Road Accident Data Recorder (RADA R)
Contents

• Why accident data?
• Existing situation
• What is RADaR?
• How RADaR works?
• Benefits
Factors contributing to road accidents are:

- Driver behaviour or fault
- Roadway design or control
- Poor roadway maintenance
- Vehicle failure

Over 95% of the road traffic accidents involve some degree of driver behaviour/fault combined with one of the other three factors.

Existing accident data record by traffic police do not reflect the actual cause of road accident, and less useful for scientific analysis.

A comprehensive data collection is required to identify exact causes of accidents and for design of countermeasures.
Existing Situation - limitations

- Accident data normally collected by the Traffic Police in most countries – untrained police personnel collect incomplete data.
- Cause of accident is attributed to the driver behavior/fault only in most cases – which is incorrect.
- Insufficient details such as exact location of the accident and road condition etc leaves many questions unanswered – need a separate GPS tracker to track the exact location.
- Collection technique is laborious, and it is collected as a criminal record, and not for modifying incorrect design/inappropriate control/deficient behaviour etc. – partial information collected half heartedly.
- No mechanism to share the data with other Stakeholders like Road Authorities – non-standard data, not made available to actual users of the data.
What is RADaR?

- **Road Accident Data Recorder (RADaR)** is a software application developed for tablet to help the traffic police to collect the accident data in comprehensive manner which will enable scientific analysis to determine the actual cause of the accidents.
Features of RADaR

• A quick and easy automated tool to collect comprehensive road crash data
• User friendly software application loaded on to tablet computer working on ANDROID operating system
• GPS/GPRS facility to record exact crash location in global coordinate system, use Google map and to transmit data to web-based central server
• Drop-down menus of RADaR application enable easy recording of data using touch screen mode
• Facility to take photographs of road crash scene, and to record crash site on Google network map
• Pictorial Menu-driven recording of road layout of crash site and collision diagram plotted on layout for scientific investigations
How RADaR Works?

- **Enforcement Personnel**
- **RADaR Application**
- **Web-Based Server**
- **RADaR Reporting Tool**
- **Resuscitation Centres**
- **Motor Insurance**
- **Black Spot Improvement**
- **Adjudication**
Implementation of RADaR Application
(Road safety needs a systematic revolution)

• **RADaR** is an innovative tool for scientific Road Accident Data Recording, and it is a device-independent supply of the application software for installation in a tablet of Android OS.

• **RADaR** Application is supplied in a licensed pen drive, which permits the application to be loaded in 10 or 20 tablets of user’s choice, depending on type of license purchased.

• **RADaR** license is for a Police Station, which will be using the tablet application for collection of road accident/crash data through trained Police personnel in its jurisdiction through the use of 10 or 20 tablets, as the case may be.

• Accident/crash data collected at the accident scene and later at other locations will then be transmitted to the central server directly from the tablet by using the menu-driven option given in the tablet application.

Cont....
Implementation of RADA R Application

(Road safety needs a systematic revolution)

• The web-based central server is provided, managed and maintained by the supplier of RADA R Application. It is a completely secured database server with 99.99% reliability through systems of back-up servers. The data for each Police Station is recorded, managed and maintained separately, so as to provide the access to the users hierarchically for their jurisdictions – from a Police Station to the highest level of the country as a whole.

• The GSM/GPRS network facility in the tablet and internet access (WAN) for the users of different hierarchy shall be arranged and made available by the implementing agency, viz. Police Department, Road Authority, etc.

• All users at different levels of hierarchy can use RADA R reporting tool to generate cross classified tables of the accident data for a chosen area (jurisdiction of the user) and selected period in months and years.
Hierarchical Access to Web-based Central Accident Database
Recording of Data in RADaR
Opening Menu of RADaR – two options
Unique user ID and Password for each Police Station
Data recorded through menu-driven touch screen

1. Accident identification
2. Information on persons involved, site layout, collision type and road characteristics
3. Information on vehicles/passengers/pedestrians involved in accident
4. Location on Google map, GPS coordinates of accident location and photographs of accident scene
5. Recording collision diagram on layout of accident site layout; also saving data in tablet memory or send to web-based server
6. Facility to search previous data or export data
Data recorded through menu-driven touch screen

1. Accident identification

2. Information on persons involved, site layout, collision type and road characteristics

3. Information on vehicles/passengers/pedestrians involved in accident

4. Location on Google map, GPS coordinates of accident location and photographs of accident scene

5. Recording collision diagram on layout of accident site layout; also saving data in tablet memory or send to web-based server

6. Facility to search previous data or export data
Data Fields of the First Page, viz, Accident ID, Police Station ID, Section of Law applicable, GPS co-ordinates, etc.
Data recorded through menu-driven touch screen

1. Accident identification

2. Information on persons involved, site layout, collision type and road characteristics

3. Information on vehicles/passengers/pedestrians involved in accident

4. Location on Google map, GPS coordinates of accident location and photographs of accident scene

5. Recording collision diagram on layout of accident site layout; also saving data in tablet memory or send to web-based server

