

Bus Transport Supervision System

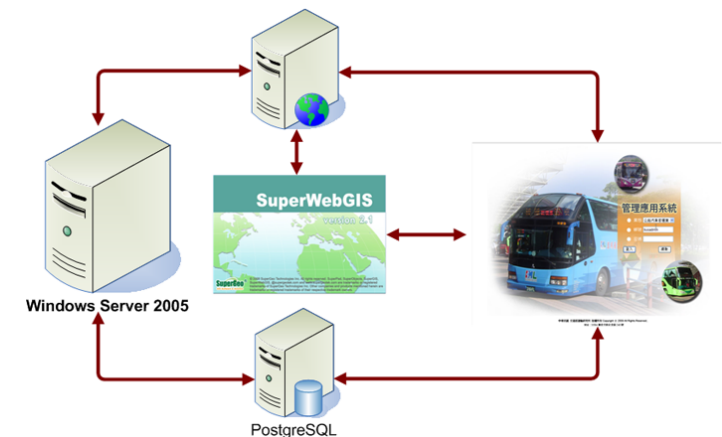
Scenario

In recent years, Taiwan government has actively assisted bus companies in building Advanced Public Transportation Systems (APTS) and related equipments and intended to apply communication, information, and automation technologies to improve their operation and management. Meanwhile, the dynamic information of the vehicles and pre-departure associated information can be provided to enhance the quality of public transport system and operation performance.

In Taiwan, the APTS in the cities and counties are mainly applied to passenger end and company end. However, most of the competent authorities did not build up the monitoring center to receive and analyze the information of APTS, or the authorities did not optimize the related information. APTS, consequently, was not be utilized fully. Therefore, in order to optimize the data recorded in APTS, Institute of Transportation, Taiwan plans to build a system suitable for transport competent authorities to effectively supervise the bus companies.

Solutions

Bus Transport Supervision System mainly enables the competent authorities in each city/county to supervise the bus companies with the information provided by APTS. Considering that users can access the Bus Transport Supervision System easily and through the Internet, the system adopts WebGIS structure. In this WebGIS structure, SuperWebGIS is the map server of the system to publish maps and the GIS tools. Moreover, the system is programmed with C#.net language which is easy to learn and contains powerful .net class library. In addition, considering the budget and usability in each city, the database of the system utilizes PostgreSQL. As to the communication protocol, the system uses TCP/IP which is commonly used on the Internet.



The framework of Biodiversity Geographic Information System

Solutions

- Utilize SuperWebGIS as the map server to build up a WebGIS to publish maps and provide GIS tools.

Results

Bus Transport Supervision System contains 10 sub systems, which are helpful for competent authorities to supervise the bus companies.

- 1. Profile Management Sub System:** The sub system allows the administrators to add the modules according to their permissions and to set up users' accounts and passwords.
- 2. Parameter Setting Sub System:** The system allows the administrators of the competent system to set the related parameters, like route schedule class definition, delay definition, early departure definition, behind schedule definition, speeding definition, average of car age, the definition of abnormal unusual pause on moving, and so on.
- 3. Bus Dynamic Basic Information Query Sub System:** The system mainly utilizes XML format to obtain the bus information from APTS management center, including data of equipment in bus, driver data, route data, etc.
- 4. Road Supervision Basic Information Query System:** The system provides the query of vehicle registration, driver data, and traffic violation records. The data are the static data regularly obtained from Directorate General of Highways, and the obtained data would be saved in the database of the permitted users to query.
- 5. Report Submission Sub System:** The system enables the companies to query and upload the related operating reports such as transportation monthly report, vehicle condition monthly report, etc. The competent authorities can query the data uploaded by the companies and choose the data to download.
- 6. Forbidden Area Setting Sub System:** The system combines with electronic maps to allow the competent authorities to set the forbidden area of bus. Meanwhile, the competent authorities can collaborate with traffic monitoring system to monitor the vehicles.

- 7. Traffic Monitoring Sub System:** The system assists the competent authorities in utilizing electronic maps and information received from buses to monitor the buses. If the highway bus or city bus does not follow the route or enter the forbidden area, the warning window will show up to remind the users.
- 8. Data Query Sub System:** The system allows the competent authorities to query each driver's data through selecting the query item, company, route, driver, car number, date and so on. It would be useful to supervise the service quality of the drivers in the companies.
- 9. Supervision Management Sub System:** The system provides to query General supervision statistics, including the statistics of vehicles, delay, behind schedule, etc. and Subsidy item statistics, such as delayed departure, early departure, mileage, and so on.
- 10. Management Assistance Query Sub System:** The system combines electronic maps to provide the query of the bus routes and schedules in a certain area. In addition, the system also facilitates the competent authorities to assess and decide whether to agree with the new route proposed by the companies and the modification of routes.



Data Query Sub System allows the competent authorities to query each driver's data.

Results

- Bus Transport Supervision System provides 10 sub systems to assist the competent authorities in supervising effectively.
- Bus Transport Supervision System assists the competent authorities in supervising the companies' operating to request their service qualities.

Software Used

- SuperWebGIS
- Windows Server 2005
- PostgreSQL