several sections:

- Header:** Shows the system name "HYDERABAD Traffic Management System" and the user profile "Akhila Supervisor".
- Navigation Menu:** Includes options like "VIP Routing", "Emergency Vehicle Routing", "Live Tracking", "Vehicle Tracking", "Route Finder", "Traffic Intelligence", "Special Events", "Groups", "Devices", and "Configuration".
- Map:** Displays a map of Hyderabad with two suggested routes highlighted in blue. The routes are labeled with their length and time:
  - Route 1: Route Length: 6.09 Km, Route Time: 12min 11sec
  - Route 2: Route Length: 5.73 Km, Route Time: 11min 27sec
- Search and Filter:** Includes a search bar and filters for "Accident" and "Crime" (both currently set to "Off").
- Origin and Destination:** The origin is "Sara Function Hall, Jawa" and the destination is "Mohan Traders, Musheer".

# Optimal Intelligent Routing based on Distance

The screenshot displays a traffic management system interface for Hyderabad. The main map shows a blue route starting from Punjagutta and ending at Rachakonda, with a distance of 9.56 Km and an estimated time of 19 minutes. The interface includes a sidebar menu with options like Traffic Routing, VIP Routing, and Emergency Vehicle Routing. A search bar at the top right allows for location or coordinates input. Control panels on the right side include toggle switches for Accident and Crime, and input fields for Accident factor (0), Crime factor (0), and Distance factor (100). A Submit button is located below these controls. The map also shows various landmarks and road numbers like 44, 5, 756, 163, and 19.

**HYDERABAD**  
Traffic Management System

Sovan  
Supervisor

Traffic Routing

VIP Routing

Emergency Vehicle Routing

Live Tracking

Vehicle Tracking

Route Finder

Traffic Intelligence

Special Events

Group Publishing

Configuration

Administration

PUNJAGUTTA KACHIGUDA Save

Search Place or Lat, Long

Off Accident

Off Crime

Accident factor  
0

Crime factor  
0

Distance factor  
100

Submit

Cyberabad Hyderabad Rachakonda

9.56 Km  
19min

3 km  
2 mi

# Optimal Intelligent Routing based on Historic up-to-date Accidents Data

The screenshot displays a web-based traffic management system for Hyderabad. The interface includes a sidebar menu on the left with the following items: **Sovan Supervisor** (with a notification badge for 2366), **Traffic Routing** (highlighted), **VIP Routing**, **Emergency Vehicle Routing**, **Live Tracking**, **Vehicle Tracking**, **Route Finder**, **Traffic Intelligence**, **Special Events**, **Group Publishing**, **Configuration**, and **Administration**. The main map area shows Hyderabad and surrounding areas like Cyberabad and Rachakonda. A blue route is highlighted on the map, starting from a green pin and ending at a red pin. A search bar at the top right contains the text "Search Place or Lat, Long". Below it, there are two buttons: "PUNJAGUTTA" and "KACHIGUDA", followed by a "Save" button. On the right side, there are two toggle switches: "On" for "Accident" (checked) and "Off" for "Crime". Below these are three input fields: "Accident factor" (set to 100), "Crime factor" (set to 0), and "Distance factor" (set to 0). A "Submit" button is located at the bottom of this panel. At the bottom right, there are zoom controls (+ and -) and a scale bar showing 3 km and 2 mi. The bottom left corner features the logo "IB" and the text "Defining the cities of tomorrow".

# Optimal Intelligent Routing based on Historic up-to-date Crime Data

The screenshot displays a web-based traffic management system for Hyderabad. The interface includes a sidebar menu on the left with options such as 'Sovan Supervisor', 'Traffic Routing', 'VIP Routing', 'Emergency Vehicle Routing', 'Live Tracking', 'Vehicle Tracking', 'Route Finder', 'Traffic Intelligence', 'Special Events', 'Group Publishing', 'Configuration', and 'Administration'. The main map area shows a heatmap of crime data across the city, with a blue line indicating an optimal routing path. A search bar at the top right allows for location input, and a control panel on the right side includes toggle switches for 'Accident' (Off) and 'Crime' (On), along with input fields for 'Accident factor' (0), 'Crime factor' (100), and 'Distance factor' (0). A 'Submit' button is located at the bottom of this panel. The map also features a scale bar (1 km / 1 mi) and zoom controls.

