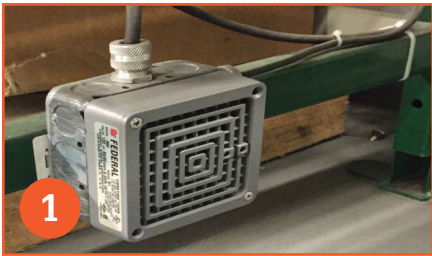# Channel your inner MacGyver

Not all warehouse problems require costly solutions. Sometimes, all that's needed are a few common items (no, not duct tape!) and a little creative thinking. What follows are 10 DIY fixes that you can easily implement in your own operation without spending a lot of money.

1. Problem: Workers leave conveyor gates open.
Maintenance personnel and other workers often leave conveyor gates in the up position, causing the conveyor to turn off or not "reboot" properly when powered up the next morning. To remind employees to close the gate, you can install a proximity sensor that sounds a horn if the gate is left open for more than 20 seconds. Estimated cost: $300.
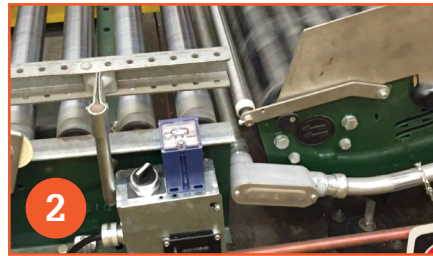

2. Problem: You have no way to count packages at various points along the conveyor line.
Unless your conveyor system was designed to have a "package present eye," it's tough to determine flow at various points along the line. One solution is to create a mobile package counter using a sensor and a digital counter. These lightweight components are not only simple to install, but they can be easily relocated for tracking product flow elsewhere in the facility. Estimated cost: $300.


3. Problem: Workers put batteries back in use before they're fully charged.
In many operations, the car-type batteries used in personnel carriers, carts, scissor lifts, and other types of equipment never get fully charged, which reduces battery life span and causes the vehicles to run out of juice before the work is done. An easy fix is to install a battery contact and LED light at each charging point to indicate when a battery has been fully charged. Estimated cost: $100.

4. Problem: Overweight packages are jamming or damaging conveyors.
Loading totes or cartons that are under- or overweight onto conveyors or sorters can lead to jams or even damage the system. A simple solution is to add a digital scale to each manual induction point so that workers can verify that an item's weight falls within acceptable limits before they place it on the belt. Estimated cost: $100.
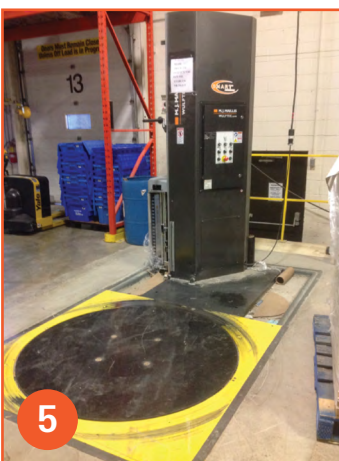

5. Problem: Pallet jacks have trouble accessing stretch wrappers for loading.
Stretch wrappers are usually loaded using forklifts, but tying up an expensive forklift for this task may be a waste of resources. Pallet jacks are a less-expensive alternative. However, the load platform for a typical stretch wrapper is higher than the fork height of many pallet jacks. One solution is to dig into the concrete floor to mount the stretch wrapper slightly below the surface to allow pallet jack access. Estimated cost: Maintenance crew time.
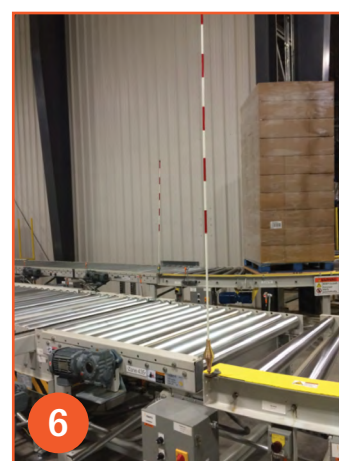
6. Problem: Workers can't locate the closest conveyor shutoff switch quickly in emergencies.
Fiberglass "barbershop" poles with red striped tape can be easily attached to the sides of conveyors to mark the locations of emergency stop switches (e-stops). Placed at eye level, the markers allow workers to quickly find the nearest e-stop to shut off or restart a conveyor. Estimated cost: $15 per station.


7. Problem: Scanners are being accidentally shipped out with orders.
Keeping track of scanners is never easy, but it's particularly challenging in pick/pack operations, where it's not uncommon for scanners to fall into shipping cartons and be packed with outgoing orders. Attaching RFID tags to the scanners and mounting readers on the outgoing conveyor solves this problem. A beacon lights up and a horn sounds any time a carton containing a tagged scanner passes by the reader. Estimated cost: $5,000, with an ROI of five months.
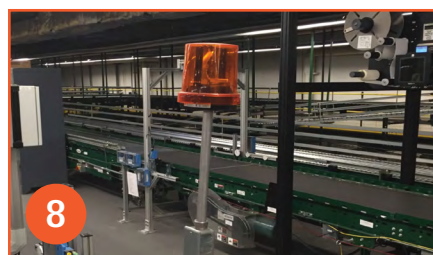
8. Problem: Backups in one part of an operation create systemwide delays.
In today's tightly choreographed automated handling operations, a backup in one area can quickly lead to problems—and delays—all the way down the line. To prevent this, you can devise a homegrown "gridlock alarm" using a proximity sensor that illuminates a beacon when a location or system is nearing capacity. The lighted beacon alerts the team to the "near capacity" condition, enabling managers to shift workers to wherever they're most needed. The light flashes whenever a five-second blockage occurs and turns off once the blockage is cleared. Estimated cost: $500.

9. Problem: Clearing AS/RS jams requires a lot of time and effort.
Clearing jams in automated storage and retrieval systems (AS/RS) usually requires a maintenance person to climb inside to determine the cause. Mounting cameras to the storage/retrieval cranes allows remote viewing of the forks and loads, which enables technicians to do an initial evaluation and determine what tools and parts they'll need before they go in. The cameras are powered by the cranes and transmit images wirelessly to monitoring stations. Recording the images allows for later viewing of the incident so maintenance techs can determine the root cause and devise plans for corrective action. Estimated cost: $2,500 per crane.
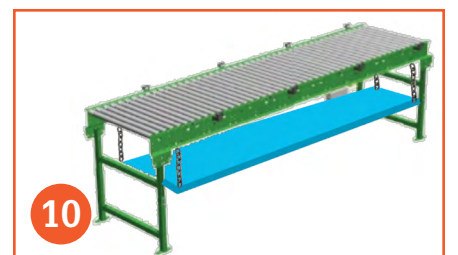
10. Problem: Automated handling equipment creates too much noise in confined spaces.
Automated systems can be noisy, especially when installed in confined spaces such as packing rooms. An inexpensive fix is to attach sound-deadening foam baffles below conveyors or other equipment using chains and S-hooks. (This should be done in addition to soundproofing walls and ceilings.) Estimated cost: $60 for four feet worth of panels, plus chains.