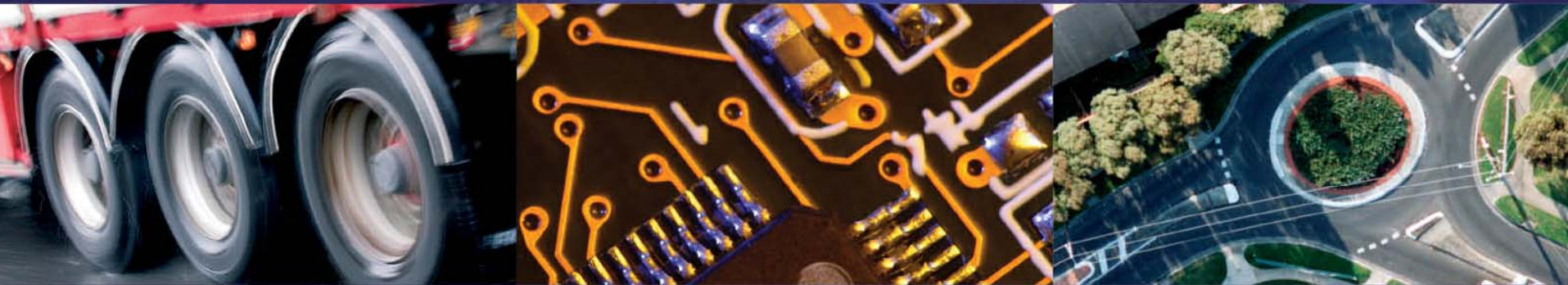




Mr. Garry Warren
General Manager-ARRB Systems Group



Using technology for safer roads

Garry Warren, General Manager, ARRB Systems
Group

5th IRF Regional Conference
25-26 November, New Delhi, India

~~Road Safety is a worldwide problem~~



1.3 million road deaths annually

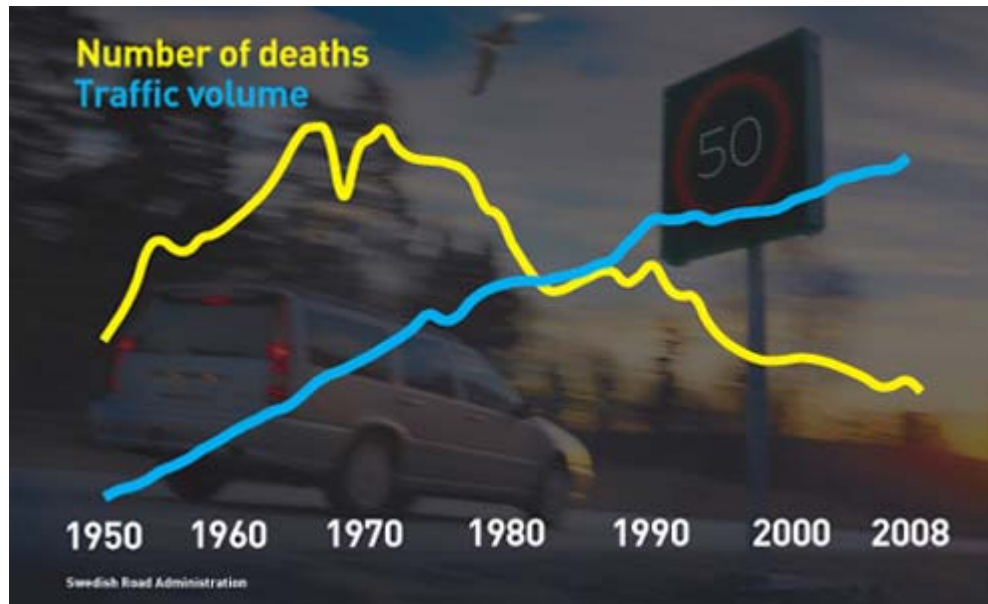
The Safe System approach

- Humans make mistakes
- A single mistake shouldn't cost a life
- Safer road design to cater for driver mistakes



Safer drivers, safer vehicles and safer roads

Has it worked?



