

Double-feed Detection in USA

US Postal Service saves \$3.5M per year with Double-Feed Detectors designed by Wessex Technology

Duo Double-Feed Detectors from Wessex Technology are saving the US Postal Service (USPS) more than US\$3.5M per year in the re-handling of misdirected mail.

With Duo Double-Feed Detectors now installed in more than 1,000 letter sorters throughout the US, USPS has made significant improvements in the accuracy of its sorting operation by reducing the number of double-feeds.

Studies carried out by USPS showed an unacceptably high level of double-feeds in the first-sort of general mail posted by the public through street letterboxes and post offices - 188 million mail items in 2002 (0.63% of general mail).

The Advanced Facer Cancellor System (AFCS) is the first step in mail processing for general mail in the USPS. It prints an ID tag bar code on the back of each mail item. The problem was that the AFCS de-stacker would sometimes pick up two (or more) mail items at a time. This 'double-feed' meant that the ID tag for the front mail item would be printed on the mail item behind it, which would then be incorrectly routed through the automated USPS system all the way to the mail man's sack – in the wrong road, city or even the wrong state.

The front mail item would arrive at a second stage mail sorter with no ID tag and need to be reprocessed. "The re-handling of consequently mis-directed mail was costing USPS millions of dollars every year," explains Carolyn Youngblood, Program Director, Technology Acquisition Management, USPS.

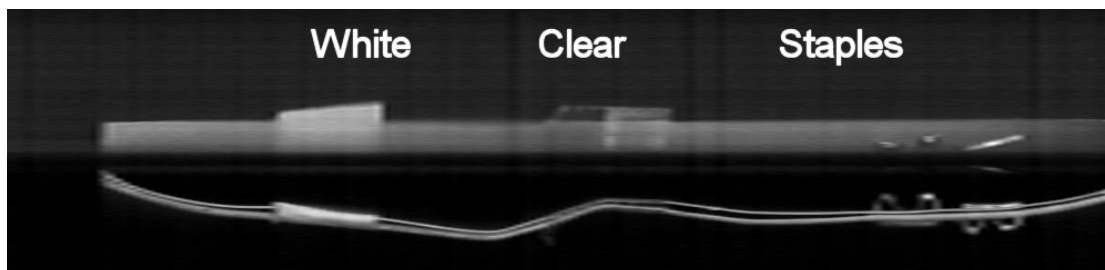
A further hidden cost was in the fact that the 'back mail items' did not get their stamps cancelled, increasing the risk of re-use by the public, and so reducing stamp sales revenue.

Determined to improve matters, USPS launched a competitive tender process. The objective was to find a compact, retrofittable, double-feed detection system that would capture at least 98% of double-fed mail, with a low false-detection rate.

"In performance tests the Wessex Technology Duo system with its camera technology and image processing software came closest to our objective," says Carolyn.

Wessex Technology worked closely with USPS to adapt the standard system to their specific needs. The mail base in the US is more varied than in other countries. For example, there is more unsealed mail and more folded items held together with a tab or a staple, all of which turn up at random in general mail being processed by the AFCS.

To address this, Wessex Technology developed a unique optical system that images the side and the underneath of each mail item so that tabs and staples are all clearly visible to the image analysis software.



The combined side-view (above) and underside-view of the mail item improve performance

USPS put the system through comprehensive trials, including live mail tests, over a period of months before deciding to roll out the Duo to every one of its 1086 AFCS sorting machines across the US.

Carolyn Youngblood says: "Initially we planned a year-long roll-out, but they out performed all our expectations. Manufacturing began in June 2005 and all the systems were installed and up and running by October 2005!"

But the key differentiator for USPS was not the timescales, but the quality of the design work and technical support from Wessex Technology.

"From the start of the project we were looking for a solution that could eventually be integrated into all our sorting machines. That meant it had to be compact, low maintenance and possess high reliability. The Wessex Technology engineers worked closely with us to understand exactly what our requirements were, and the constraints of our existing systems. They were willing to make adjustments to the design and were constantly looking for ways to improve performance even further," says Carolyn.

For example, the Duo was originally PC-frame grabber-based, but during the course of the consultation phase, Wessex Technology came up with the idea to change to a USB design. The result is a more compact and more robust solution for USPS.

USPS was so pleased with the results from the Duo systems that it is has already ordered 600 more new mail sorters with the Duo, with further orders planned.

"More mail is delivered in a timely manner now," says Carolyn. "The Duo Double Feed Detector helps USPS to provide an enhanced level of customer service, reduces mail processing costs and helps to protect the stamp revenue base."

- Bowe Bell Howell Postal Systems Company in Chicago was the prime contractor and manufacturing partner for the program.
- The side view design is subject to patent application.