



**PTV VISUM SAFETY & ACCIDENT MAPPER PRO  
SAFER INFRASTRUCTURE FOR ALL**

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

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Exclusive PTV Group Distributors for  
SAARC Region

# THE TWO PROBLEMS

## 1. TRAFFIC CONGESTION

## 2. ROAD ACCIDENTS



**PTV GROUP**

the mind of movement

creative talents. As w

Dubai Community Theatre and

## **CAN WE SAVE LIVES TODAY?**

Road Safety Management and Prediction tool  
for Disaster Management

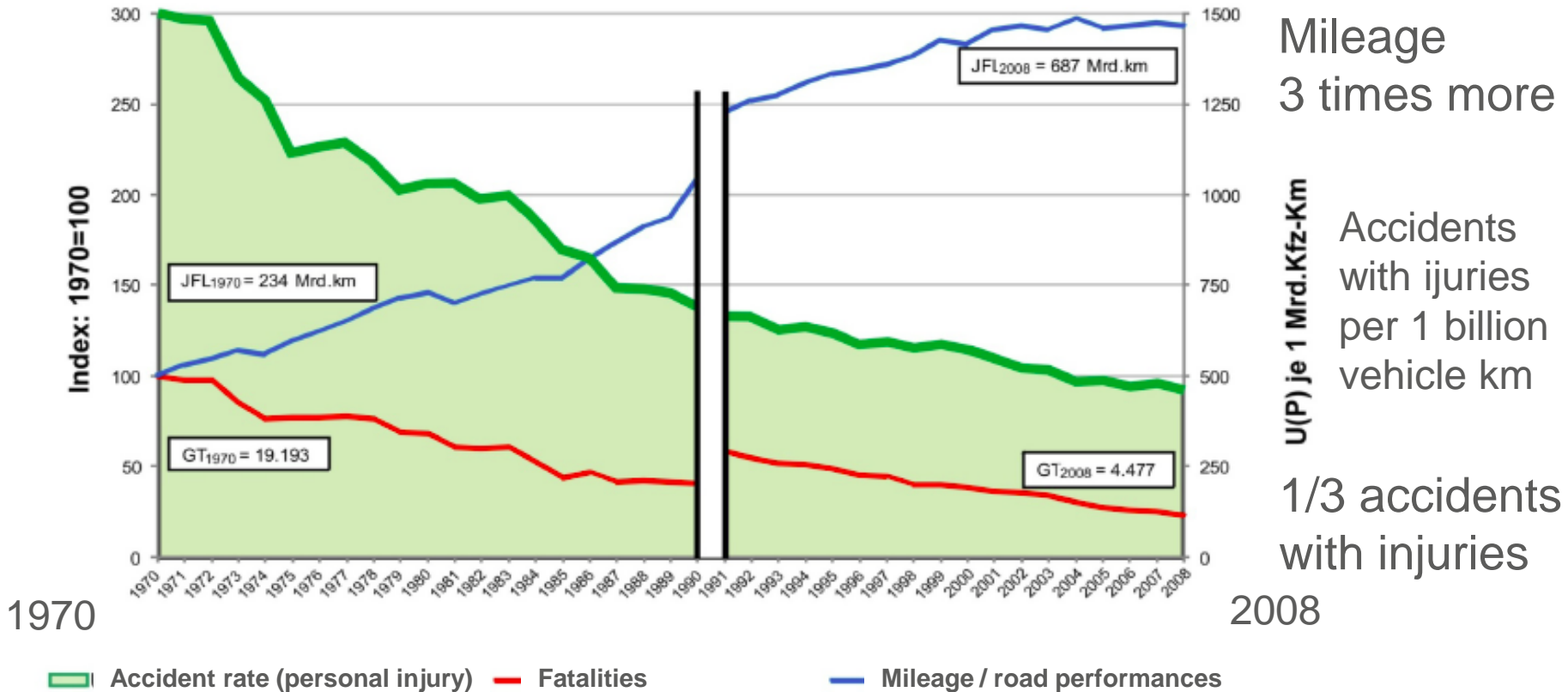
# DISASTER AND ACCIDENT MANAGEMENT SYSTEM FOR CITY

WE CANNOT PREDICT IF ..... BUT WE CAN TELL IF THIS SPOT ON ROAD IS VERY DANGEROUS TO DRIVE



A crash will happen here?

# HOW TO IMPROVE ROAD SAFETY? ACCIDENT HISTORY AND MILEAGE IN GERMANY



Source: 2009 ADAC Fachveranstaltung, Sichere Straßen retten Leben

Road safety in Germany - a success story over the last 40 years!

# 11 FEDERAL STATES IN GERMANY USE PTV EUSKA



*Baden-  
Wuerttemberg*



*Hamburg*



*Mecklenburg-  
Western Pomerania*



*Saxony-Anhalt*



*Branden-  
burg*



*Hesse*



*North Rhine-  
Westphalia*



*Thuringia*



*Bremen*



*Lower Saxony*



*Saxony*



National Police meeting  
at PTV

# ACCIDENT RECORD IN GERMANY (FEDERAL STANDARD)

AF22-07.JPG

VERKEHRSUNFALLANZEIGE

Kind of collision

Kind of location  
(junction,  
gradient,etc.)

Traffic light

Speed limit

Daylight?

Road surface

Blatt 1

Dienststelle:  An Bußgeldbehörde/Staatsanwaltschaft:  Eingangsstempel:  Teilbestandsaufnahme:   
 Ordnungswidrigkeit:  Protokollaufnahme:   
 Tg/Nr.:  verjährt am:  RB Kra Gem:

SA1

Unfallort:  37

Zusammenstoß m. and. Fahrzeug, das  
 einstr. verhält d.h. Verkehr erl. ist  
 vordringt oder weicht  
 seitlich in gleicher Richtung ab  
 entgegenkommt  
 weicht ab/verletzt  
 Zusammenstoß zw. Fzg. und Fußgänger  
 Aufprall auf Hindernis auf Fahrbahn  
 Abkommen von Fahrbahn nach links  
 Unfall anderer Art

Charakteristik der Unfallstelle 38-40

Einmündung:   
 Grundrisskreuzung oder -einmündung:   
 Steigung:   
 Gleitfläche:   
 Kurve:

Besonderheiten der Unfallstelle 41-43

Schwellenartiger Wegübergang:   
 Fußgängerüberweg (Zebrastreifen):   
 Fußgängerfurt:   
 Haltestelle:   
 Arbeitsstelle:   
 Verkehrsverbotiger Bereich (Z.536):

Lichtverhältnisse 44

In Betrieb:   
 Geschwindigkeitbegrenzung (durch Z.274/Z.74.1 angegeben - km/h):

Lichtverhältnisse 49

Tagelicht:   
 Dämmerung:   
 Dunkelheit:

Strassenzustand 52-53

Trocken:   
 schluffig:   
 wegschief:   
 Schlipfgr. (Öl, Dursp., Laub usw.):

Baum:   
 Mast:   
 Widerlager:   
 Schutzplanke:   
 sonst. Hindernis:   
 kein Aufprall:

Vorkäufg. fertiggestellte Unschaden  
 gemäß Verzeichnisse Nr. 01-08

Ordn. Nr.:

Ordn. Nr.:

gemäß Verzeichnis Nr. 70-68

(Ordnung) (Unfallort und Anschrift des aufnehmenden Beamten)

Verkehrsunfallanzeige, Bl.1 - Ausf. f. statistische Aufbereitung -

Ausgeschwärzte Felder werden statistisch nicht erfaßt.

and a lot of others...  
 Defined by **statistic law**  
 in Germany

The guideline provides  
 also plausibility checks  
 for data entry.