Reference http://www.unece.org/trans/roadsafe/unda/Sweden_Swe_VisionZero.pdf

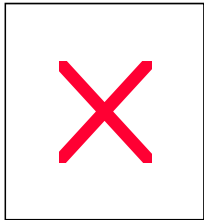
Road safety in India

- India accounts for 10 percent of global road accident deaths
- Approximately 125,000 fatalities and at least half-a-million serious injuries each year
- India losing 3% of its GDP to road crashes
- Aim to reduce road accident deaths by 50 percent by the year 2012

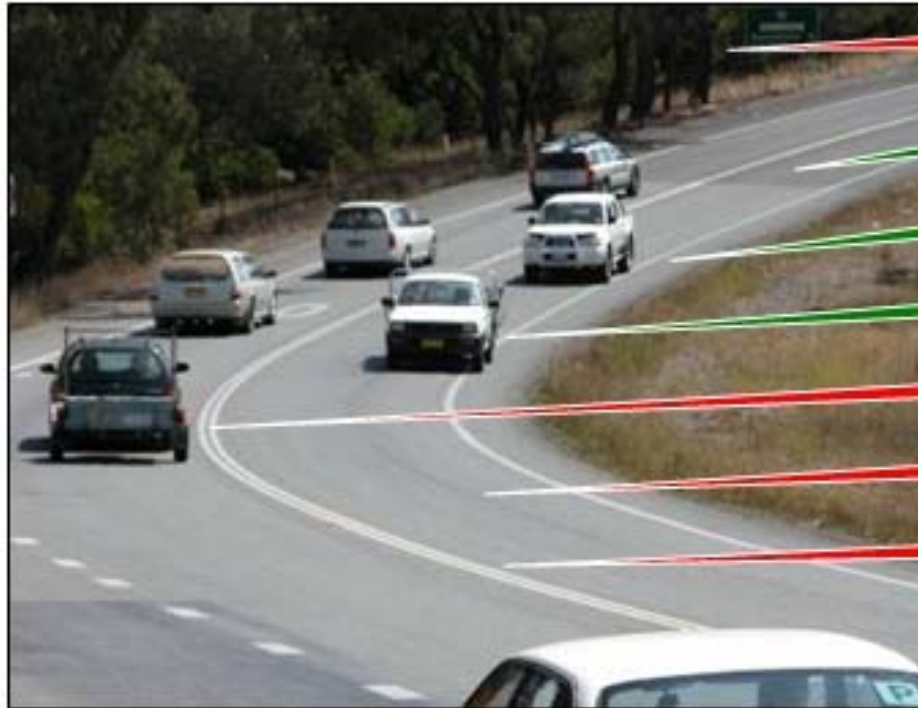


Reference <http://www.indiairf.com/?q=reduction%20of%20road%20fatalities.html>

ARRB and Road Safety



Road design and safety



Trees at roadside

Wide lanes

Wide sealed shoulders

Good line marking

Undivided

Curved, rolling terrain







Poor overtaking

Increases risk

Decreases risk

iRAP

- The International Road Assessment Programme (iRAP) is a not-for-profit organisation dedicated to saving lives through safer roads
- iRAP works in partnership with government and non-government organisations to inspect high-risk roads and develop Star Ratings and Safer Roads Investment Plans

Star Rating	Car Occupants		Motorcyclists		Bicyclists		Pedestrians	
	Length (km's)	%	Length (km's)	%	Length (km's)	%	Length (km's)	%
	2km	1%	1km	0%	0km	0%	20km	10%
	163km	81%	72km	36%	20km	10%	7km	3%
	29km	14%	104km	52%	20km	10%	36km	18%
	7km	3%	22km	11%	126km	63%	130km	65%
	1km	0%	2km	1%	13km	6%	9km	4%
	0km	0%	0km	0%	23km	11%	0km	0%
TOTAL	202km	100%	202km	100%	202km	100%	202km	100%

iRAP

- iRAP inspects and rates road, focusing on more than 30 different design features that are known to influence the likelihood of a crash and its severity
- Features include intersection design, road cross-section and markings, roadside hazards, footpaths and bicycle lanes