6. Facility to search previous data or export data
Data Fields of the Second Page, viz, Accident Severity Details, Collision type, Road Character, etc.
<table>
<thead>
<tr>
<th>Data Fields of the Second Page viz. Road Layout , Accident Type, Light Condition, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road Layout</strong></td>
</tr>
<tr>
<td>Single/Intermediate Lane</td>
</tr>
<tr>
<td><strong>Collision Type</strong></td>
</tr>
<tr>
<td>Single/Intermediate Lane Straight Section</td>
</tr>
<tr>
<td><strong>Road Width</strong></td>
</tr>
<tr>
<td>less than =5.5m</td>
</tr>
<tr>
<td><strong>Horizontal Geometry</strong></td>
</tr>
<tr>
<td>Straight Road</td>
</tr>
<tr>
<td><strong>Vertical Geometry</strong></td>
</tr>
<tr>
<td>Flat Road</td>
</tr>
</tbody>
</table>
1. Accident identification

2. Information on collision type and road characteristics

3. **Information on vehicles/passengers/pedestrians involved in accident**

4. Location on Google map, GPS coordinates of accident location and photographs of accident scene

5. Recording collision diagram on layout of accident site layout; also saving data in tablet memory or send to web-based server

6. Facility to search previous data or export data
Data Fields of the Third Page, viz.
Vehicle details, Vehicle age, Loading condition, etc.
### Data Fields of the Third Page, viz. Driver details, Driver error, etc.

<table>
<thead>
<tr>
<th>DRIVER</th>
<th>Possible Driver Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>None</td>
</tr>
<tr>
<td>Father / Husband Name:</td>
<td>Fatal</td>
</tr>
<tr>
<td>Address:</td>
<td>Full Licence</td>
</tr>
<tr>
<td>Licence NO.:</td>
<td>less than 8th std.</td>
</tr>
</tbody>
</table>

**Alcohol/Drugs:** Not Suspected
### Data Fields of the Fourth Page of the Injured / Killed Passengers, viz. Details of passenger position, Passenger action etc.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter Name</td>
</tr>
<tr>
<td>Address</td>
<td>Enter Address</td>
</tr>
<tr>
<td>Father / Husband Name</td>
<td>Enter Father / Husband Name</td>
</tr>
<tr>
<td>Seat Belt/Helmet Used</td>
<td>Yes</td>
</tr>
<tr>
<td>Injury</td>
<td>Fatal</td>
</tr>
<tr>
<td>Passenger Position</td>
<td>Front Seat</td>
</tr>
<tr>
<td>Passenger Action</td>
<td>Sitting</td>
</tr>
<tr>
<td>From Vehicle No.V1,V2 or Others</td>
<td>No Vehicle Added</td>
</tr>
</tbody>
</table>
Data Fields of the Fifth Page of the Injured / Killed Pedestrians, viz. Details of pedestrian location, Pedestrian action, etc.
Data recorded through menu-driven touch screen

1. Accident identification

2. Information on persons involved, site layout, collision type and road characteristics

3. Information on vehicles/passengers/pedestrians involved in accident

4. Location on Google map, GPS coordinates of accident location and photographs of accident scene

5. Recording collision diagram on layout of accident site layout; also saving data in tablet memory or send to web-based server

6. Facility to search previous data or export data
Facility to record the exact crash site with GPS co-ordinates and to click photos of the accident scene. In addition, accident location can be marked on Google map.
Data recorded through menu-driven touch screen

1. Accident identification

2. Information on persons involved, site layout, collision type and road characteristics

3. Information on vehicles/passengers/pedestrians involved in accident

4. Location on Google map, GPS coordinates of accident location and photographs of accident scene

5. Recording collision diagram on layout of accident site layout; also saving data in tablet memory or send to web-based server

6. Facility to search previous data or export data
Facility to draw collision diagram on accident site layout and then submit the data to server or to save in the tablet.
Data recorded through menu-driven touch screen

1. Accident identification

2. Information on persons involved, site layout, collision type and road characteristics

3. Information on vehicles/passengers/pedestrians involved in accident

4. Location on Google map, GPS coordinates of accident location and photographs of accident scene

5. Recording collision diagram on layout of accident site layout; also saving data in tablet memory or send to web-based server

6. Facility to search previous data or export data
Facility to search the data records in tablet by two data fields, viz Date of Accident and Day of Accident
Merits

• Traffic Police – the application will help in speedy data collection and in automatic FIR generation, which will help save time and cost; also better enforcement

• Road authorities – data will help to analyze the actual cause of road accidents, and to design the engineering measures to provide a safer road layout

• Insurance companies – the data collected will help to settle claims faster and will assist in the research for future insurance reforms using the trends

• Health authorities – the data will help to identify the cause of the injury relating to internal structure of the vehicles and will help assess possible pattern in injury. This may also help in future research and development in trauma care for road accident victims.
RADaR Application through Web-based Server

Asia

Africa

Americas

Europe

Australia
RADaR Reporting Tool

- Data is analyzed for different classification depending on the
  - Road type
  - Road surface condition
  - Weather condition
  - Gender Distribution
  - Age distribution
  - Collision type
  - Severity type
  - And many others
RADaR Reporting Tool

- Data can be analyzed at city level/state level/country level level
  - Data analysis at city level will help in identifying blackspots, settling the accident claims faster etc.
  - State level data may be useful for insurance companies/Govt. authorities/health officials to plan accordingly.
  - State level/country level data may be useful to analyze the human behavior, further research can be done to identify the reaction time for different age groups, and other attributes associated with reaction time.
Thanks !!

For any query and information relating to **RADaR**, please contact at the address given below.

**International Road Federation**

अंतरराष्ट्रीय सड़क संघ

208, Ashirwad Complex, D-1, Green Park, New Delhi - 110016
Tel: +91-11-46150344, 26516899  Fax: +91-11-25920423
Email: india@irfnet.org  Website: www.indiairf.com