Cameras, computers keep a closer watch

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The surveillance cameras at Big Y Foods, a Massachusetts grocery chain, are not just recording customers and staff. They also study checkout lines for signs of "sweethearting."

That's when cashiers use subtle tricks to pass free goods to friends: obscuring the bar code, slipping an item behind the scanner, passing two items at a time but charging for one.

There aren't enough watchful human eyes to keep it from happening, so Big Y is using technology to block it—with implications far beyond dishonest cashiers.

The possibilities that researchers see for this kind of technology have the ring of science fiction. Think of systems that spot abandoned packages on a train platform. Cities such as Chicago have invested in "anomaly detection" cameras around town, linked to emergency headquarters.

Big Y's system comes from a Cambridge, Mass.-based company called StopLift Inc. The technology scours video pixels for gestures and decides whether they add up to a normal transaction.

In the middle of a six-month trial, Mark Gaudette, Big Y's head of loss prevention, found something.

"We realized that we had a problem with training," Gaudette said, explaining that in many cases cashiers didn't realize they were missing the scanner.

He would not say how much the company spends on the technology, but he said he expects to save up to $3 million a year by using it.

As a test case, Big Y's success may be misleading. Cameras in grocery stores have a limited area to keep an eye on. They look for only a few sets of defined behaviors that may signal a cashier is not charging the customer. And they don't have to catch every thief to save a store money.

The task grows much more complicated if you're trying to, say, spot the one hijacker on a plane.

Yet that is possible, according to some researchers. Dr. James Ferryman leads a team at Britain's University of Reading that joined a European consortium last year with just that goal in mind. The European Union put up part of the funding.

Using a mock-up of an Airbus, the researchers tested systems that would identify threats in planes. Some of the cameras on board, Ferryman said, focused on a passenger's face and upper torso, looking for signs a person may be up to no good—heavy sweating, for instance.

A central computer would compile data from the cameras — and from audio sensors and the plane, among other sources — and decide whether to alert the crew.

"A threat in one particular situation may not be in another," Ferryman said. "You don't want a system where the cabin crew is constantly being given false alerts."

For all the complexity, he said he's confident automated threat detectors will emerge.

CITY OF CHICAGO PHOTO

The City of Chicago uses surveillance cameras and computers to monitor events.