eSpatial

Dublin Bus, Ireland

Major public transport provider in the greater Dublin area, Dublin Bus deployed a new bus stop database system based on iSMART®. The transport company uses the system for the data capture, analysis, storage and maintenance of bus stop information.

Background

The bus stop system developed for Dublin Bus allows for the creation and update of bus stop information by selected personnel, within the various departments based on a role- and permissions-based security model. Information from existing applications, spreadsheets and databases has been imported into a central Oracle 10g database. As well as reference information held in text form, the system holds pictures, GPS co-ordinates and relevant drawings, documents and forms associated with bus stops.

The challenge

As with many asset management systems, the bus stop information for Dublin Bus was held in disparate spreadsheets and databases. This information was owned and managed by multiple departments making it difficult to access, share and maintain and was prone to error and duplication of effort.

With five thousand bus stops in their operating network – and a variety of different types – Dublin Bus required a robust asset management system, in a shared environment, with the ability to capture, analyse, store and maintain bus stop locations and associated information.

The solution

 Dublin Bus contracted eSpatial to develop a web based system that allows for the creation and updating of bus stop data.

Built using iSMART, Bus Stop System (BSS) modernises the processing of bus stop information (information that was previously held in disparate spreadsheets and databases) and enables selected personnel to capture and update associated bus stop data, bus route information and journey patterns. Bus stop information can be accessed either via a forms based application or the integrated mapping component.

In addition to reference information held in text form, the system holds photographs, GPS coordinates and relevant documents associated with the bus stops. The mapping component, based on iSMART, enables users to capture, view and query data in a seamless manner, all from a standard web browser.

A planned AVLC (Automatic Vehicle Location & Control) system will also utilise the information contained within the database.

This is a server-centric, integrated system in a standard non-proprietary environment; having a single instance of all attribute, mapping and data stored in an Oracle Database. BSS is built using Oracle 10g Application Server and Oracle 10g.
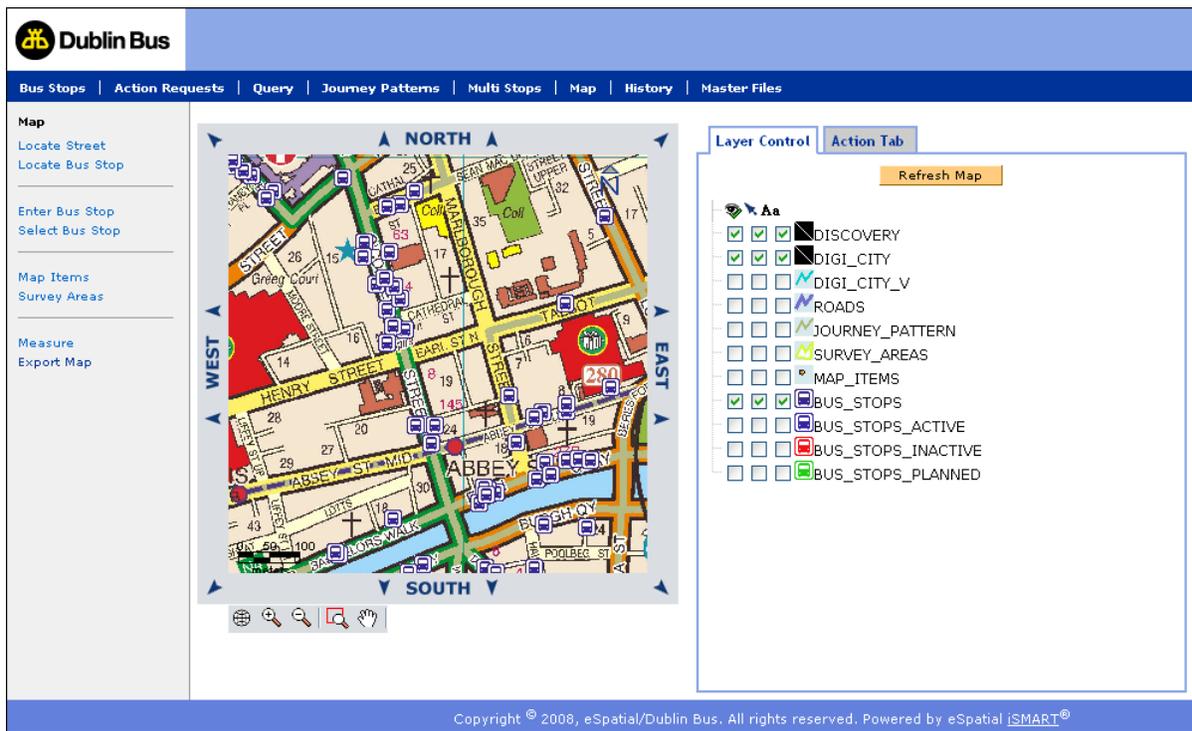
Functionality overview

