

HDTV Digital Video



Right of Way Perspective Images

Fugro Roadware's ARAN (Automatic Road Analyzer) may be outfitted with up to six HDTV (1920 x 1080 pixel) cameras, with options varying from 90 degree down to 47 degree horizontal field of view. Images are captured at user-definable intervals, based on 'pulses' received from the ARAN Distance Measuring Instrument (DMI). Distance based image capture eliminates the capturing of repetitive information when the vehicle is stopped at intersections or in heavy traffic conditions, thereby efficiently utilizing available image storage space.

Image quality may be monitored in real-time during data collection. ARAN operators may then make common adjustments to the image as required including contrast, brightness, and white balance using a graphical user interface onboard the ARAN.

As images are captured on the Digital Video Storage (DVS) system, adjustments are made automatically for current lighting conditions thus minimizing the negative impact on image quality that transitions from light to dark areas normally impose (such as

traveling through tunnels, underpasses, and tree-canopied areas).

Compression ratios are also adjustable during collection through the DVS graphical user interface (GUI).

Cameras are typically mounted in a turret type enclosure above the vehicle cabin, but angled to emulate a windshield view. This affords maximum visibility without restricting driver movements, and also allows for more camera angles than in-cab mounting alternatives. Where the turret is not available or camera type/configurations preclude this option, in-cab windshield mounting is available.

The collected imagery may serve as a stand-alone video inventory of surveyed areas, or may be used in conjunction with additional Fugro Roadware software applications. Additional functionality may be found through:

VisiData®

Fugro Roadware's image viewing software. Display all collected views concurrently. 'Visit' sections on demand through a section inventory list, map interface, or graphs of pertinent associated data.

Surveyor®

Use calibrated digital images to perform asset and geometric feature inventories.

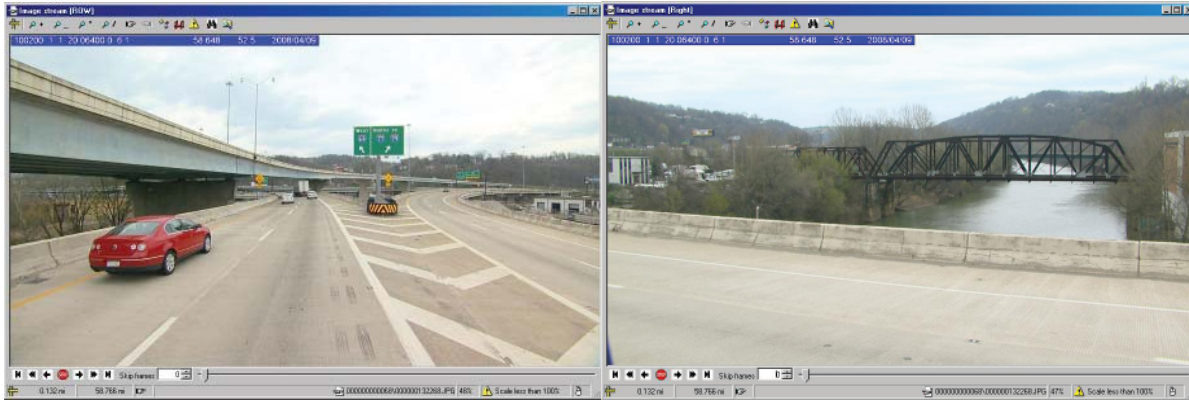
D/VRate®

Perform windshield distress rating surveys from the office.

Right-of-way and pavement view images for virtual field trips, distress rating, and asset inventories



Pictured here: 1920 x 1080 pixel resolution (HDTV) Right-of-Way video image, with 90 degree horizontal field of view



Pictured here: Two HDTV Right-of-Way video images. Each camera has a resolution of 1920 x 1080 pixels. The forward view has a horizontal field of view of 90 degrees and the right side view has a horizontal field of view of 53 degrees.

SYSTEM COMPONENTS

HDTV Digital Camera(s)

All HDTV cameras produce 1920 x 1080 pixel resolution, with horizontal fields of view varying from 90 to 47 degrees. Specific cameras will be considered for system integration where preferred.

System Control

Cameras and captured images are controlled by the DVS. Through the DVS GUI, adjustments may be made to images prior to or during collection.

Distance Measuring Instrument (DMI)

The ARAN DMI is able to measure distances accurate to within +/- two-thousandth (0.002) mile per mile, (or +/- 0.2%) and displays the distance in miles/kilometers to three decimal places.

The DMI is a non-contact optical encoder that divides each wheel revolution into 2,000 pulses. Using this methodology, distance measurement is not speed dependent so all linear measurements retain accuracy through the reality of fluctuating traffic conditions.

ACCURACIES

Using Fugro Roadware's ARAN DMI, image location is reported to within 10 cm (3.94") of actual linear position.

ADDITIONAL SYSTEM INTEGRATION

Digital images will be linked to data from other available ARAN subsystems, including Roughness, Rutting, Faulting, Texture, Vertical Clearance and GPS position.

OUTPUT

All images are written into an intuitive directory structure organized by the collected file name and linear reference point at which each image is collected. The JPEG images are named according to the lineal distance point where they were captured.