SOURCE: Germany DeStatis Statistisches Bundesamt, Wiesbaden 2007:

# ROAD SAFETY MANAGEMENT WITH PTV SOLUTIONS

The image displays two overlapping screenshots of the PTV Vistad 7.0 software interface. The primary screenshot shows the 'Overview' section for a crash event on 19/06/2011. The 'Crash data' section includes:

- Classification: 1 - Road accident
- Category: 2 - Accident with serious injuries
- Crash type: 3 - Turning-into / crossing
- Type of Collision: 5 - Collision with turning or crossing vehicle
- Involved: 2 ; other damaged parties: 0
- Fatalities: 0
- Severely injured: 0
- Slightly injured: 1
- Total property damage: 2.250 €
- Other property damage: [input field]
- Internal notes: [input field]
- Alcohol:
- Drugs:
- Hazardous goods:
- Hit and run:
- Motor vehicle not roadworthy:
- Hit and run - solved:

The 'Course of events' section contains the following text:








Participant 01 drove along A-Road and stopped at sign 206. Afterwards 01 entered the intersection, crossed B-Road and 01 overlooked 02 a motor cyclist from the right sight. 01 hit 02. 02 wore a helmet but had to be taken to the hospital (rb fracture), both vehicles had property damage.

The secondary screenshot shows a map view with a table of 'Points of interest 61: Black Spots':

Count	Name	Accident count
1	BS 1	8
2	BS 2	8
3	BS 3	7
4	BS 4	7
5	BS 5	6
6	BS 6	6
7	BS 7	6
8	BS 8	6
9	BS 8	6
10	BS 9	5
11	BS 10	5
12	BS 11	5



# Some Collision Types

- 1  **Driving accident**
- 2  **Turning accident**
- 3  **Entering / crossing accident**
- 4  **Crossing over accident (Pedestrian)**
- 5  **Accident caused by stopping / parking**
- 6  **Accident in longitudinal traffic**
- 7  **Other accident**

# PTV VISTAD DATA FILTERING

The screenshot shows the PTV Vistad 7.0 software interface. At the top, there is a menu bar with 'Start', 'Crash data', and 'View'. Below the menu bar is a toolbar with various icons for filtering and displaying data. The 'Crash filter' section is active, showing a filter expression: '[Crash date] Is between 01.01.2010 and 31.12.2010', '[Department] Equals KA', '[Category] Is any of (1 - Fatal accident, 2 - Accident with serious injuries, 3 - Accident with light injuries)', and '[Crash type] Is any of (2 - Turning-off, 3 - Turning-into / crossing)'. The number of crashes is displayed as 896. Below the filter section is a 'Crash list' table with columns for Crash ID, Date, Time, Cat., Police station, Town, Road, and Parish. The table contains several rows of crash data, each with a green checkmark in the first column.

Crash filter

Number of crashes: 896

Crash filter

And

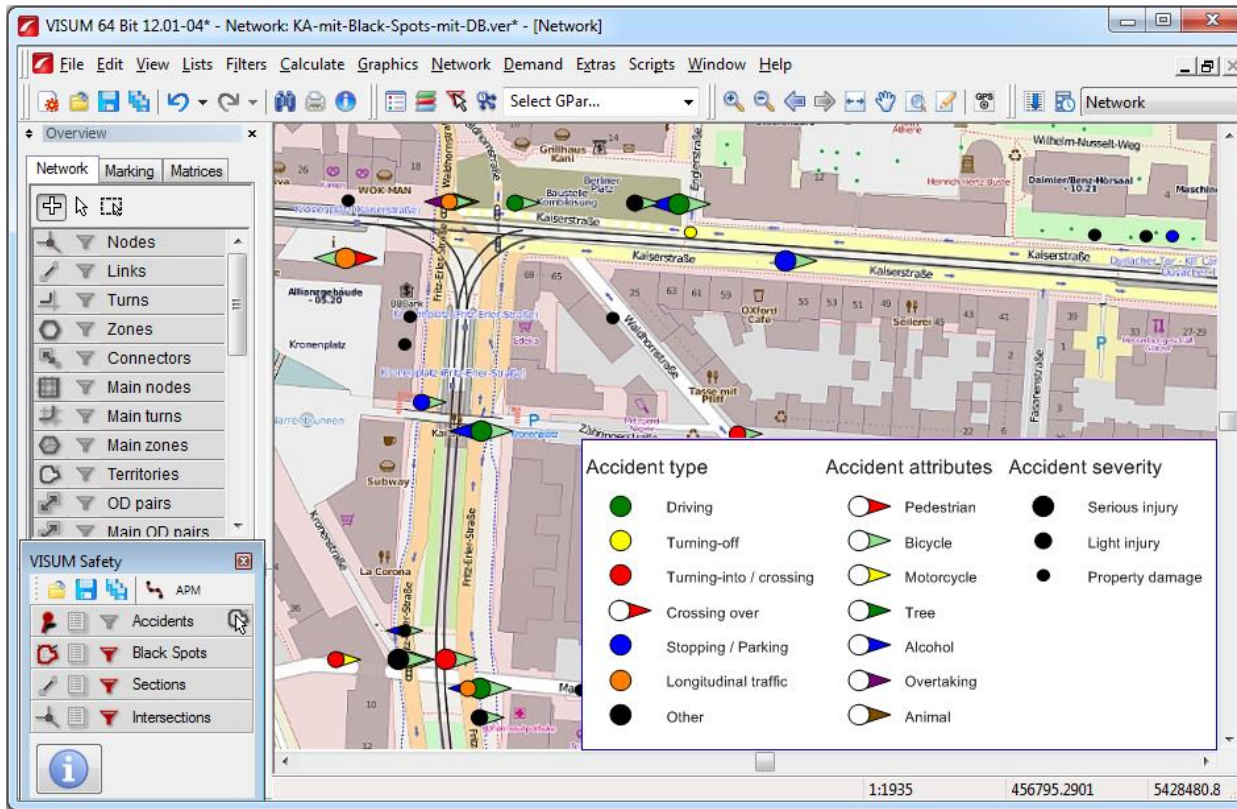
- [Crash date] Is between 01.01.2010 and 31.12.2010
- [Department] Equals KA
- [Category] Is any of (1 - Fatal accident, 2 - Accident with serious injuries, 3 - Accident with light injuries)
- [Crash type] Is any of (2 - Turning-off, 3 - Turning-into / crossing)

Crash list

			Crash ID	Date	Time	Cat.	Police station	Town	Road	Parish
>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0003751/2010	01.01.2010	16:00	3	KA	Oberhausen-Rheinhausen	B 36	215107
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0014565/2010	04.01.2010	15:00	3	KA	Karlsruhe	Erbprinzenstraße	212000
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0025358/2010	06.01.2010	17:00	3	KA	Oberhausen-Rheinhausen	Kolpingstraße	215107
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0029512/2010	07.01.2010	11:00	3	KA	Bruchsal	Am See	215009
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0035792/2010	07.01.2010	11:00	3	KA	Oberderdingen	Flehinger Straße	215059
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0029127/2010	07.01.2010	14:00	3	KA	Ettingen	B 3	215017
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0031517/2010	07.01.2010	17:00	3	KA	Karlsruhe	Reinhold-Frank-Straße	212000
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0034571/2010	08.01.2010	13:00	2	KA	Karlsruhe	Hoffstraße	212000
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0035553/2010	08.01.2010	16:00	3	KA	Karlsruhe	Markgrafenstraße	212000

