US Army Corps of Engineers®
Engineer Research and Development Center

Automated Route Reconnaissance Kit (ARRK)

Purpose

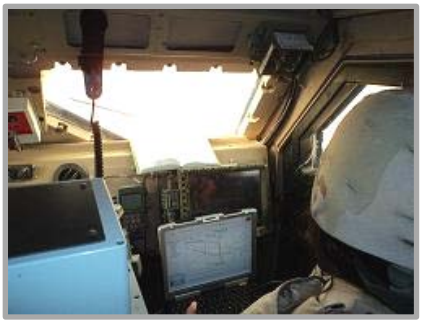
The Automated Route Reconnaissance Kit (ARRK) is an adaptable, easy-to-use mounted reconnaissance package that allows rapid collection and processing of route features in support of worldwide, war-fighter and natural disaster contingency operations.

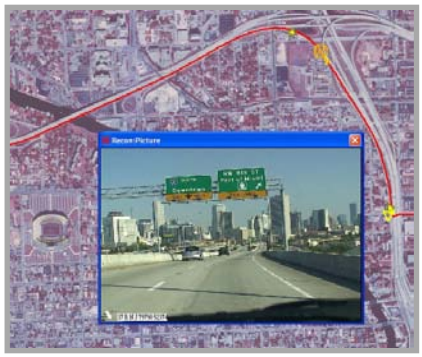
Background

The U.S. Army Engineer Research and Development Center (ERDC) has developed an automated method for collecting, processing and distributing route reconnaissance data. The Automated Route Reconnaissance Kit (ARRK) can be used on a wide spectrum of mounted (ground and/or air) reconnaissance missions or for special data collection needs. The ARRK has been used both in military and natural disaster response operations, and capabilities continues to evolve and improve through field testing and integration of user comments.

Facts

The ARRK incorporates accelerometers, global positioning satellite technology, a laser range finder, digital and video cameras, audio technology, and a ruggedized laptop computer utilizing ERDC developed software into a single easy to use collection package to support route reconnaissance. The ARRK can continuously collect route reconnaissance information and perform routine calculations without stopping or leaving the vehicle. The ARRK collects pictures, voice recordings, Global Positioning System (GPS) location, accelerometer, and 3-D gyroscope data streams. In the vehicle-mounted application, the ARRK provides a chronological picture replay of the route and a geo-referenced display of major features that effect the classification and usage of the route. The user can scroll through the stored data types to instantly locate specific features along the route. The system also provides for automated determination of slope and radius of curvature. The reconnaissance data collected from the ARRK are quickly converted by the operator to pre-formatted reconnaissance reports that are in accordance with the requirements of FM 3-34.170 (formerly FM 5-170), "Engineer Reconnaissance". When the ARRK is used in the airborne configuration, excluding slope and radius of curvature, it provides the same capabilities as above to assess damage in impacted areas due to natural disasters. The collected air reconnaissance data are used by Planning Response Teams (PRT) for prioritizing mission requirements. Additional outputs are available in the form of JPEG snapshots and movie clips. The ability to export KMZ files has been useful when sharing data with host nation and non-governmental organizations (NGOs).





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