**HYDERABAD**  
Traffic Management System

Sovan Supervisor 2366

Traffic Routing

VIP Routing

Emergency Vehicle Routing

Live Tracking

Vehicle Tracking

Route Finder

Traffic Intelligence

Special Events

Group Publishing

Configuration

Administration

Defining the cities of tomorrow

PUNJAGUTTA KACHIGUDA Save

Search Place or Lat, Long

Off Accident

On Crime

Accident factor  
0

Crime factor  
100

Distance factor  
0

Submit

1 km  
1 mi

# Optimal Intelligent Routing based on Weighted Average of Historic Accident & Crime Data

**HYDERABAD**  
Traffic Management System

Sovan  
Supervisor 2366

- Traffic Routing
- VIP Routing
- Emergency Vehicle Routing
- Live Tracking
- Vehicle Tracking
- Route Finder
- Traffic Intelligence
- Special Events
- Group Publishing
- Configuration
- Administration

PUNJAGUTTA KACHIGUDA Save

Search Place or Lat, Long

Accident  
 Crime

Accident factor: 50  
Crime factor: 50  
Distance factor: 0

Submit

Hyderabad

1 km  
1 mi

IBI Defining the cities of tomorrow

# Optimal Intelligent Routing based on Weighted Average of Historic Accident & Crime Data

The screenshot displays a web-based traffic management system for Hyderabad. The interface includes a sidebar menu on the left with options such as 'Sovan Supervisor', 'Traffic Routing', 'VIP Routing', 'Emergency Vehicle Routing', 'Live Tracking', 'Vehicle Tracking', 'Route Finder', 'Traffic Intelligence', 'Special Events', 'Group Publishing', 'Configuration', and 'Administration'. The main map area shows a heatmap overlay representing the weighted average of historic accident and crime data. A blue line indicates the optimal routing path between two points, starting at a green pin and ending at a red pin. The map also shows major roads and the city name 'Hyderabad'. A search bar at the top right allows for location input, and a control panel on the right side includes toggle switches for 'Accident' and 'Crime' data, input fields for 'Accident factor' (30), 'Crime factor' (70), and 'Distance factor' (0), and a 'Submit' button. The bottom right corner features a scale bar (1 km / 1 mi) and zoom controls.

HYDERABAD  
Traffic Management System

Sovan  
Supervisor 2367

Traffic Routing

VIP Routing

Emergency Vehicle Routing

Live Tracking

Vehicle Tracking

Route Finder

Traffic Intelligence

Special Events

Group Publishing

Configuration

Administration

Defining the cities of tomorrow

PUNJAGUTTA KACHIGUDA Save

Search Place or Lat, Long

On Accident

On Crime

Accident factor  
30

Crime factor  
70

Distance factor  
0

Submit

Hyderabad

1 km  
1 mi

15

# Optimal Intelligent Routing based on Weighted Average of Historic Accident & Crime Data

The screenshot displays a web-based traffic management system for Hyderabad. The interface includes a sidebar menu on the left with options like 'Sovan Supervisor', 'Traffic Routing', 'VIP Routing', 'Emergency Vehicle Routing', 'Live Tracking', 'Vehicle Tracking', 'Route Finder', 'Traffic Intelligence', 'Special Events', 'Group Publishing', 'Configuration', and 'Administration'. The main map area shows a blue route starting from Punjagutta and ending at Kachiguda. A heatmap overlay on the map indicates areas with high concentrations of accidents (red) and crimes (orange). A control panel on the right allows users to toggle 'Accident' and 'Crime' data, and adjust their respective weights: 'Accident factor' is set to 60, 'Crime factor' is set to 40, and 'Distance factor' is set to 0. A 'Submit' button is located below these settings. The top of the interface features a search bar and buttons for 'PUNJAGUTTA', 'KACHIGUDA', and 'Save'. The bottom right corner includes a scale bar (1 km / 1 mi) and zoom controls.



3

## Social Media Sentimental Analysis to Capture the mood/ satisfaction of Road users

# Social Media Sentimental Analysis to Capture the mood/satisfaction of road users

IBI's ITMS platform has several built-in libraries and simple API's to perform NLP tasks. It is used to determine whether a sentiment is positive, negative or neutral based on the type of words used in comments made by the users in natural language.