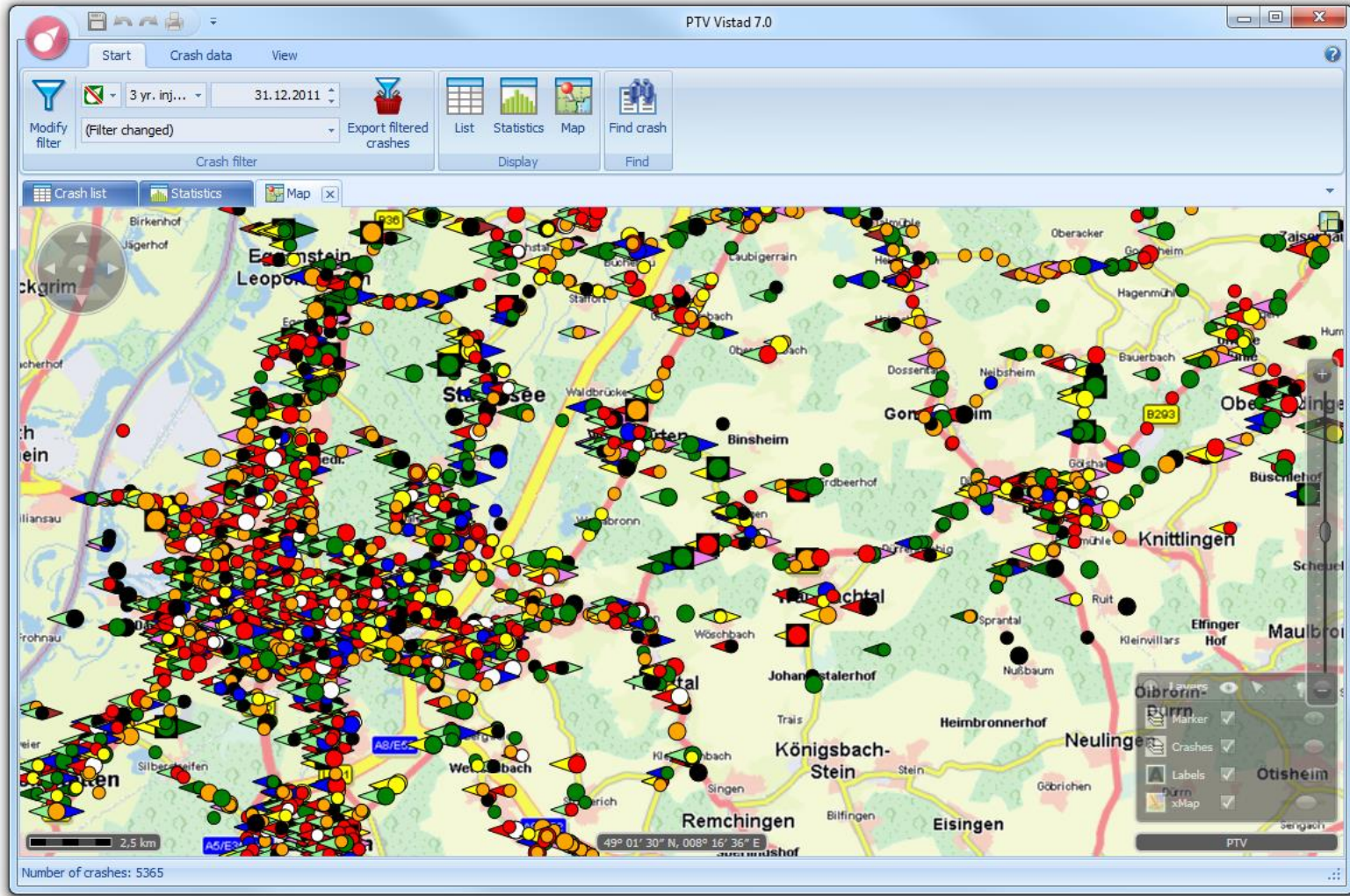
Number of crashes: 896

# ACCIDENT MAPPING IN DETAIL



The accident data are systematically displayed in a pragmatic and intuitive format based on more than 30 years experience with police officers in Germany. PTV Visum Safety displays accidents types (conflict situation).

# ACCIDENT MAPPING AND FILTERING



# VARIOUS STATISTICS AND REPORTING CAPABILITIES

**Accident data**

**Statistics**

Total number of accidents: 10594  
Total accident cost: 180549 k€

Number of fatalities: 12  
Number of serious injuries: 651  
Number of light injuries: 3903

**Accident severity**

	Count	Cost
Serious injuries	622 (6%)	96555 k€ (53%)
Light injuries	3005 (28%)	37237 k€ (21%)
Property damage only	6967 (66%)	46758 k€ (26%)

**Accident types**

**Involved road users**

**Contributing environmental factors**

**Contributing individual factors**

	Count	Cost
Tree	51 (0%)	1672 k€ (1%)
Obstacle off Road	916 (9%)	25158 k€ (14%)
Overtaking	268 (3%)	5425 k€ (3%)
% Alcohol	478 (5%)	15483 k€ (9%)
Speeding	725 (7%)	25176 k€ (14%)
Red Light offence	383 (4%)	9706 k€ (5%)

**Auswertung der Verkehrsunfalldaten**

Beschreibung des Berichts:  
Unfallauswertung Dresden 2004-2008

**2004 - 2008**

**VU in Monaten**

Monat	Count
Jan	363
Feb	335
Mar	717
Apr	901
May	1.080
Jun	1.190
Jul	1.011
Aug	982
Sep	1.014
Ok	1.010
Nov	873
Dec	382

**VU an Tagen**

Wochentag	Count
Samstag	1.733
Freitag	1.740
Donnerstag	1.689
Mittwoch	1.822
Dienstag	1.800
Freitag	1.160
Samstag	816

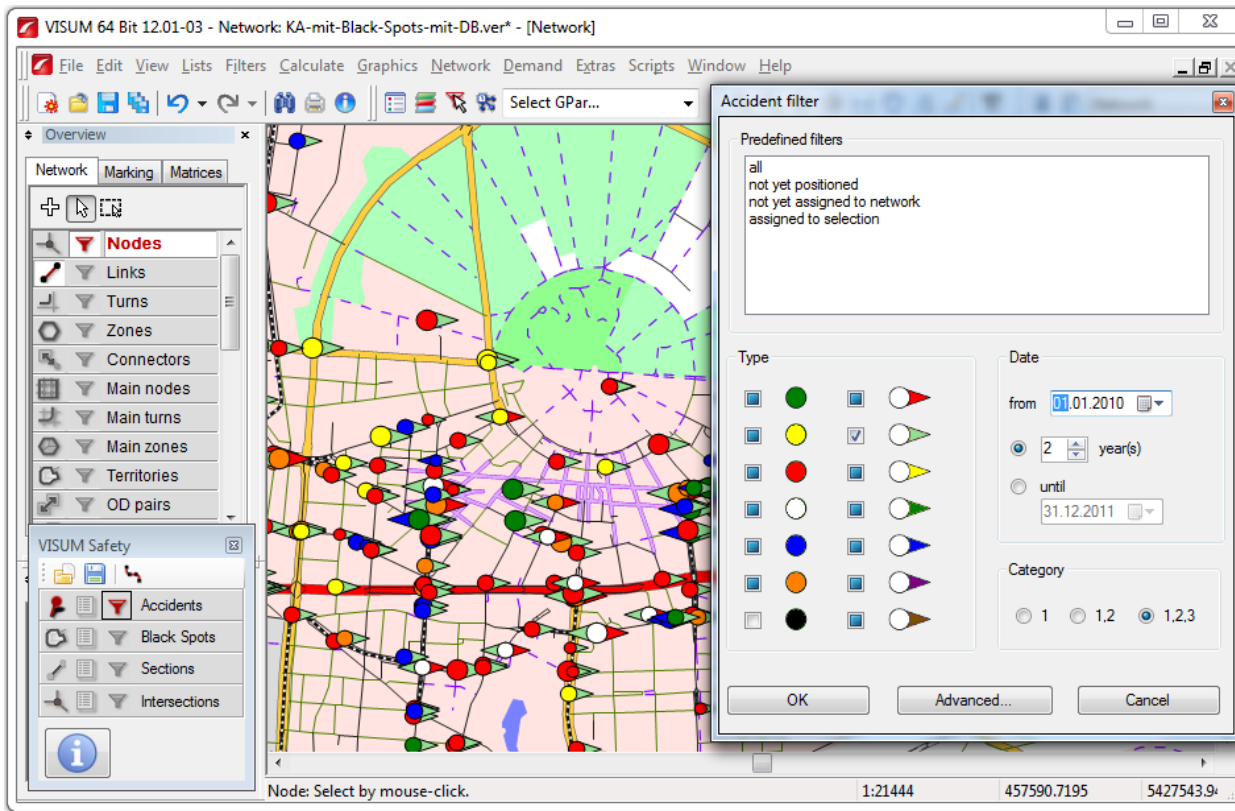
**VU im Tagesverlauf**

Zeit	Count
0	27
1	39
2	48
3	57
4	65
5	73
6	81
7	89
8	97
9	105
10	113
11	121
12	129
13	137
14	145
15	153
16	161
17	169
18	177
19	185
20	193
21	201
22	209
23	217

