ABSTRACT FOR AUTO-CARTO 7

The Portable Map

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Development of a fully portable graphics system is the logical extension of current trends in information display and computer graphics. Convergence of these technologies will inevitably produce a portable system capable of complex data manipulation and graphic display functions -- a portable electronic map.

This paper examines technological and market trends supporting the evolution of a portable graphics system and discusses design issues surrounding a specialized type of portable system aimed at mapping applications. Demand for this type of system has preceded its commercial availability. Potential users in a variety of fields are currently attempting to assemble integrated systems that partially fulfill their need for a portable unit.

Potential applications emphasized in the paper include utility right-of-way mapping, surveying, local government land assessment, and transportation routing. To support these applications, a portable graphics system must combine the physical characteristics of today's emerging lap computers with the power and sophistication of a desktop graphics workstation.

Electronic design requirements for this type of small, lightweight portable hinge on large mass storage, graphics display capabilities, and a communications component. Necessary elements include: memory capable of supporting complex graphics software; a high resolution flat panel display; a mass storage device (either magnetic or optical); a communications link; and a data management structure enabling quick access to map information.

Mapping, because of its need for large data bases and demanding display requirements, is among the most difficult applications for any computer. Although micro-based mapping systems are becoming available, most large applications are still in the province of mainframes or superminicomputers. Moving this level of capability to a portable system will allow few compromises in hardware and software design.