ROAD: HWY 1 - SECTION: - DETAILED CONDITION REPORT

ARRB & iRAP

- Successfully undertaken iRAP projects in various countries using digital imaging

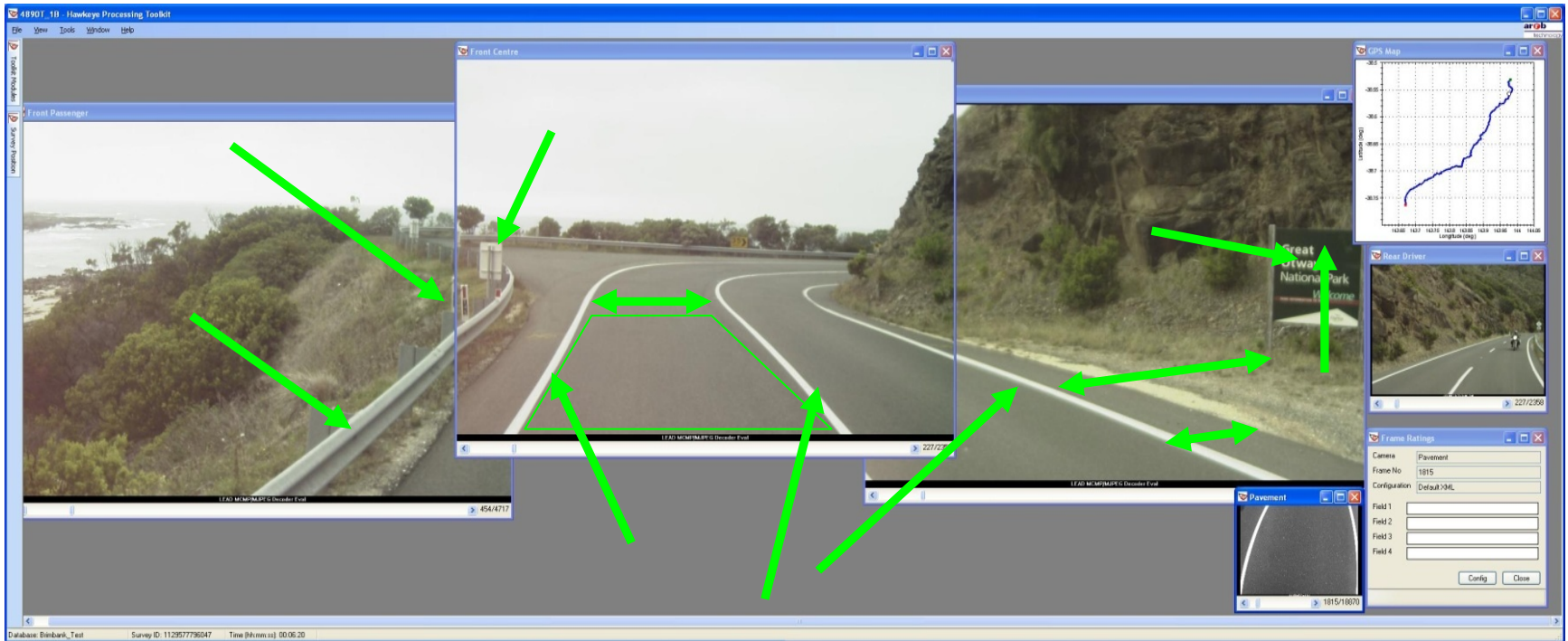
- Bangladesh
- Chile
- Costa Rica
- Malaysia
- Vietnam etc.