Date	Time	Severity	Cost	Tree	Obstacle	Overtaking	Alcohol	Speeding	Red Light	Other
2011-03-18	9:00	7	6							
2010-12-07	19:00	7	6							
2010-01-15	18:00	6	315							
2009-09-10	17:00	6	18							
2009-10-07	9:00	6	18							
2010-01-17	21:00	6	6							
2011-03-31	16:00	6	6							
2009-08-03	7:00	5	255							
2010-06-22	17:00	5	255							
2011-09-04	23:00	5	255							
2010-01-07	14:00	5	18							
2010-03-19	21:00	5	18							
2010-03-26	20:00	5	18							
2011-03-28	22:00	5	18							
2010-04-16	15:00	5	18							
2010-01-15	22:00	5	13							
2010-01-16	7:00	5	13							
2010-03-07	18:00	5	13							
2010-05-24	19:00	5	6							
2011-09-05	7:00	5	13							
2011-11-11	18:00	5	13							
2023619/2011	2011-11-20	5	13							
2178204/2010	2010-12-20	5	6							
2257045/2011	2011-12-29	5	13							
1628418/2009	2009-11-07	2	18,5							
0082892/2010	2010-01-17	2	13							
0112098/2010	2010-01-21	2	13							
1863955/2010	2010-10-28	2	13							
1976532/2010	2010-11-16	2	13							
1549219/2011	2011-09-04	1	17,5							

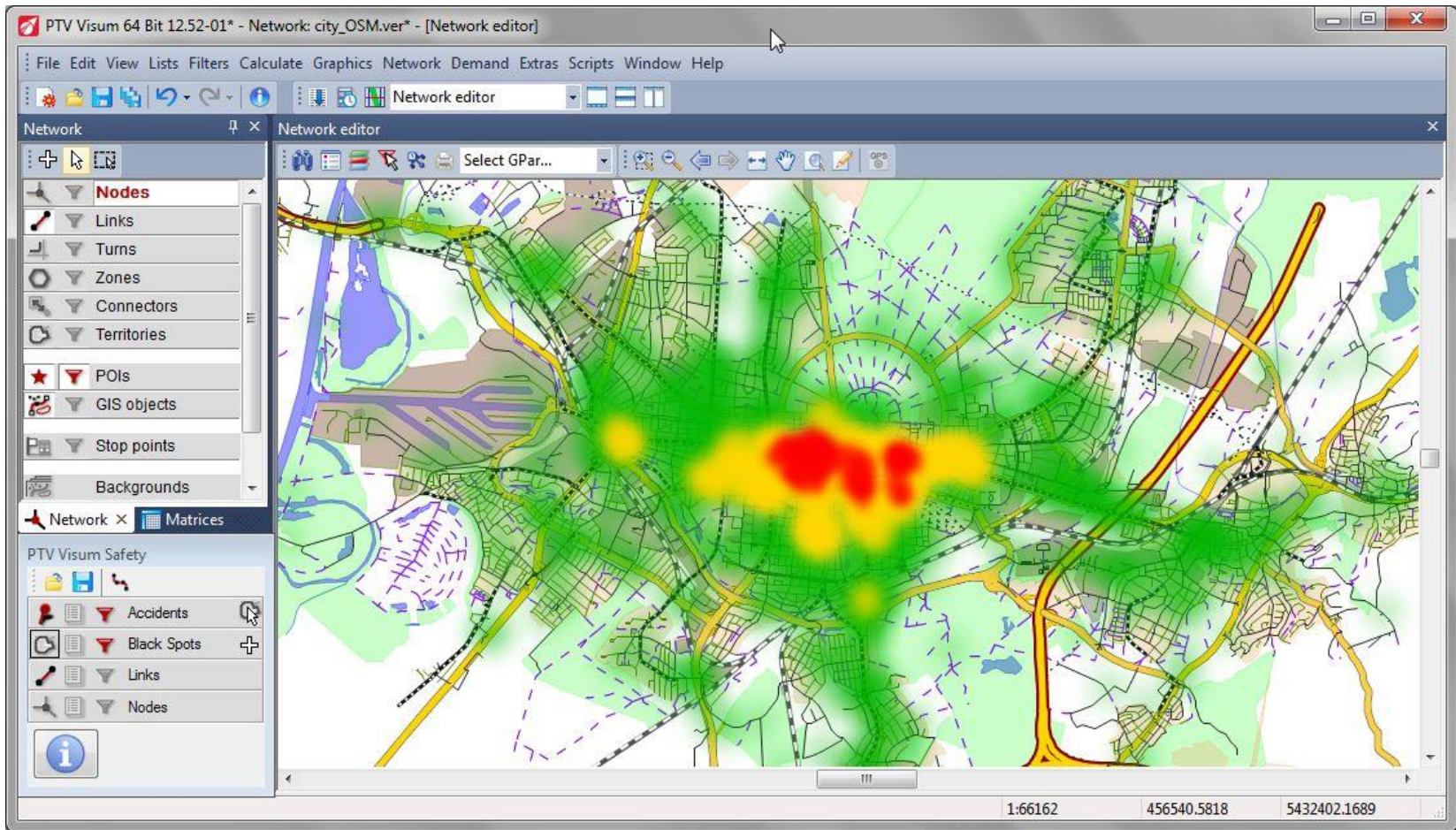
Showing 1 to 30 of 30 entries

# EASY FILTERING ACCIDENT DATA – ACCIDENTS WITH CYCLISTS



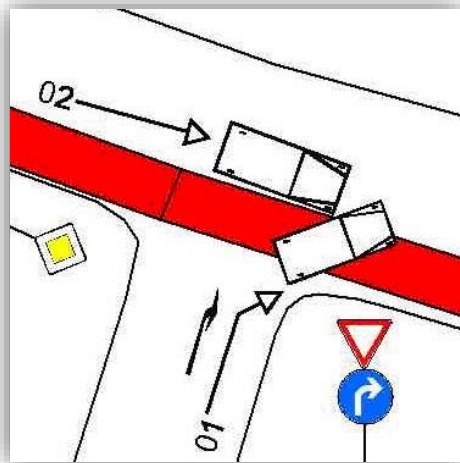
The accident data can be filtered depending on the accident main attributes. Easy filtering of accidents with cyclists.

# HEAT MAP OF THE CITY AREA



PTV Visum Safety generates a heat map based on user accident data to focus road safety action programs on the significant areas e.g. cyclists.

# MITIGATE MEASURE TO ELEMIMATE BLACK SPOTS



## Crash data application overview

- Crash data management
- Black spot analysis
- Find mitigate measure to eliminate black spots



# SAFE OR UNSAFE INTERSECTION?



**SAFE OR UNSAFE  
INTERSECITON DESIGN?**
































































24 crashes in one year

Data table

Search:

