

→ Benefits

- Detection of crack type and severity.
- Automated lane position detection to avoid surveying defects outside the lane.
- Full lane, macrotexture measurements (MPD).
- Data collection performed at normal travel speed.
- Detection of rutting (depth and type).
- Identification of pot holes and ravelling, sealed cracks and joints in concrete.

→ Data Analysis

Using the LCMS is very cost effective, because it can collect data to detect a wide spectrum of defects, simultaneously. The Pave3D subsystem of the LCMS can detect pavement cracking, surface distresses, rutting and macrotexture.

Pave 3D uses high-speed cameras, custom optics and laser line projectors, to acquire both 2D images (black and white intensity) and high-resolution 3D profiles (surface elevations) of the road.

A detailed image of the pavement surface can therefore be produced: ideal for identification and rating of pavement distresses and surface texture.

Automated pavement distress algorithms can then more easily calculate the extent and severity of pavement cracks and distresses. This leads to more accurate and repeatable rating of pavement cracking and surface distresses.



AUTOMATED ROAD ANALYSER (ARAN) LCMS

Our 3D laser road profiling Automated Road Analyser (ARAN) is capable of performing automated measurement of road surface conditions and geometry, whilst travelling at normal road speeds. One pixel of the ARAN imaging equates to one square millimetre of road surface.

The LCMS is a 3D imaging system, providing both range and intensity data. This differentiates it from other automatic crack detection techniques.

The LCMS utilises two, 3D laser profilers, to achieve a vertical resolution of 0.5 mm and a lateral resolution of 1 mm. This range data is used in the automatic crack detection algorithm, to achieve the lowest number of false positives out of all the crack detection methods.

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The system can automatically extract crack data, including crack type, (e.g., transverse, longitudinal or crocodile) and severity. The high resolution of the LCMS means it can automatically detect ruts (depth and type), macrotexture (digital sand patch) and ravelling (loss of aggregates).

The image is 4 metres wide, allowing study of edge break and drop off. Lesser systems are only 2 m wide between the wheel paths and hence can only report a representative sample.



➔ Characteristics

- **POSITIONING - GPS**

ARAN can be outfitted with as many as 6 HDTV cameras which capture right-of-way images. This allows you to view the road virtually, from the comfort of your office.

- **RIGHT-OF-WAY VIDEO**

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- **ROUGHNESS**

The Laser SDP is a longitudinal profile measurement system, which provides road profile data capture and real time roughness index calculations.

- **RUTTING**

The Laser Transverse Profiler uses dual scanning lasers to accurately measure the transverse profile of the road, with 1280 points over the 4 metre laser width.

- **POSITIONING - DMI**

The Distance Measuring Instrument measures ARAN chainage and linear distance travelled.

- **PAVEMENT DISTRESS**

Planar-view digital pavement images are recorded directly to disk, for 100% of the drive lane.

- **TEXTURE**

Smart Texture utilises high-frequency lasers to measure the mean profile depth of

