

Mapping Van

At top right is a sophisticated mapping van equipped with satellite signal receivers, video cameras and computer systems for collecting and storing mapping data. At lower right is a view of the van's interior with Fred Bennett, president of Global Visions, Inc. (GVI), Herndon, Virginia at the control console.

Formally known as the GPSVan System, the vehicle was originally developed by the Ohio State University Center for Mapping, one of NASA's Centers for the Commercial Development of Space (CCDS). It is operated by GVI under license from the Center for Mapping, and the company last year accomplished the first commercial use of the CCDS-developed system, creating a digital map of the 1,000-mile road network in Ohio's Jackson County. Bennett and co-founder Day Shelmire established GVI to commercialize the CCDS technology.

The "GPS" stands for Global Positioning System, a constellation of satellites operated by the Department of Defense to provide highly precise positioning information for aircraft, surface vessels and ground vehicles. The van also has an inertial navigation system, a gyroscopic system that records all forward movement and directional change for brief periods when trees or terrain block out satellite signals. Mapping is accomplished by driving along a road while the GPS receivers record the van's position with an accuracy of one to three meters.

The van also employs two video cameras to scan the local terrain and acquire images whose location is coordinated with the van's position at the time of imaging. Features such as street signs, utility poles, manholes, and roadside structures can be precisely positioned on the base maps. All this data can be fed into a computerized geographic information system (GIS).

Using this system, GVI took just two weeks to map all of Jackson County. The resulting maps, fed into the county's soon-to-be-implemented GIS, will be used initially for tax assessment purposes. However, the GPSVan has much broader potential, according to GVI's Bennett and Shelmire. They are targeting emergency dispatch agencies and fleet delivery companies, who can use mapping data to improve routing and lower transportation costs; providing mapping data for inventories of roadside features to utilities, other businesses and state/local governments for better management of their resources; and providing visual imagery for roadway maintenance planning or for property evaluation by insurance underwriters.