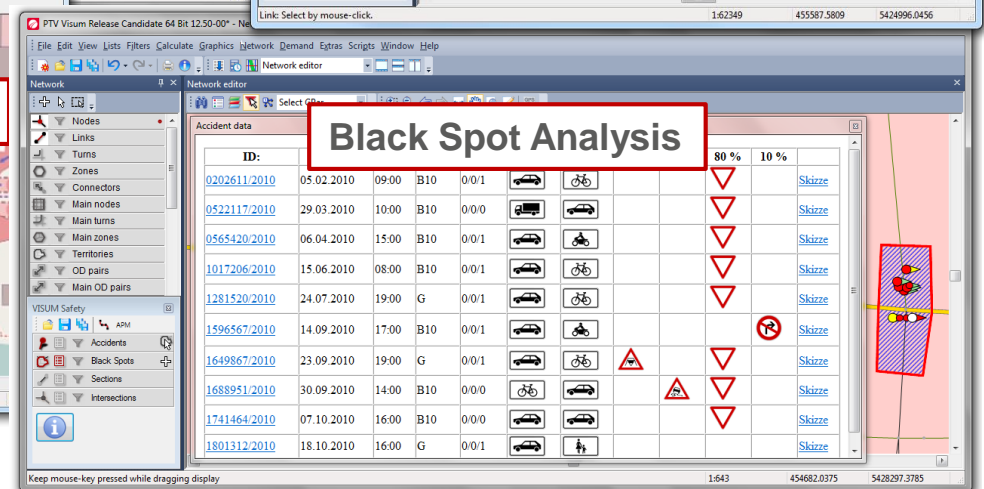
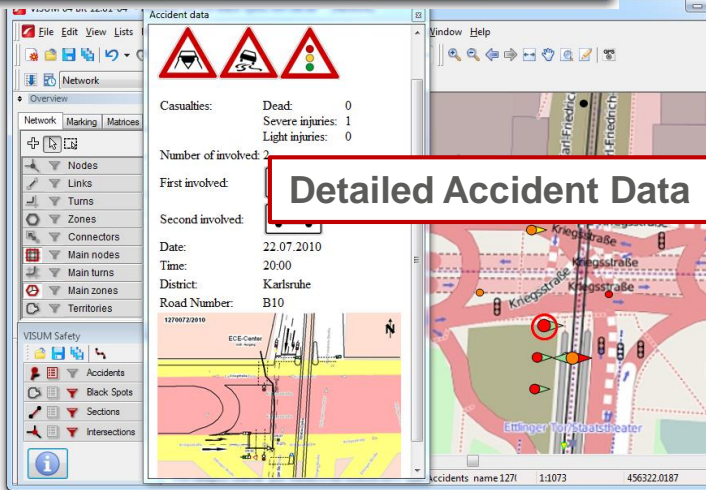
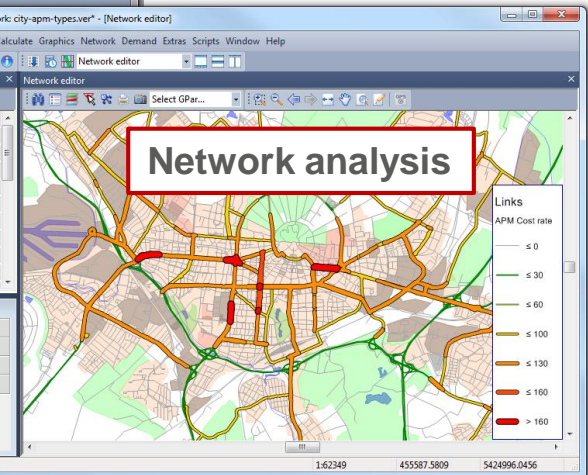
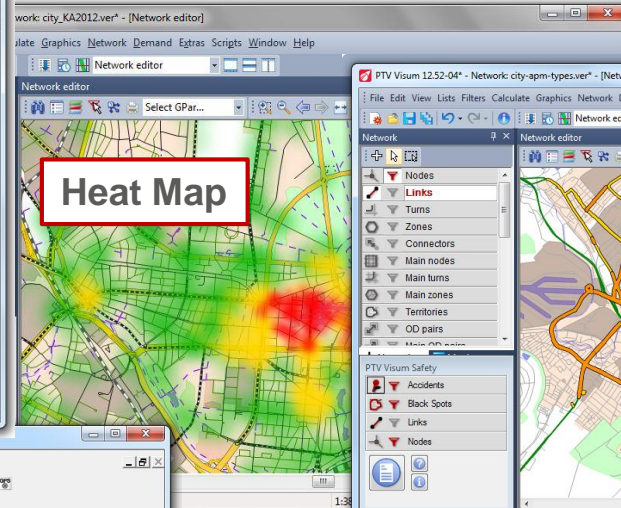
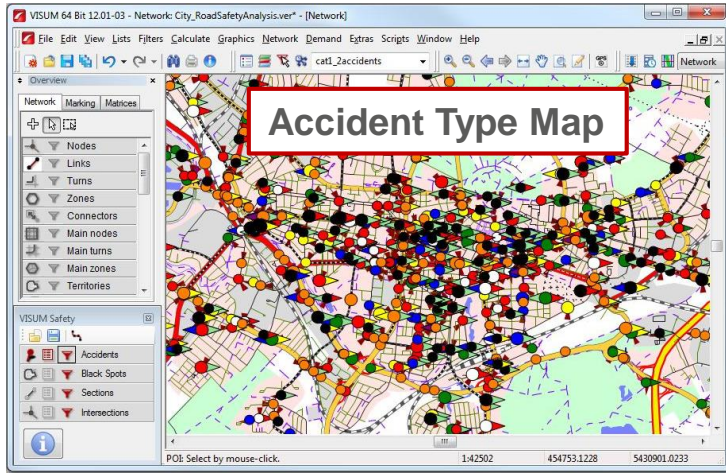
Accident ID	Date	Time											
			2	5	1	135	3	6	3	2	2	2	4
<a href="#">0936938/2011</a>	2011-05-30	17:00	2			135							
<a href="#">0356524/2013</a>	2013-03-03	17:00	2			41.5							
<a href="#">1015647/2011</a>	2011-06-11	13:00	2			13							
<a href="#">1098016/2011</a>	2011-06-25	15:00	2			13							
<a href="#">1348401/2012</a>	2012-08-03	14:00	2			41.5							
<a href="#">1869372/2011</a>	2011-10-26	6:00	2			12.5							
<a href="#">1462421/2012</a>	2012-08-22	22:00	2			41.5							
<a href="#">0548669/2011</a>	2011-04-01	19:00	2			13							
<a href="#">0731434/2012</a>	2012-05-01	15:00	2			41.5							
<a href="#">1332051/2013</a>	2013-08-02	17:00	2			41.5							
<a href="#">1564782/2011</a>	2011-09-06	18:00	2			12.5							
<a href="#">2244247/2011</a>	2011-12-27	17:00	2			12.5							