- Contributed to development of iRAP models
- ARRB is the first iRAP Centre of Excellence



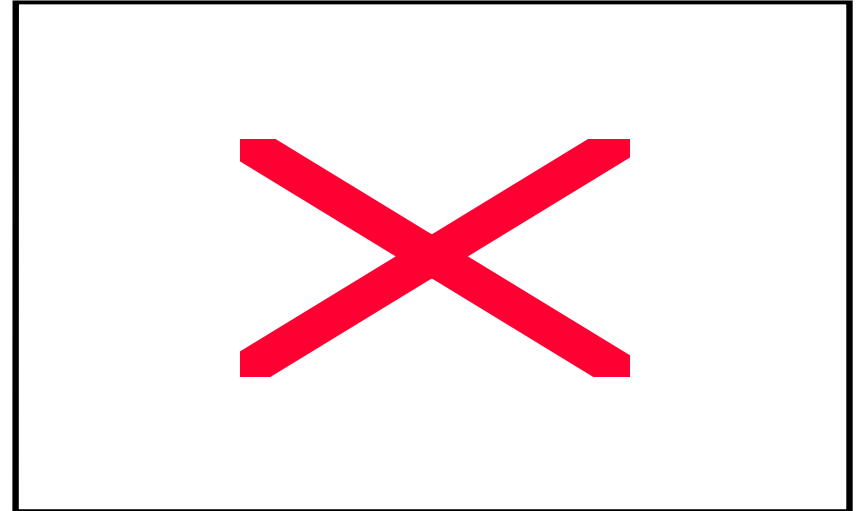
Road safety assessment



- If you can see it, you can assess it for safety e.g. iRAP

ARRB's approach

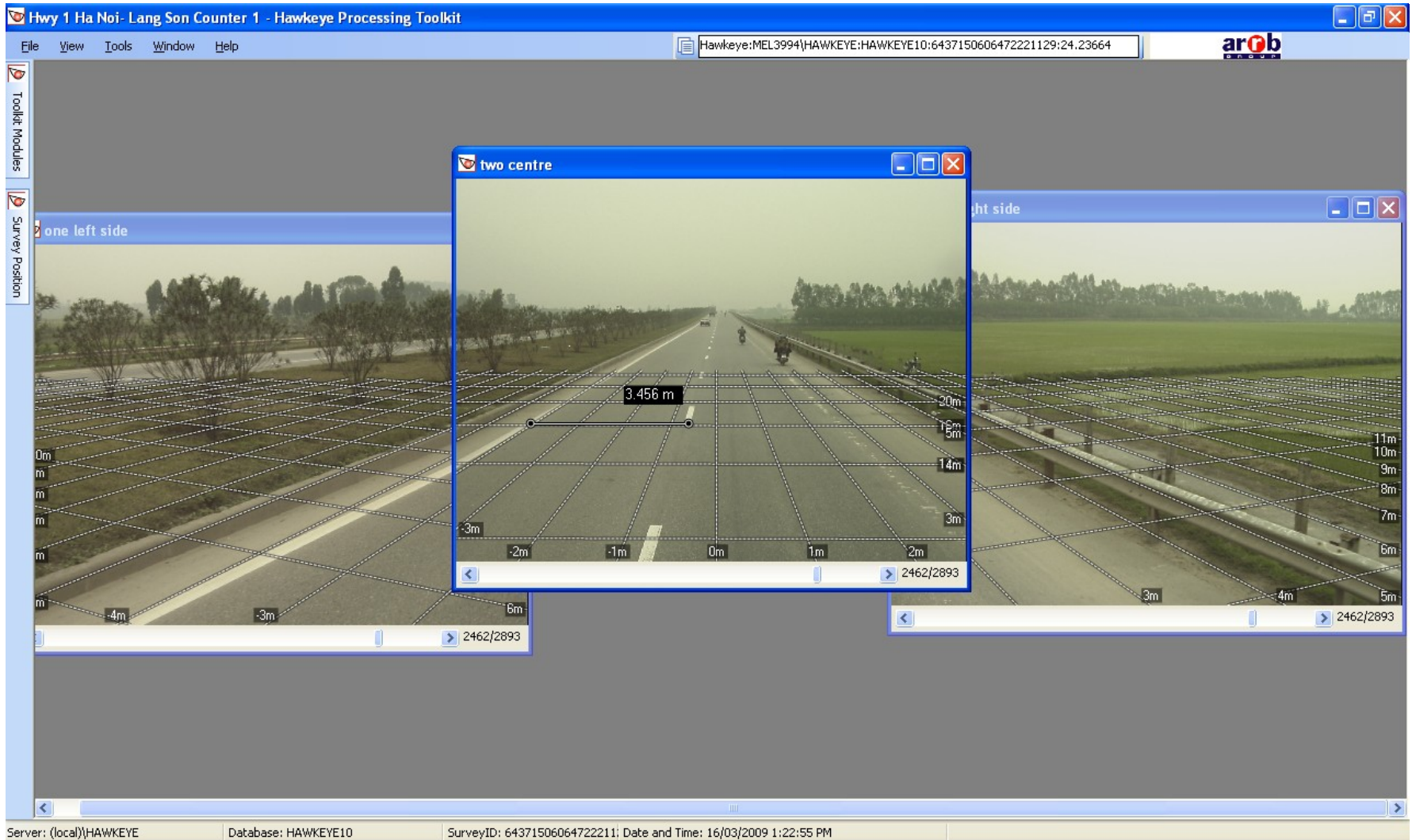
- Using automated data collection systems to accurately collect safety parameters
 - Includes road surface condition, geometry, mapping.
- Digital imaging technology has been used successfully for road safety applications



