RASDAMAN

Project ID: 20073
Funded under: FP4-ESPRIT 4

Raster data management in databases

From 1995-12-15 to 1998-12-14 | RASDAMAN Website

Project details

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<th>Total cost:</th>
<th>Topic(s):</th>
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<td>EUR 2 355 100</td>
<td>4.2 - Reactiveness to Industrial Needs</td>
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<th>EU contribution:</th>
<th>Funding scheme:</th>
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<td>EUR 1 525 000</td>
<td>CSC - Cost-sharing contracts</td>
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Objective

The RasDaMan project focuses on comprehensive database management system (DBMS) support for raster data of arbitrary size and dimension over arbitrary base types, so-called Multidimensional Discrete Data (MDD).

Adequate modelling of raster data types ensures that the DBMS knows about the exact application semantics. A coherent, orthogonal query sub language allows for intelligent, optimizable retrieval. The query result will be delivered to the client in whatever form the application ordered it, be it an array in the target machine's main memory representation or some image exchange format like GIF or JPEG, thereby achieving data independence. Together with a novel storage architecture based on a combination of tiling and geo-indexing, this will minimise disk fetches, networks traffic, and compression/decompression overhead. Data compression becomes an internal feature invisible to the application and taylorable to each client's actual needs.

Transparent media integration of hard disk, CD-ROM jukeboxes, tape archives, etc. will free applications from low-level access tasks. In summary, applications will be relieved from many low-level, costly, repeating tasks by providing appropriate services through the DBMS.

A fully fledged raster DBMS demonstrator with the features described above will be developed and implemented by extending a commercial object-oriented DBMS with raster management features. A general raster benchmark suite will be developed which will be made available to the scientific community for comparison with other approaches. To assess practical feasibility, the industrial partners: STI and TransExpert, will implement pilots for pivotal application fields, namely medical imagery/Picture Archiving and Communication Systems (PACS) and Geographic Information Systems (GIS). Both areas impose high challenges in terms of the raster functionality, the variety of data structures, data volume, and performance required. End user evaluation will allow to assess the quality of service and to derive best practice guidelines.

An active information dissemination policy will be adopted through scientific publications, workshops, exhibitions in international fairs like CeBIT/Hannover, and suggestions to standardisation bodies like ISO/IEC and CEN (SQL3) and ODMG (OQL).

Obviously, all database applications will benefit from RasDaMan which have demanding requirements wrt. raster data functionality, and data volumes on hand (especially across networks); in particular, co-operative, open multimedia environments distributed across wide-area networks require such a DBMS. Several enterprises and institutions already have expressed their interest in such a DBMS.

Related information
Report Summaries

RasDaMan: a database management system
The RasDaMan healthcare application

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Subjects

Electronics and Microelectronics - Industrial Manufacture - Information Processing and Information Systems - Innovation and Technology Transfer

Last updated on 1998-07-01
Retrieved on 2019-05-04

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