From the map the user selects a general area of the map by using a zoom rectangle (the ability to drag and pan is also available). The user zooms or pans further to the location and selects the relevant stop. When clicking on a stop, a summary of bus stop data (such as address and location information) is displayed. Having found the relevant stop, the user views or edits data as appropriate. Relevant history field records are created and written to the history file. While all departments have a requirement to control their own reference data, there is also the facility to view any field within the reference database. A control structure allows for critical fields to be maintained by an overall system administrator.

The system also provides the ability to generate work requests for either single or multiple bus stops. These can be used to view lists of outstanding items in relation to bus stop information, which can be marked off when the work is completed. This can be used to view lists of outstanding items in relation to bus stop maintenance and upgrades.

A comprehensive query tool has been provided, allowing users to select an ad hoc query based on certain criteria and by searching one or more fields within the database. Data can then be exported to Excel and saved for future offline use.

As part of a follow-up phase, the application will also include a customised tool to allow for the creation of bus routes and journey patterns. This uses a routing engine to create possible routes which are then edited by operators using iSMART's web-based editing capabilities.

As part of a survey conducted by Dublin Bus, three digital photographs were taken of each stop. There are currently over 10,000 photos of bus stops, which are now accessible by all users.

Benefits for Dublin Bus

- Shared access: Bus stop location-based assets and associated data stored and maintained in one central location.

- Single source of truth: Data can be collected and entered into the system centrally, enabling multiple departments to easily access and share data.

- Increased efficiencies: Bus stops can be quickly and easily located using a variety of search mechanisms, including address search, route number search or visual searches using maps.

- Improved data accuracy: The system supports the digitising of individual bus stops and the import of captured GPS data, maximising the accuracy of data capture.

- Cost savings: Web-based, therefore generating significant cost savings in terms of reduced client licenses. Reduced development, deployment, and maintenance costs – no client installation or maintenance required.

- Improved reporting: Online data queries enable reports to be produced quickly, and data can easily be exported to Excel for later offline use. Work requests can be automatically generated and managed.

- Future-proof: Support for planned systems such as Audio Visual Passenger Information (AVPI) and Automatic Vehicle Location (AVL) from same data store.

- Increased cultural acceptance of benefits of integrating business processes in a single environment, thereby removing barriers between departments.

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- Increased visibility of the benefits of integrating geospatial and non-geospatial data in a single environment – GIS is no longer "specialised".

> *"Dublin Bus is excited about the new Bus Stop System built by eSpatial, a global GIS software and technology company, headquartered here in Dublin. We're particularly pleased with the asset management capabilities this system provides us with, in addition, as everything is now web-based, there is excellent return on investment."*
>
> *Donal Keating, Manager Operations Support , Dublin Bus*

About iSMART

iSMART transforms data with a geographic component into easily-understood maps,
charts and graphs that can be interpreted to provide actionable business insights.

Combining the latest innovations in software delivery and usability with the full functionality of a Geographic Information System (GIS), iSMART makes location intelligence available to
any organisation.

iSMART is an affordable, predictable, and scalable location intelligence tool, suitable for both GIS experts and newcomers to location intelligence alike. It also provides an ideal enterprise grade hosted services delivery platform for geospatial applications.

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About eSpatial

eSpatial is a leading provider of Geographic Information Systems (GIS), and a pioneer in the provision of location intelligence delivered via Software-as-a-Service (SaaS).

Our flagship product, iSMAR), has pioneered the availability of a full-function GIS or location intelligence tool with SaaS delivery.

As an established presence in the GIS and location intelligence space, eSpatial has developed considerable expertise and intellectual property in spatial software use and development.

We are proud to work with leading technology partners such as Oracle, NAVTEQ and Digital Globe; and to count many leading organisations amongst our global customer base.
eSpatial is headquartered in Dublin, Ireland.

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