Pavement Management Services

Automated Road Analyser (ARAN)

Pavement Condition Data

The ARAN is a network of tightly integrated subsystems that synchronously collect accurate and reliable data for roadway infrastructure management applications.

Description

Automatic Road Analyser (ARAN) is one of the most advanced platforms available for collecting pavement condition and road asset data, providing you with a safe, accurate, reliable and cost effective understanding of the condition of your infrastructure.

The ARAN system adds new technology to the Australasian market with advancements on the currently available systems, particularly in the area of locational accuracy and repeatability. The system is a modular solution that can be reconfigured to meet the specific data collection needs of users.

The ARAN system enables:

- Complete roadside inventories extracted from specially calibrated digital videolog images.
- Inventories containing type, location, condition, measurements, unique identifiers, etc.
- Data output can be formatted for subsequent import into a GIS or road asset management software environment.

Data Generated

The integrated ARAN system enables us to collect the following data sets in a single pass i.e. visual and laser simultaneously:

- Longitudinal profile and roughness (IRI, NRM and HATI)
- Transverse profile and rut depth
- Macrotexture depth, Mean Profile Depth (MPD) and Estimated Texture Depth (ETD)
- Surface distress (Post) rating (Cracking, Potholes, etc.)
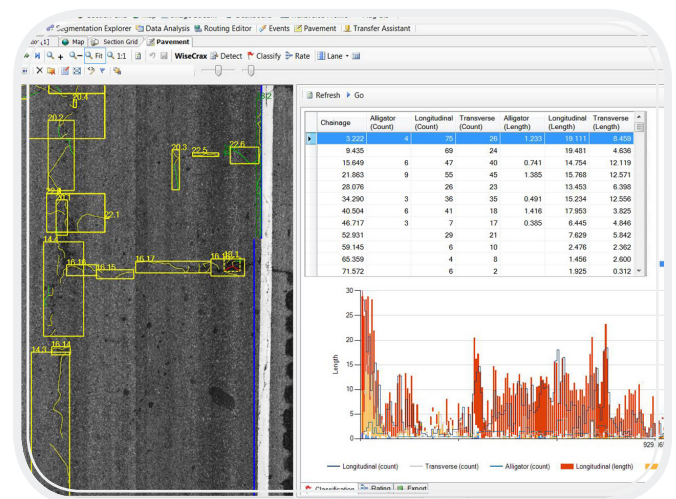
Characteristics

- High definition digital images
- Measure transverse profiles up to 4m wide
- Multiple data sets collected in a single pass
- High precision positioning system
- Curvature, gradient, crossfall and slope data
- Road profile data capture
- Texture data

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Digital Video

The ARAN is fitted with HDTV cameras which capture Right-of-Way images allowing you to virtually view the road from the comfort and safety of your office.

The ARAN platform offers a variety of video logging options to suit every need and budget. Correlate images with road condition data and geometry information to get the complete picture for efficient asset management and decision making.

Road Geometry and POS LV

Position and Orientation System for Land Vehicles (POS LV) is a state-of-the-art Aided Inertial Navigation System that provides precise roll, pitch, heading, velocity and position information to other onboard measurement subsystems.

Initally developed by the Canadian Navy for accurate submarine positioning under the polar ice caps, POS LV provides superior positioning and accuracy only achievable when interial navigation assists high precision GPS. It provides ARAN users with an even more precise alternative to the standard gyro geometrics package.

- Roll data is integrated with Smart Rutbar data for precise crossfall measurement and transverse profiles of multi lane roads
- Provides the geometric data needed to determine safe passing zones, detailed transverse profile, ponding depth (hydroplaning potential), mill/shim quantities, grade and crossfall

Laser Roughness Measurement System

The Laser SDP is a longitudinal profile measurement system that provides road profile data capture and real-time roughness index calculations using a combination of high-speed lasers and accelerometers.

The Laser SDP samples at 12.5 mm intervals and measures bumps as short as 100 mm at variable speeds up to 100 km/h without loss of accuracy (Type 1 Profiler). 64kHz lasers are used to define mean profile depth, which can in turn be used to determine the Estimated Texture Depth or Equivalent Sand Patch Texture Depth. Based on the South Dakoda Profiler (SDP), it is accepted as a Class A device under ASTM950.

Laser Rut Measurement System

The laser rut measurement system (LRMS) is a vehicle mounted subsystem that uses dual scanning lasers to accurately measure transverse profiles up to 4m wide.

The transverse profile is measured in order to calculate the depth of roadway rutting. By measuring the complete profile instead of just the ruts, the effect of vehicle wander on measured rut values is eliminated. The LRMS uses two synchronized, laser-based devices to measure the transverse profile of a 4m lane width, with a lateral resolution of approximately 1,280 points – this is in contrast to existing systems which only measure up to 15 points.