

Success Story of Project Completed for the Government

13 March 2007

Project Owner: Civil Engineering and Development Department

Project Name (in English): Upgrading of GEO Raingauge System

Project Name (in Chinese): 山泥傾瀉預警及雨量監測系統升級

Project Description:

The project is to upgrade the existing GEO Raingauge System to a web-based service, such that the rainfall and landslide warning information can be served to a larger customer base within the CEDD Intranet. The efficiency of the raingauge system is greatly enhanced by the addition of a relational database to store and manipulate the historical and real-time rainfall data. The development works include carrying out the physical system design, developing programs, testing and installing systems and proceeding to live implementation.

Means of Service Acquisition: SOA-QPS

Contractor Name: Kinetix Systems Limited

Subcontractor Name: AI Solution Limited

Project Commenced on: 06/03/2006

Project Completed on: 20/03/2007

The Geotechnical Engineering Office of the Civil Engineering and Development Department (CEDD) operated the Landslip Warning System to safeguard the public against landslide risks during times of heavy rainfall. A critical component of the Landslip Warning System is the GEO Raingauge System, which continuously monitor the rain falling over the Territory round the clock in all time. The Raingauge System collects, in real-time, rainfall data from 110 automatic raingauges and computes relevant landslip warning information. These are then disseminated to authorized users in a handful of retrieval workstations. The Web-based GEO Raingauge System is developed

with the objectives of removing the restriction of information dissemination to a limited number of users and enhancing the efficiency of the raingauge system. The deployment of the Web-based GEO Raingauge System enables any number of authorized users within the CEDD Intranet to assess the essential information.

The ultimate success for the project development is attributed to the effective communications amongst all parties in the project team, including precise and clear system requirements and user feedbacks from the CEDD, the professional project management and coordination from Kinetix Systems, and the efficient development of applications by AI.

In this project, the major achievements of AI included:

- Meeting all project milestones and delivering the project on time
- Designing and developing a complicated relational database for storing the vast amount of both historical and real-time rainfall data that started from 1984
- Developing user-friendly interfaces for users to query and retrieve historical and real-time rainfall data
- Developing scheduled tasks, which run every 5 minutes round the clock, for updating the database with the real-time rainfall data
- Compiling the set standards and following methodologies adopted by the OGCIO, such as Projects In Controlled Environments (PRINCE) in project management, Structured System Analysis and Design Methodology (SSADM) in system analysis and design, and OGCIO's Quality Management Procedures in quality assurance work.

Some technical achievements that contribute to the successful implementation of the project are highlighted below:

- Integration with the Golden Software Surfer for generating rainfall contour map
- Development of on-screen chart plotting using .Net APIs
- Activating real-time landslide alert during adverse weather conditions using AJAX-based applications
- Ensuring high system availability by deploying network load balancing in Microsoft Servers system
- Providing intuitive visualization of rainfall and distribution of predicted landslides in different parts of Hong Kong using Flash-based applications

There are also a number of challenges encountered by the project team, which include:

- 24 x 7 non-stop service on collecting the real-time rainfall data and computing landslip information from external data source

- Considerable amount of data transfer, including the importing of real-time rainfall data and exporting of output results arising from the users' queries, especially during the time of heavy rain

In conclusion, AI has overcome all difficulties encountered throughout the projects and has deployed the Web-based Raingauge System and provided other project deliverables on time and to the satisfaction of the CEDD.