MASTERS DEGREE DEFENSE

COMPUTER SCIENCE DEPARTMENT

BRONCOMAP SPATIAL DATABASE DESIGN

By

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The BRONCOMAP project initially was intrigued by the pervasive usage of commercial online map services. However, because of the nature of spatial models and map data, commercial online map services are only able to represent a school campus as a single entity. In order to provide various services on an online campus map, such as location search and route computation, a different spatial database model has to be established. The focus of this paper is the spatial database design of an online campus map application.

Firstly, this thesis studies many fundamental concepts of spatial database design, such as spatial data, spatial object representations, spatial data formats, DBMS logical models, constraint data model, spatial operations, spatial access methods and spatial DBMSs. Secondly, A proposed BRONCOMAP spatial database design is presented. The implementation of the prototype design includes the spatial data collection, the system development that is based on the Windows .Net platform and an object-relational database system. The result demonstrates many advantages of the proposed spatial database design in comparison with the earlier database design. Finally, the paper suggests some possible future development. From a different perspective, this study is not only for the BRONCOMAP project, it is also to demonstrate processes of designing and implementing a spatial database for an online map of a relatively small community.

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Location: Bldg 98, B1-254 (Studio D)

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