

Abstract: Embedded Spatio-Temporal DBMS

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Abstract

Current mobile devices use a low-capacity storage and a low-performance processor compared to PC. Mobile devices processes and manages data based on their own file system. Therefore, they have limitations in managing large-capacity spatio-temporal data of u-GIS or processing various and very complex spatio-temporal queries. These problems can be solved if a mobile device processes and manages spatio-temporal data using embedded spatio-temporal DBMS. In this study, based on memory-based relational DBMS HSQLDB, we developed embedded spatio-temporal DBMS that can process and manage spatio-temporal data effectively in mobile devices. This was done by adding spatio-temporal data types and spatio-temporal operators that extend the spatial data types and spatial operators of OGC, and adding or extending the arithmetic operation coding compression technique reflecting the characteristics of spatio-temporal data. Spatio-temporal index applying the MBR compression technique optimized for mobile storage device flash memory, etc.