ARAN® Automatic Road Analyzer

PAVE3D
This system collects continuous 3D images of the road surface. This unique 3D vision technology allows for precise pavement condition measurement, day or night, up to highway speeds (60mph). The Pave 3D system has the highest transverse and longitudinal resolution, resulting in the best quality pavement condition measurements. This 3D technology allows for fully automated pavement condition of over 13 feet (4m) in width. Cracking and other distresses are extracted from the 3D profile data. The system uses depth information for each crack to know for sure if the crack has depth compared to the road surface. This significantly reduces false positives, and greatly increases the reliability and repeatability of the automated detection results from the Pave3D system.

POSITIONING -GPS
The ARAN is equipped with a GPS and is integrated with other subsystems so that if the receiver cannot lock on enough satellites to determine its position, the ARAN DMI and the ARAN Inertial Reference System will fill in the gaps.

RIGHT-OF-WAY VIDEO
The ARAN is outfitted with three HDTV camers that capture right-of-way images allowing you to virtually view the road from the comfort and safety of the office.

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

3D SENSOR WORKING PRINCIPLE
Crack Classification and Rating: The detected cracks are analyzed using Fugro's Vision software that includes pattern recognition algorithms to determine the types of distresses (longitudinal, transverse, alligator cracks, etc.). Cracking data can then be reported according to the client's distress manual, by roadzone, severity level and by aggregating the data to determine length of cracking, width, number of cracks, area of cracking, and extent (length of road affected).

Rutting: Pave3D delivers the highest resolution road surface transverse profile that can be attained on the market today. It utilizes its industry leading 4,000+ points of transverse resolution one point every 1mm (0.04") across a full lane width 4m (13 feet) to create a detailed transverse profile for rutting calculations.
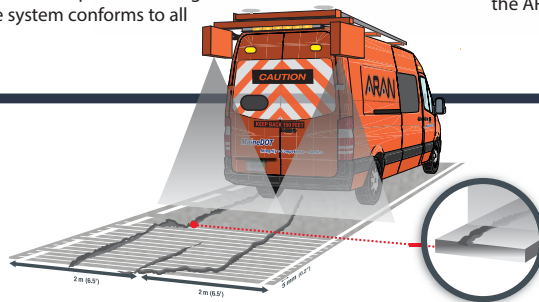
Pave3D has been field tested to accurately record rut depth measurements to within +- 1mm (0.04") as compared with precision straight edge rod and level surveys. The system conforms to all AASHTO and ASTM standards.

POSITIONING-DMI
The Distance Measuring Instrument measures ARAN chainage and linear distance travelled. The ARAN is equipped with a GPS and is integrated with other subsystems so that if the receiver cannot lock on enough satellites to determine its position, the ARAN DMI and the ARAN Inertial Reference System will fill in the gaps.

TEXTURE
Smart Texture utilizes high frequency lasers to measure the mean profile depth of road surface macrotexture.

3D Sensor Working Principle