# Social Media Sentimental Analysis to Capture the mood/satisfaction of road users

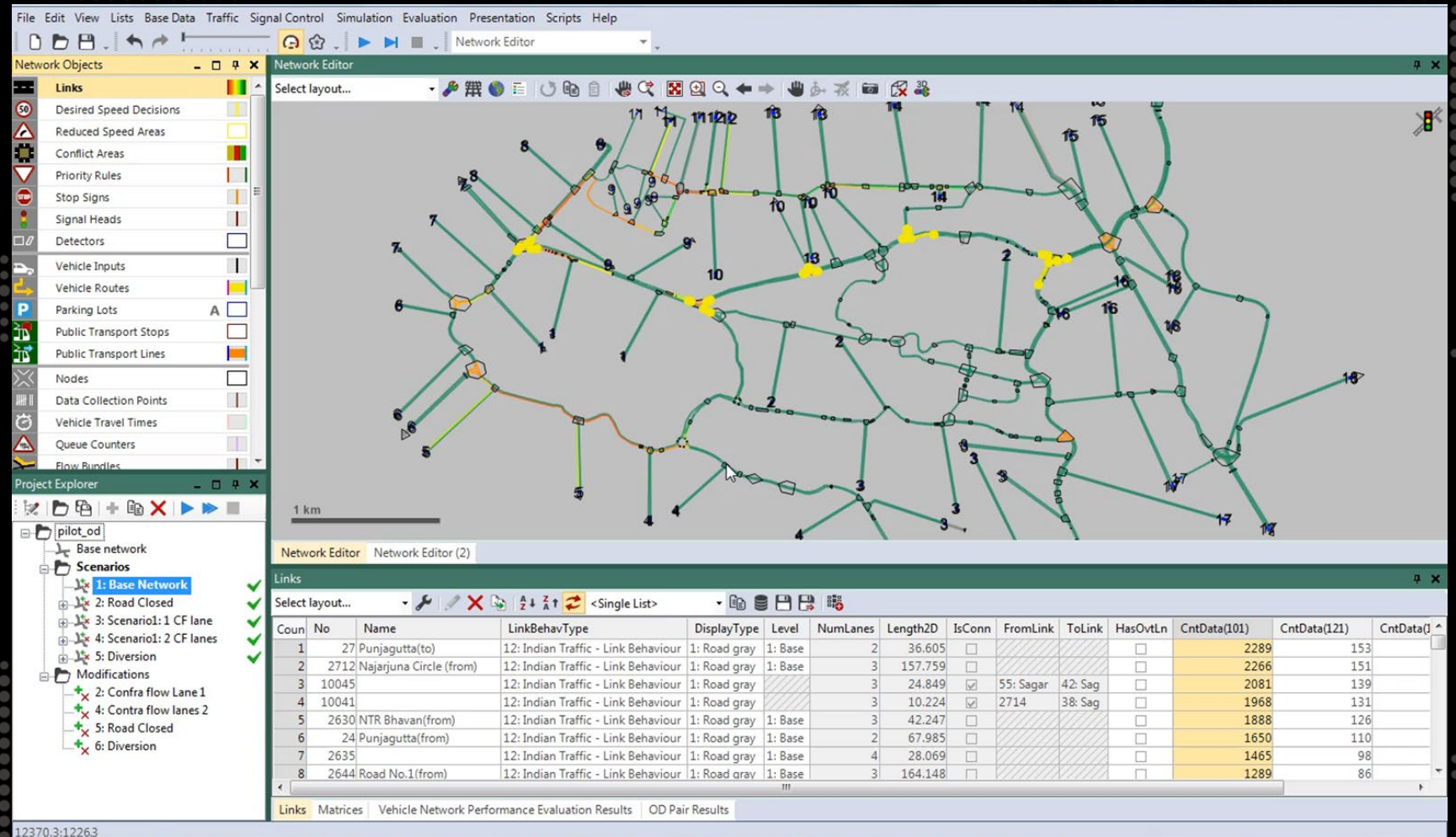


4

## Traffic Simulation in Planning for Traffic Management during Special Events using Stochastic Traffic Modelling

# Traffic Simulation in Planning for Traffic Management during Special Events

- Simulation of Traffic using traffic behavioral models proven in traffic engineering for valuation of alternative traffic management scenarios and choosing the best to minimize impact.
- Usage of Stochastic Algorithms.
- Advanced guidance to impacting road users on alternative routes in advance.
- It again uses the data from ATCC sensors to calibrate for present conditions



---

Thank you!

[www.ibigroup.com](http://www.ibigroup.com)