PAVEMON - VOTERS GIS-based pavement monitoring system

PAVEMON (PAVEment MONitoring) is VOTERS geospatial data repository and analysis tool. Built on the ArcGIS platform and published to Flex interface, PAVEMON has a very thin browser client application, making it easily accessible from anywhere via the internet. Stored in an Oracle database, pavement inspection data can be presented, accessed, and analyzed spatially.

PAVEMON’s color-coded maps of the road conditions provide the capability of getting an overall sense of the road quality for a whole network of inspected streets at a quick glance. The VOTERS road inspection ratings are derived from VOTERS rapid road inspection sensor system, which is able to collect city-wide data in a short period of time and monitor the deterioration at short time intervals. Besides the overview ratings PAVEMON indicates the location and characteristics of surveyed streets. Available data includes GPS location of all sensors’ raw data (DTPS, Microphone, accelerometer, laser height, mm-wave radar, and video), processed VOTERS data (MTD, IRI, MRH, rutting depth, crack coverages, etc.), and individual and fused data analysis layers. Additionally, data provided by our partners the Cities of Boston and Brockton and CDM Smith are available to researchers. This allows for the individual or joint analysis and integration of data layers containing raw and/or processed information along with raster data and imagery. Data can be analyzed for whole streets from intersection to intersection or in custom selectable smaller intervals.

PAVEMON features

As a strong analysis tool, PAVEMON features:

- Querying processed or raw data from database
- Navigating through time and observing changes.
- Assessing repair costs of bad road sections.
- Exporting of locations and road characteristics.
- Studying relationships between parameters.
- Examining the quality of data.
- Detecting trends and anomalies in data.
- Displaying VOTERS vehicles real-time location.
- Identifying maintenance strategy.