Showing 1 to 12 of 12 entries

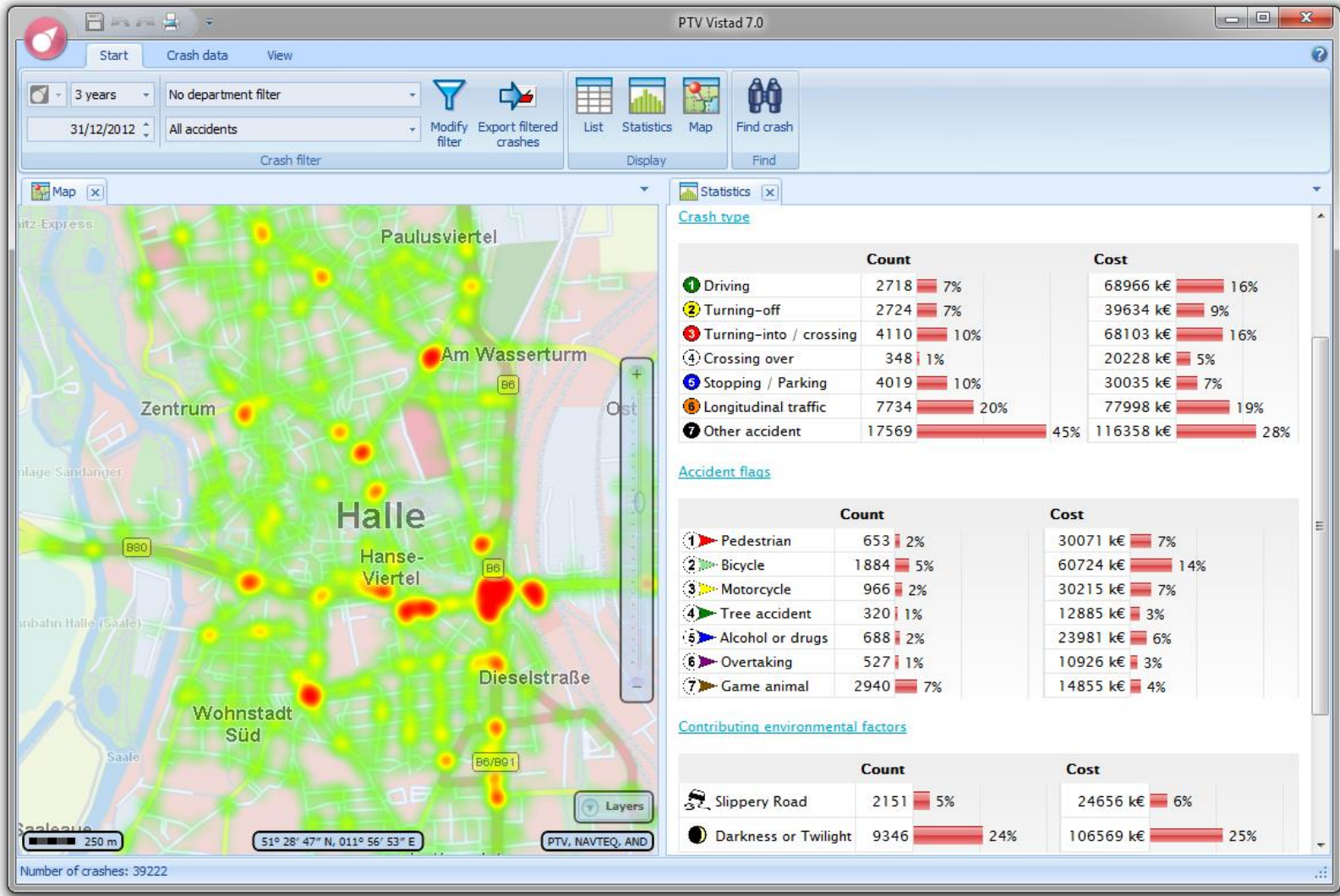


12 crashes with injuries in 3 years  
 3 severity injured  
 9 slightly injured

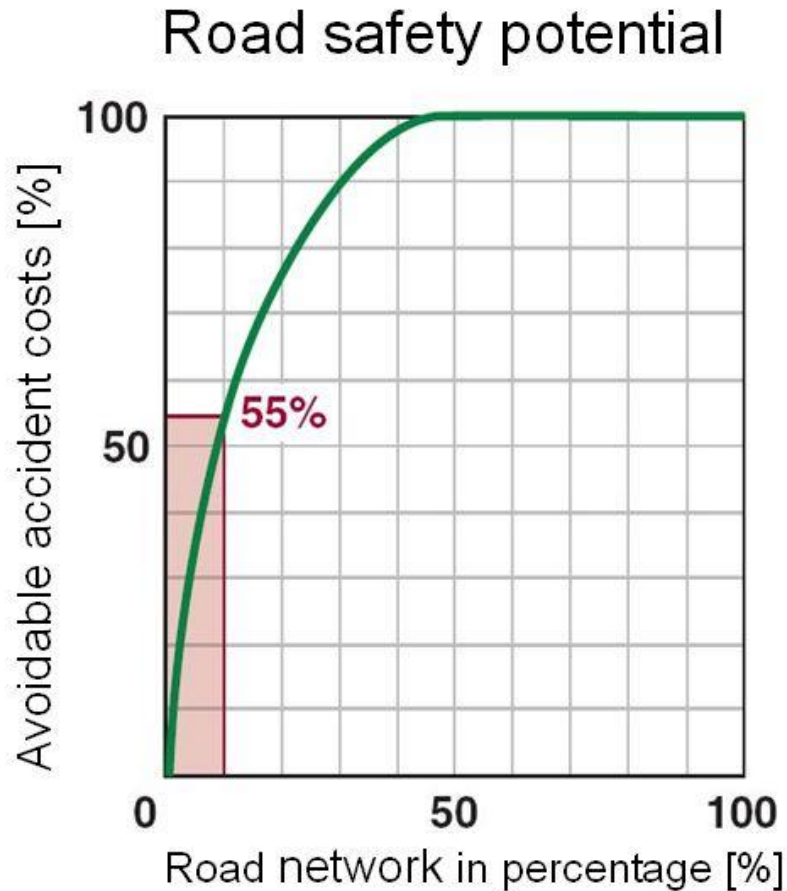
# BLACK SPOT MANAGEMENT BASED ON PTV VISUM SAFETY



# EXAMPLE OF AN CRASH DATABASE APPLICATION



# NETWORK SAFETY MANAGEMENT: WHAT DOES SAFETY POTENTIAL TELL ME ABOUT MY ROAD NETWORK?



More than  
**50 % of avoidable accident costs**  
occur on only  
**10% of the road network!**





**Accident Mapper**

# ROAD SAFETY MOBILE DATA APPLICATION FOR POLICE AND GENERAL PUBLIC

# THE APPLICATION – CORE FUNCTIONS



Accident Mapper



**Capture Georeferenced Data of Road Accidents**



**Real-time & Efficient Information to Handle Accidents**



**Collaborates Multiple Emergency Response Teams**



**Detailed Scientific Data for Post-Accident Analysis**



**Capture Geotagged Accident Photographs & Videos**



**Easy Customisation to Any Region and Language**



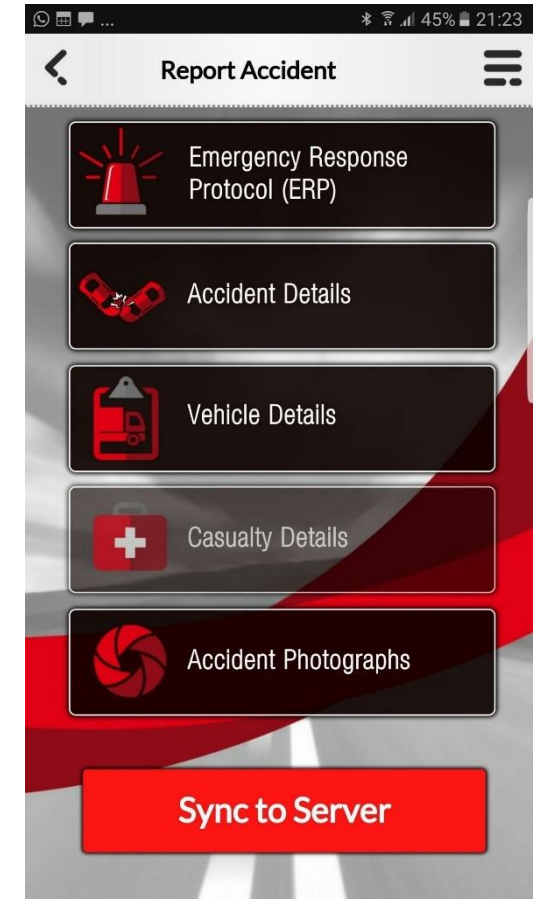
**40 Reporting Parameters for Road Accidents**



**Over 200 Reporting Scenarios for Road Accidents**

Provide a tool that could be used by both public and police

- Public – Emergency Response Protocol
- Police – Emergency Response Protocol and Detailed accident Reporting.



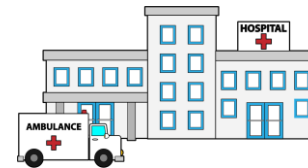
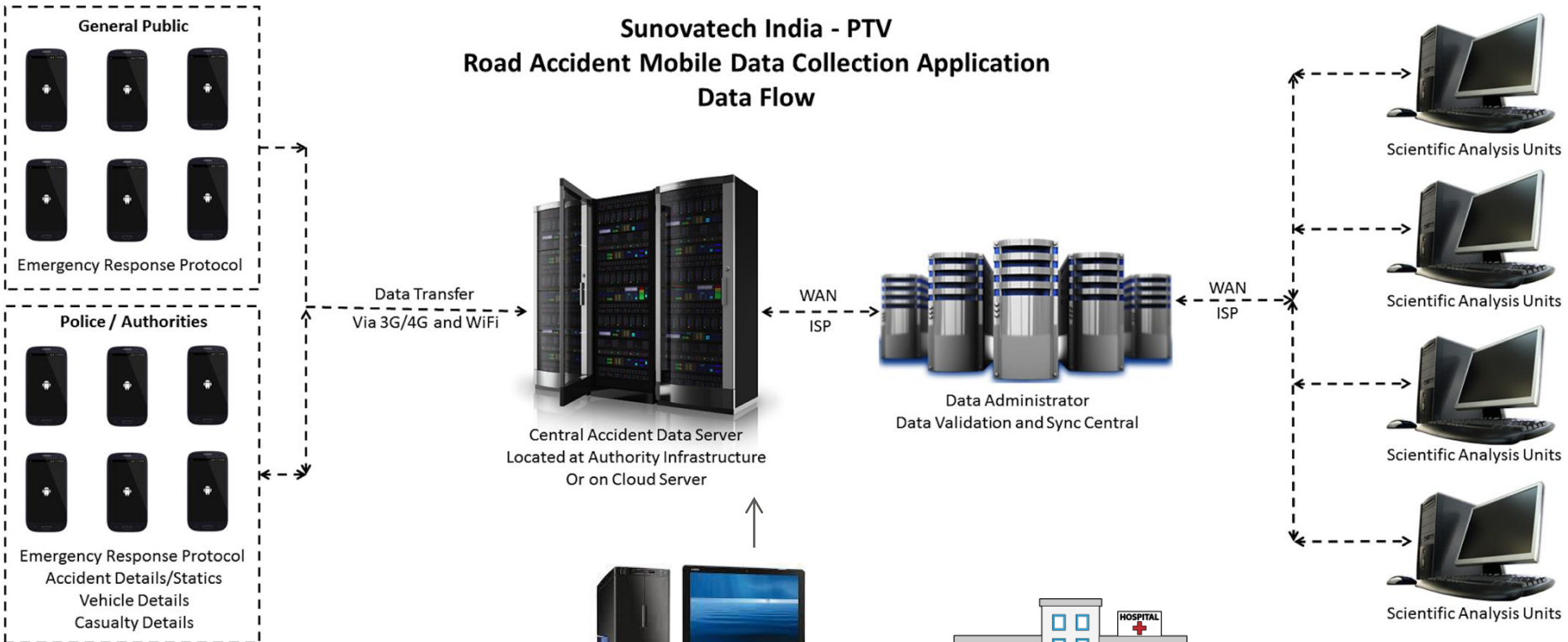
# SYSTEM ARCHITECTURE



