Introduction to

GDMS

(Geographical Documentation Management System)

Fall 2009

GDMS Solution

A call for location maps is the common language for the managers and the custodians of the vast majority of projects and especially Karun 4 dam. The GDMS solution provides the possibility for a more comprehensive management of the project documents and also to a quick and optimum decision making in a distinct format, practically by integrating the various spatial and tabular data in the executive map formats and also by recording the knowledge of the key personnel. The data which could be referred to every spatial point on map consist of: Location data, access maps, infrastructural data, technical maps, periodic reports, documents and records, multimedia complex (films, photos and vocals), political, economical and social information and the project progress. GIS is implemented within the framework of this documentation process and is seen as a basic tool for gaining the ability to view and query these data sets. It also provides and supports the database design, development, documentation, and maintenance.

The main purpose of the GDMS solution is integrating the varied data either from the organization or the project- via documenting them into relevant location maps. This information would be accessible for the end users of the system in form of different layers and maps. So, in the first step, this system is a Practical Viewer of the produced documents in the mentioned projects.

All the available information in the organization (apart from their formats, where they have been created or their producer systems) can be inserted into this system linked to a particular location on the map. On the other hand, by connecting to GDMS, the output data of the other existing systems in the organization also could be attached to the relevant location. Therefore, the management could have all its necessary information for making decision in a format of an integrated and comprehensive system. Displaying the information on the map graphically in different layers (selectively or simultaneously), will convert this solution to a practical tool during the construction, exploitation and maintenance of the project. In addition, this solution will provide the possibility of making online connection with mobile and active assets and other hardware tools based in the project via its subsystems. AVL[1] systems, installed SCADA[2] sensors, cameras and access control systems and RFID[3] segments could transfer their online data by connecting to this system and finally managers can access to this integrated information in addition to the documents and maps anytime and anywhere. Contributing with its subsystems, GDMS solution functions in four massive areas: documentation, Tracking, monitoring and event management.

Documentation:

1. Integrating spatial and tabular data in all kind into one single map
2. Fast and easy access to the required information via the internal database
3. Various reports and queries according to the management s goals in the time of exploitation and maintenance

[1] Automatic vehicle location
[2] Supervisory Control and Data Acquisition
[3] Radio Frequency Identification

Tracking:

1. Managing the fleet via GPS/GPRS
2. The ability to track the exact locations of mobile assets - any type of vehicle or staff - and to monitor a variety of important details at any time and in any place.
3. Access to reports and queries for any aspect of the fleet such as detail report of the driving route and any other route reports, and working time and trip reports related to the staff.
4. Alarm and notifications for entering in or exiting from the Geo-Fence boundaries
5. Interconnection with mobile assets at any time especially in the moment of crisis

Monitoring:

1. Remote management of the staff and equipments and their existence in areas of work
2. Managing accessing levels for staff and equipments

Event management:

1. Awareness of sensitive situations via the installed sensors in the site
2. Setting the relevant parameters from the control center
3. Preventing crisis events by accessing to the online information of the sensitive parts

Advantages and Main Traits of GDMS

- Practical documentation of all the accessible data, having the ability to transfer to the beneficiary s system and stockholders
- Promoting project management areas by integrating project information
- Visualizing the technical and considerable characteristics of each part of the project through separated layers on project maps
- Monitoring, tracking and controlling the main mobile assets in the site of the project
- Supporting the key decisions and quick response to the unexpected situations
- Supporting the exploitation and maintenance management
- Making massive decisions and managing the confronted crisis in project