

GIS Based on Mobile Agent and Ontology

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ABSTRACT. A Geographic Information System (GIS) is an important distributed information resource. GIS technology is being utilized in many areas of research. Based on the concept of agent, we introduce a multi-agent architecture to develop a GIS Multi-Agent System based on Ontology (**GISMAO**) that enables cooperation to assist different users to locate and retrieve spatial GIS file information in large networks based on ontological relationship between GIS concepts. **GISMAO** consists of two subsystems: Gathering subsystem; and Query subsystem. The Gathering Sub-System is used to collect spatial GIS files information from remote locations, and to store them in the server. Ontology is used to represent concepts and relations that are common concepts in the domain. The Query Sub-System is used to help the user in his/her daily work with the GIS; it works as a GIS retrieval (query) tool. The objective of this system is to demonstrate how the agents can cooperate to transparently locate and retrieve GIS information.

KEYWORDS: Geographical Information System, GIS Ontology, Multi-Agent System, Semantic query,

Mobile Agent.