Accident Mapper



## Sunovatech India - PTV Road Accident Mobile Data Collection Application Data Flow



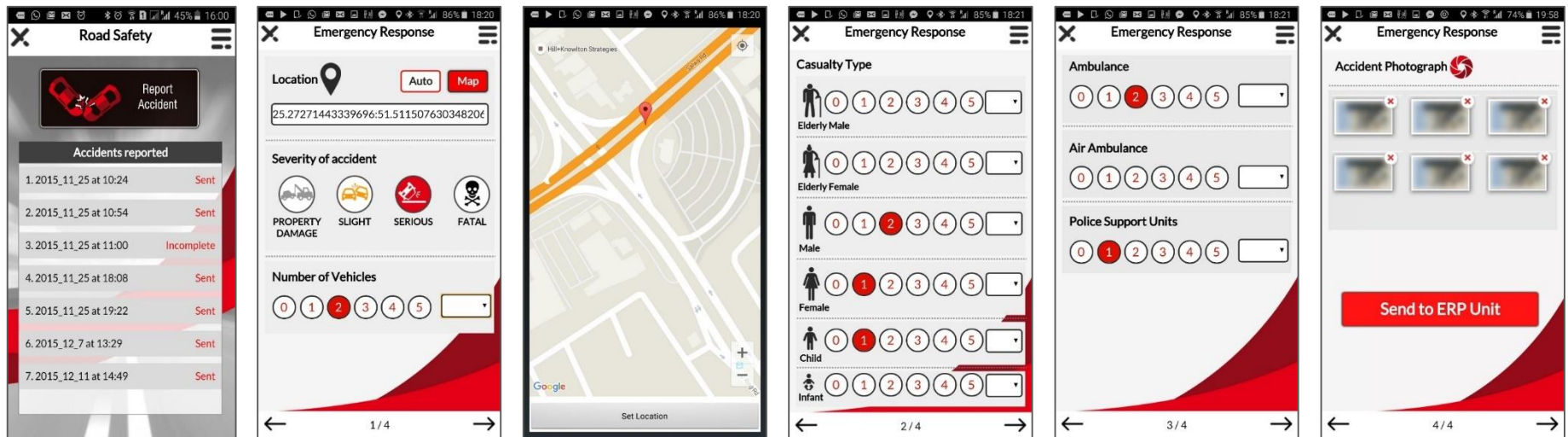
Desktop Application VISTAD  
Hospitals and Police Stations



Accident Mapper

# THE APPLICATION – INTERFACE

- **Emergency Response Protocol (ERP):**
  - User Type: General Public and the Police
  - Captures most critical data at the time of the accident



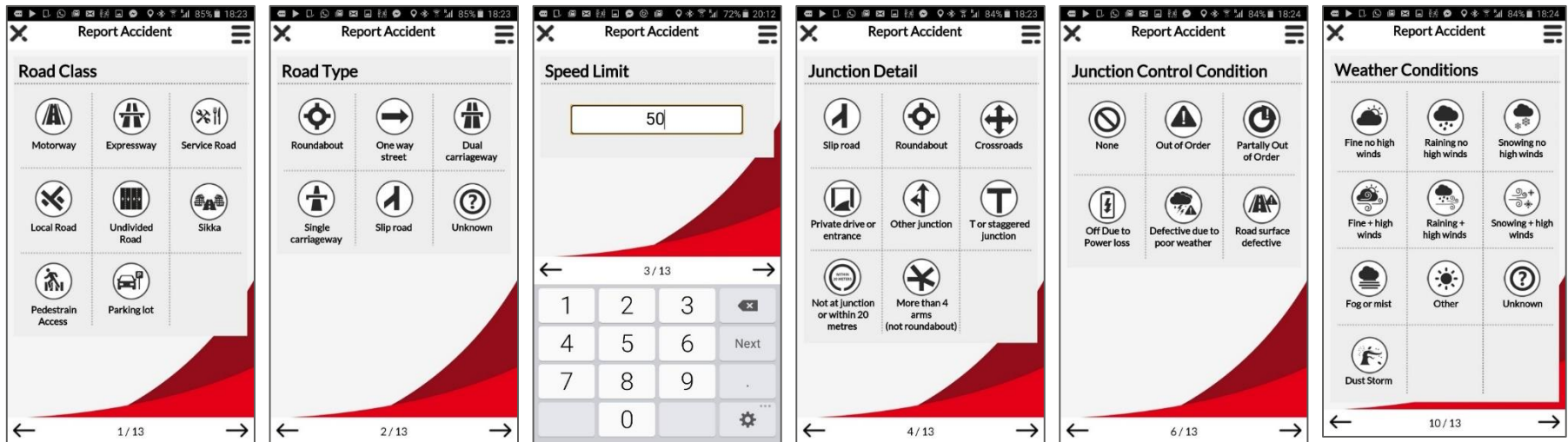
- **UI: Click and Swipe**



Accident Mapper

# THE APPLICATION – INTERFACE

- **Accident Details/Statistics:**
  - User Type: Police – Authorised Personnel
  - Captures: accident scene environment and the contributing factors



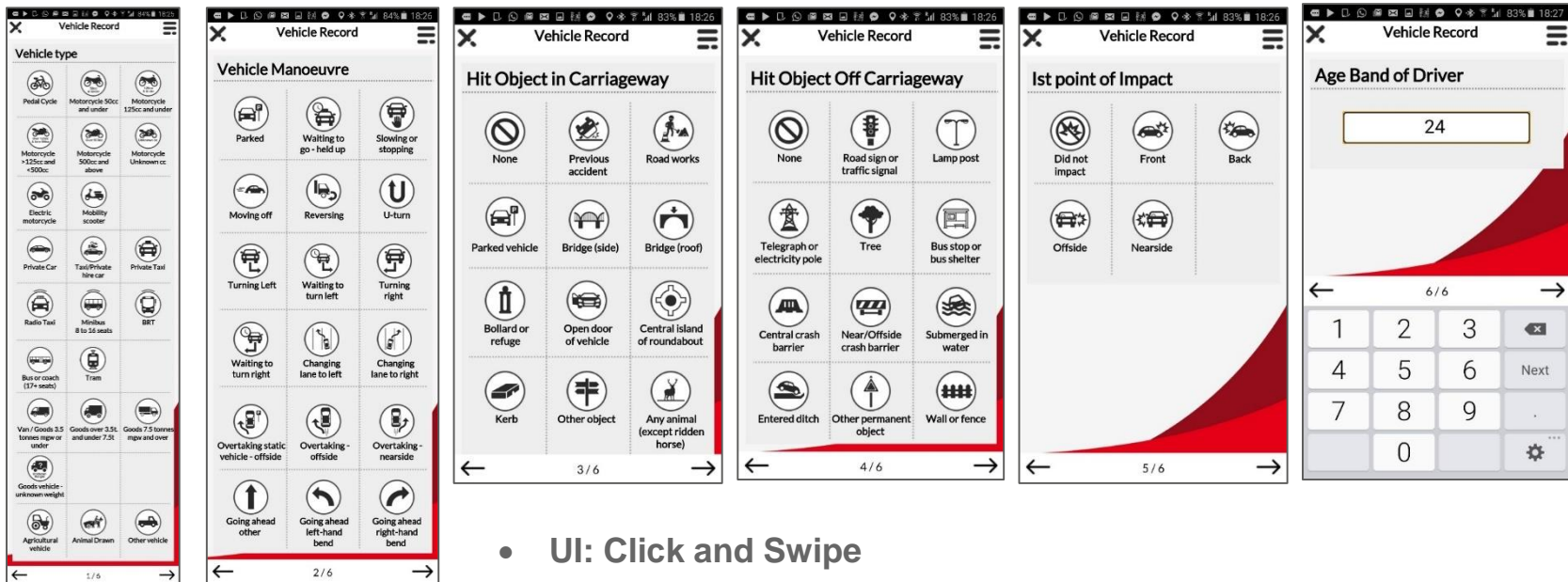
- **UI: Click and Swipe**



Accident Mapper

# THE APPLICATION – INTERFACE

- **Vehicle Details :**
  - User Type: Police – Authorised Personnel
  - Captures: Vehicle and driver Statics



