

GIS DATABASE DESIGN AND IMPLEMENTATION – THE MAUTECH EXPERIENCE

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ABSTRACT

The myriad of problems associated with storing and managing spatial data in MAUTECH had made it imperative to develop a Geographic Information System (GIS) database. The urge to split the database into two packages – one, a conventional database handling the attributes data and two, a GIS database handling the spatial data – was borne out of the fact that a database was already in existence which stores the attribute data. However, the need to keep the DBMS simple in order to make it user friendly made the option of storing both attribute and spatial data in one single DBMS an attractive option. The latter option was implemented in this paper using ESRI's ArcGIS 10.1. The design went through three stages - the conceptual, the logical and the physical design stages.

The main features used to link the numerous other related tables were the buildings which were digitized from a satellite image as polygon features. Though most of the problems associated with analogue record keeping were eliminated the objective of making it user friendly was not achieved. The design successfully eliminated data redundancy however; querying the database had new challenges for users that are unfamiliar with the GIS. The split arrangement whereby the spatial data is stored in a GIS and the attribute data is stored in a conventional database is considered a much better option.

KEYWORDS: Geographic Information System, MAUTECH Yola, Scale Factor – 0.9996