Abstract

Recent year the GIS (Geographic Information System) is used widely in various field such as planning and management, environment and natural resource management, medical science, facility and utility management, land information system, street network management. GIS mainly deals with two type of data spatial data and tabular or attribute data. The spatial analysis mainly conducted through the classical point-in-polygon algorithm such as the ray casting algorithm and winding algorithm. The above mentioned algorithm have linear complexity with the no of point available in the map. An approach to handle arbitrary polygonal queries on a GIS based on the three value logic has been put up. The above said approach can find whether a point is inside, outside, or on the boundary of a given polygon by utilizing a very simple overlay mechanisms in a GIS.

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**Index Terms**

Computer Science  Algorithms

**Keywords**

GIS, Spatial Analysis, Polygon Query, Point-in-Polygon, Spatial query, Overlay, Three value logic.