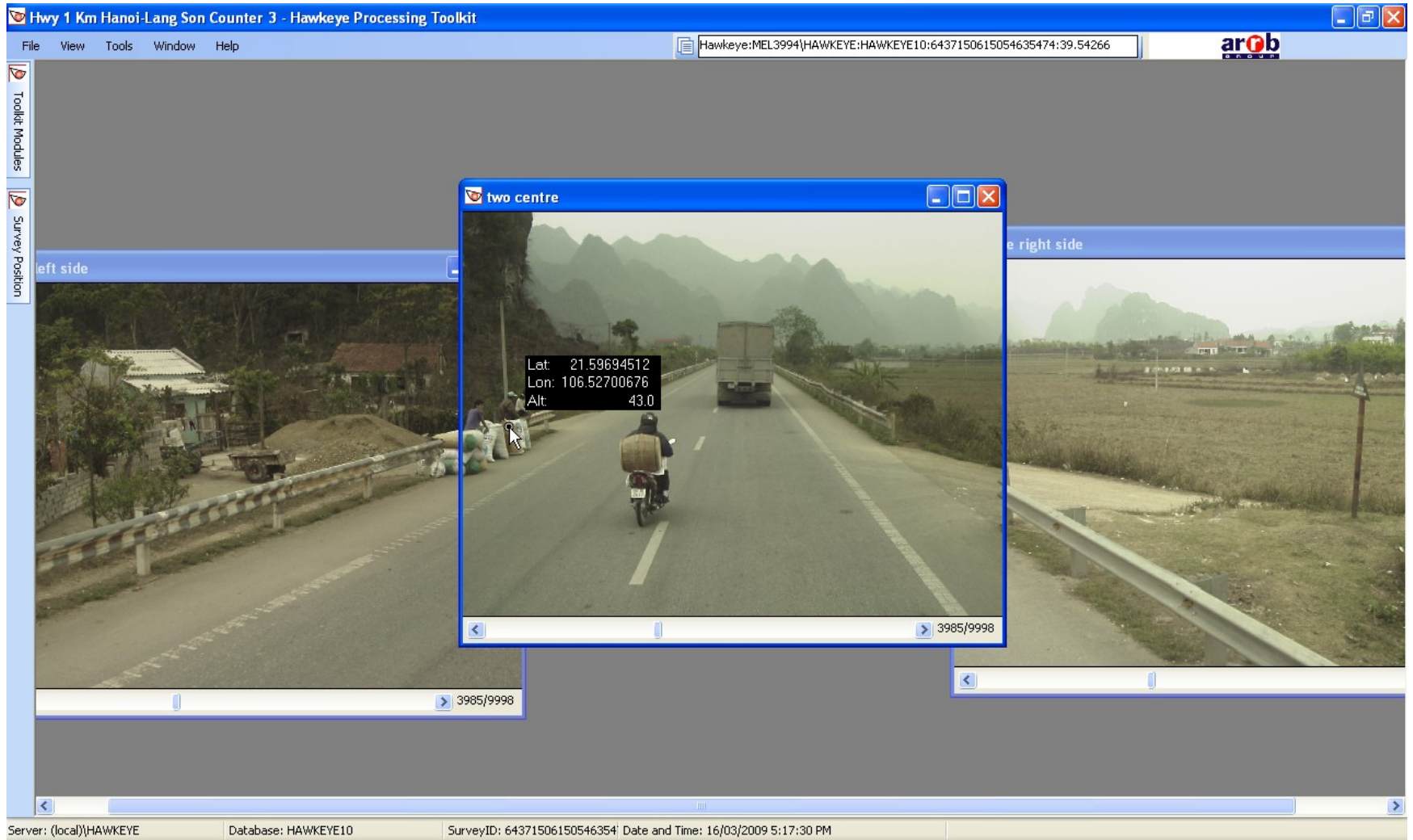
Typical system layout for iRAP



Calibrated images



Geo-referencing



~~Rating horizontal curvature~~



1

2

3

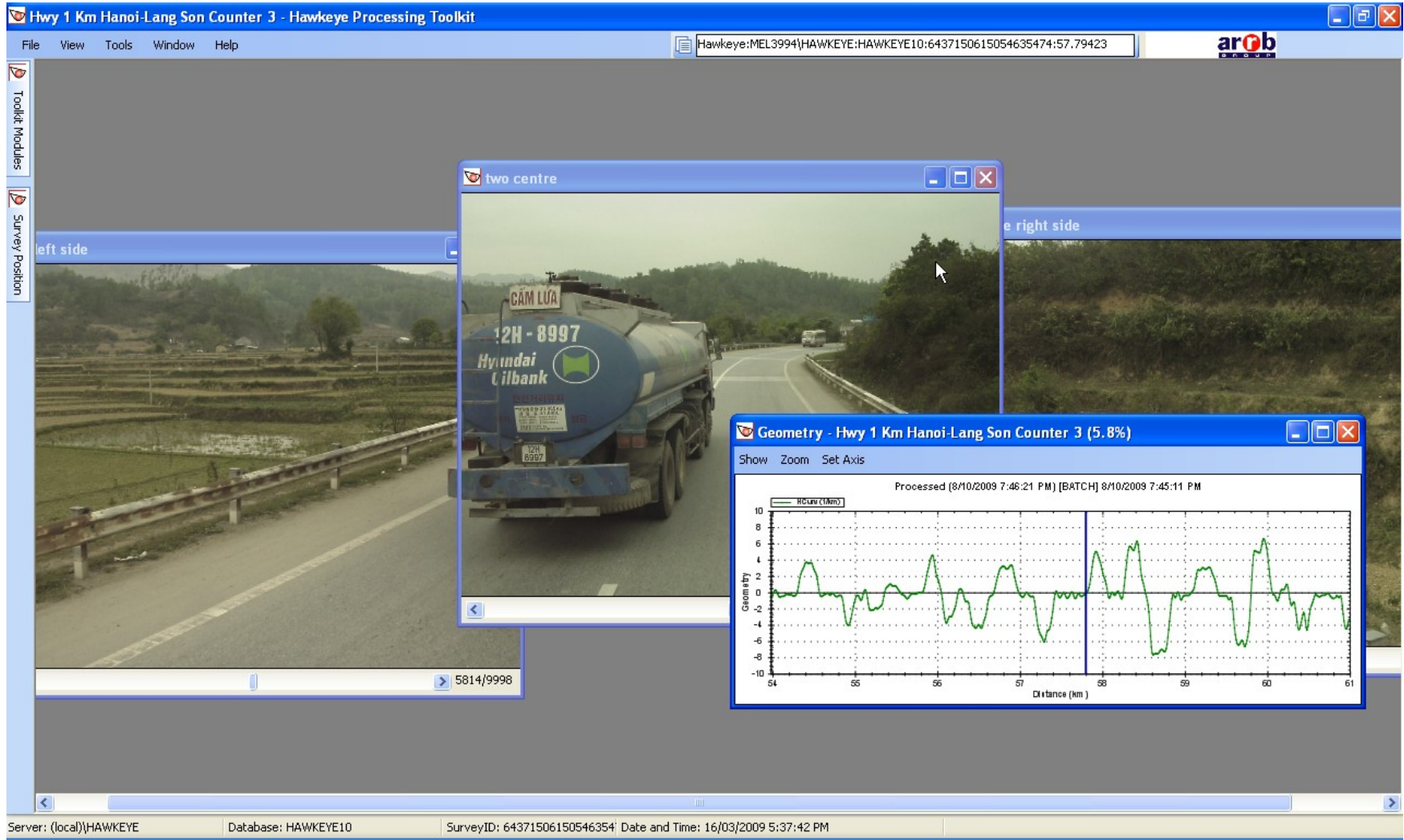
4

~~How would you rate the following?~~



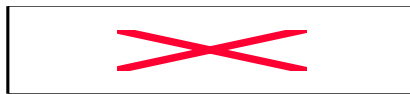
2

Objective horizontal curvature results



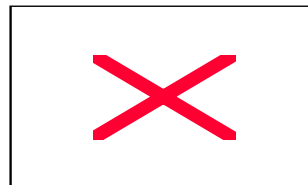
Benefits of using automated systems

- High resolution, calibrated images,
- Accurate Geo-referencing,
- Objective measure of horizontal curvature,
- Customised rating software,
- Collection of roughness, rutting and texture data (optional).



~~iRAP experience in India~~

