



The Ohio Department of Transportation Office of Research & Development Executive Summary Report

Smart Sign Enhancement

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*Principal Investigator:
Ping Yi*

ODOT Contacts: Vicky Fout

Technical: Paul Trapasso

*Administrative:
Monique R. Evans, P.E.
Administrator, R&D
614-728-6048*

*For copies of this final report go to
<http://www.dot.state.oh.us/divplan/research>
or call 614-644-8173.*

*Ohio Department of Transportation
Office of Research & Development
1980 West Broad Street
Columbus, OH 43223*

Problem

In the Smart Sign Ordering System (Phase I) the University of Akron developed an on-line interactive traffic-sign ordering system for ODOT. The main focus of SSOS Phase I was to provide ODOT with a fully automated and networked sign ordering system for data exchange between ODOT's field districts, the Central Office, and the Sign Shop, and by means of the system to reduce order preparation and handling time, make needed modifications to the orders on-line, and reduce errors in the order review and processing process.

However, SSOS does not include many critical elements needed by the Sign Shop to organize, plan, produce and deliver traffic signs. First, the Sign Shop needs to replace the old JIMANI program for data management during the planning, production, and delivery processes. Secondly, during production, the Sign Shop needs to track the production status of each order in every processing step. The Sign Shop also must implement the new federal sign codes for all its producible signs. In addition, the Sign Shop needs to have the ability to add, delete, and make changes to the design features of its signs according to new standards.

Another most needed feature with the SSOS model is Component Pricing, by which the Sign Shop can determine the price of each order according to different materials, production methods, and production procedures.

Objectives

The objective of the Smart Sign Enhancement (Phase II) project is to develop the additional functions discussed in the above section. Specifically, the work mainly includes implementation of new database and federal sign code, creation of additional system functions to track order status, improve workflow efficiency, add/change design standards by supervisor, and conduct component pricing.

Description

With the enhancement, SSOS Phase II will improve the system operation from order preparation and submission at local districts to order review and approval at the Central Office. After the Sign Shop receives the approved orders, it will schedule fabrication by grouping them into different production packages based on producing method and materials used and every production step will be tracked. When the signs are made the orders will be packaged and transferred to the shipping department, the Sign The receiving district will conclude the order when the signs have arrived and archived to history. Any mistake in the order at the sign shop can be rolled back to the previous stage by the authorized personnel. Every status change to the order will also be automatically documented.

Conclusions & Recommendations

The project replaced the old data management program (JIMANI), added additional editing features in the sign ordering module, and built up the sign cost table and price calculation scheme. In addition, it has implemented many functions for order approving, manufacture planning, producing management, package assistance and order status tracking. Furthermore, improvements over the user interface have been made and technologies such as TinyMCE editor and DHTML are used to enhance the easy operation of the system.

Implementation Potential

SSOS can be used to improve the work efficiency in the sign ordering and fabrication processes, and it can speed up the order review time and potentially reduce human errors in order handling. As it stands now, the system is able to provide main data flows among the District Office, the Central Office, and the Sign Shop over sign ordering and fabrication. Future work can aid the production by improving operational management at the Sign Shop.