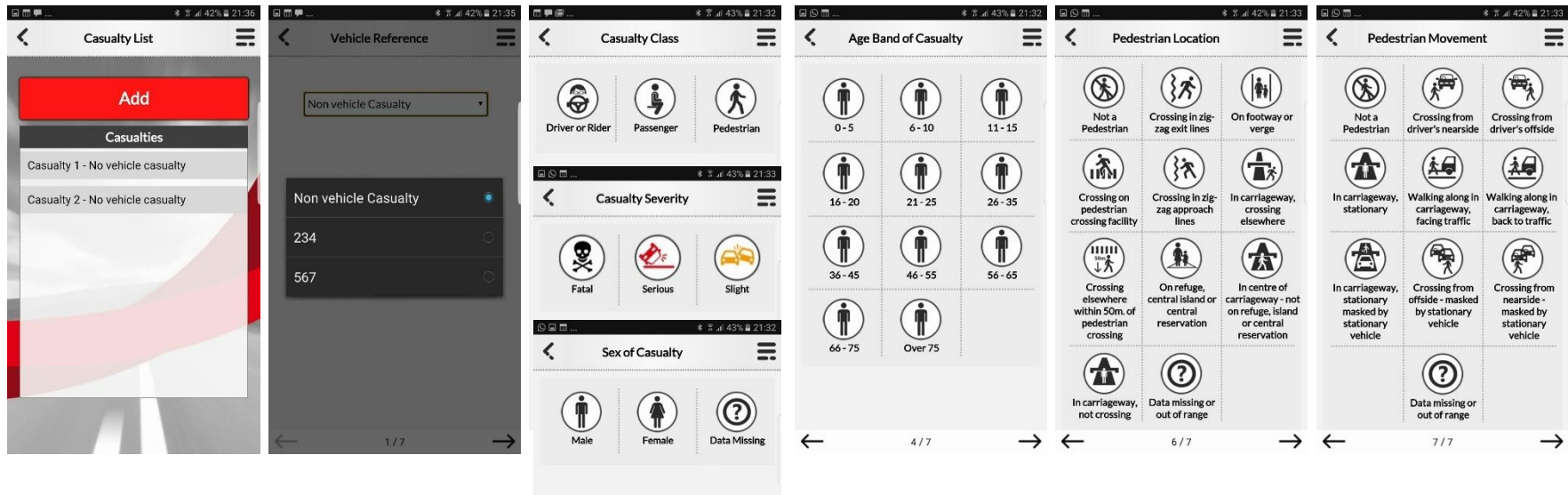
- **UI: Click and Swipe**



Accident Mapper

# THE APPLICATION – INTERFACE

- **Vehicle Details :**
  - User Type: Police – Authorised Personnel
  - Captures: Victims Information



- **UI: Click and Swipe**



Accident Mapper

# THE APPLICATION – ADMIN INTERFACE

RS ROAD SAFETY

- [Dashboard](#)
- [Manage Users](#)
- [Manage Accidents](#)
- [Reported by Police](#)
- [Public Reporting](#)

### ACCIDENTS REPORTED BY POLICE

Action	Record ID	Reported By	GPS	Accident Type	Vehicle Total	Casualty Eld. Male	Casualty Eld. Female	Casualty Male	Casualty Female	Casualty Child	Casualty Infant	Ambulance	Accident Date
<a href="#">View</a>	RSptv_user_1472888138	ptv_user	19.14871174737989 , 72.85461738254503	Serious	3			3		1		2	03 Sep, 2016 1:05:38 PM
<a href="#">View</a>	RSptv_user_1472799269	ptv_user	18.993532065588855 , 72.8245350841178	Serious	2	2			2				02 Sep, 2016 12:24:29 PM
<a href="#">View</a>	RSptv_user_1472540635	ptv_user	28.62502506205171 , 77.21817568354722	Slight	2							1	30 Aug, 2016 12:33:55 PM
<a href="#">View</a>	RSptv_user_1472530511	ptv_user	28.625543243100157 , 77.21886273281432	Slight	2	1			1	1		1	30 Aug, 2016 9:45:11 AM
<a href="#">View</a>	RSptv_user_1471850237	ptv_user	28.5811506 , 77.0725181	Slight	1	1	0	1	0	1	0	1	22 Aug, 2016 12:47:17 PM
<a href="#">View</a>	RSptv_user_1471856892	ptv_user	28.6139,77.2090 ,	Slight	1	1							22 Aug, 2016 2:38:12 PM
<a href="#">View</a>	RS_919810306484_1471766147	919810306484	24.41198222048629 , 54.49183407243969	Property Damage	5	0	1		3	1		3	21 Aug, 2016 1:25:47 PM
<a href="#">View</a>	RSptv_user_1471765986	ptv_user	24.41198222048629,54 ,	Property Damage	4			2	2			2	21 Aug, 2016 1:23:06 PM
<a href="#">View</a>	RSptv_user_1471589391	ptv_user	28.6139,77.2090 ,										19 Aug, 2016 12:19:51 PM
<a href="#">View</a>	RSptv_user_1471585451	ptv_user	28.6139 , 77.2090	Slight									19 Aug, 2016 11:14:11 AM

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Accident Mapper

# THE APPLICATION – ADMIN INTERFACE (ADDING POLICE OFFICER)

The screenshot displays the 'ADD USER' form in the Accident Mapper Admin Interface. The form is titled 'ADD USER' and includes a note: 'Fields marked as \* are mandatory to fill.' The form fields are as follows:

- User Name\* (text input)
- Full Name (text input)
- Email Address\* (text input with a copy icon)
- Mobile Number\* (text input with value 'admin\_rs')
- Password\* (password input with a strength indicator and a note: 'Please enter minimum 6 characters.')
- Batch ID\* (text input)
- Choose Country\* (dropdown menu with 'Select...' option)
- State Name\* (dropdown menu with 'Select...' option)
- Choose Police District\* (dropdown menu with 'Select...' option)
- Choose Police Station\* (dropdown menu with 'Select...' option)
- Expire On (date input with a calendar icon and a note: 'select a date')

At the bottom of the form, there are two buttons: 'SUBMIT' and 'CANCEL'. The footer of the page reads '2016 © Sunovatech'.



Accident Mapper

## WHY IMPLEMENT THE SYSTEM

- PREDICT AND PREVENT ROAD DISASTERS
- CREATE POSTIVE AND GOOD GOVERNANCE IMAGE
- IMPROVE QUALITY OF LIFE
- PROVIDE BACKBONE FOR POLICY FRAMEWORK
- HELP DEVELOP WORLD CLASS INFRASTRUCTURE
- SMART TRAFFIC MANAGEMENT FOR SMART CITIES

**SAVE PRECIOUS LIVES**

# DISASTER AND ACCIDENT MANAGEMENT SYSTEM FOR CITY

WE CAN NOW PREDICT IF AN ACCIDENT WILL HAPPEN HARE  
ITS JUST A MATTER OF TIME WHEN THE NEXT ONE WILL HAPPEN



THANK YOU

ROAD SAFETY  
MOBILE DATA  
APPLICATION FOR  
POLICE AND  
GENERAL PUBLIC



# Accident Mapper