- IRSM/ARRB combined to deliver
 - NH1 pilot project
 - Andhra Pradesh corridor study
 - iRAP Bangladesh



~~iRAP India - project scope~~

- Approximately 3,000 kilometres of roads to be surveyed and rated:
 - Karnataka \approx 1,200 km (approx 9 roads)
 - Gujarat \approx 400 km (approx 8 roads)
 - Assam \approx 1,400 km (approx 28 roads)
- Specific tasks
 - Collection of digital imaging along nominated corridors
 - Verification of data
 - Undertake information session/road show within each state to publicise project
 - Liaison with local PWD
 - Rate images and generate iRAP inputs

Data collection phase

Stage One

Chennai to Karnataka (1 day)

Survey Karnataka (14 days)

Stage Two

Karnataka to Gujarat (5 days)

Survey Gujarat (12 days)

Stage Three

Gujarat to Assam (9 days)

Survey Assam (34 days)

Stage Four

Return to Chennai (9 days)



~~Survey equipment~~



Summary

- The “Safe System” approach to road design is dramatically reducing road accidents.
- Automated data collection provides an objective measure of the safety of the road network.
- A number of very good tools have been developed for road safety assessment.

For more information

Contact:

Garry Warren
General Manager
Systems
ARRB Group
Melbourne, Australia

garry.warren@arrb.com.au

Telephone: +61 (3) 9881 1662
Mobile: +61 400 799 550

