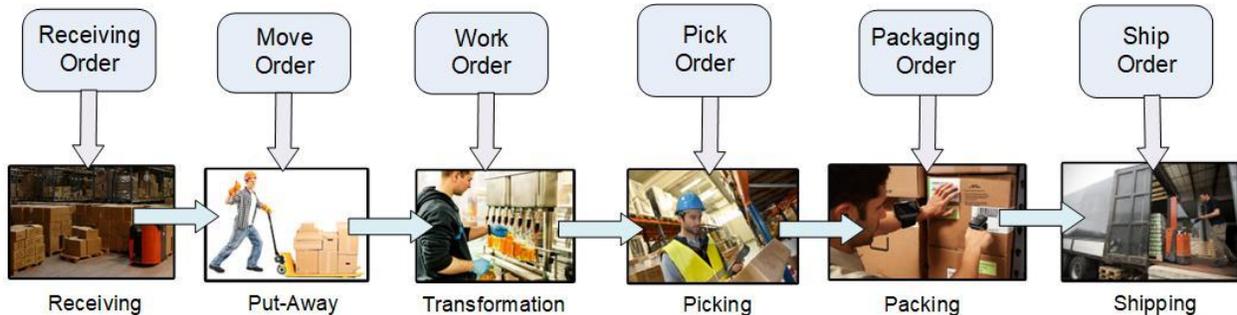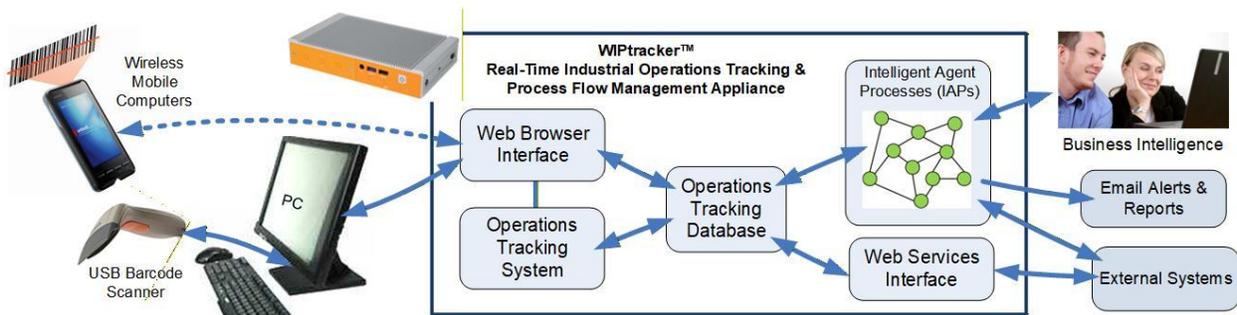## WIPtracker Industrial Operations Tracking and Process Flow Management System

Overview

WIPtracker is an affordable plug-and-play appliance which enables the tracking and management of jobs and materials as they flow through manufacturing plants, as well as through industrial distribution warehouses which do secondary operations such as assembly and kitting.

WIPtracker is an integration of four elements, all delivered pre-installed in an industrial IOT (Internet of Things) computer:

1. A barcode tracking system to automate the real-time capture of job and materials tracking data thereby eliminating the need to record data using paper forms and Excel spreadsheets. Also performs mistake prevention and provides managers and their staff members with a real-time view of the status of all their jobs and materials.

2. An operations tracking database, which tracks the current status of jobs and materials as well as the history of all tracking events, including materials traceability data as to which materials were used to make which products.

3. A set of periodically scheduled intelligent agent processes that can provide real-time business intelligence to operations managers and their staff, as well as eliminating much of their "intelligent grunt work" by:

    a. Monitoring the database to spot when there are problems, such as inventory shortages or jobs running late, that mangers need to address, and then sending alert Emails to the mangers or their staff.

b. Automatically exchanging data with external ERP, CRM and supply-chain system thereby eliminating the need for manual data entry or duplicate data entry in multiple systems.

c. Automatically creating reports for senior management, quality control, security, customers and other stake holders and then delivering these by Email.

d. Automatically generating and sending files, such as in EDI and EPCIS formats, needed by trading partners.

4. A Web-Services interface, which provides secure encrypted access to the operations tracking database for external systems, including a wide-range of ERP systems. This interface is also used by add-on WIPtracker IOT boxes for applications such as dynamic barcode label printing and automatically collecting weighing scale and other process control information.

WIPtracker Applications

WIPtracker integrates the following capabilities:

- Work-in-process tracking

- Job and materials flow tracking

- Job costing, including detailed tracking of labor, materials used and produced, and machine time required.

- Inventory tracking and warehouse management

- Asset, container, and pallet tracking

- Materials traceability to meet FDA, DOD, and DOT requirements

- Automated real-time job scheduling

- Automation of routine operations management tasks

- Able to exchange data with a wide-range of ERP and accounting systems, as well as with CAD and CRM systems.

The WIPtracker software has been used for tracking jobs and materials in a wide variety of manufacturing and distribution applications in such verticals as metal working, plastics, textiles, defense, aerospace, food, pharmaceuticals and construction. It is ideal for those organizations that need to comply with FDA and DOD regulations for materials tracking and traceability.

It is also essential for any converting organization that needs to track individually dimensioned rolls, reels or sheets of material.

As well as tracking the flow of materials through manufacturing plants WIPtracker is ideal for those distribution warehouses that need to track secondary operations such as assembly, relabeling and kitting and for construction organizations that need to perform operations on materials before shipment to site.

WIPtracker Benefits

1. WIPtracker provides a reliable alternative to performing operations tracking and management using Cloud-based systems which depend on the availability of the Internet. By being located on-premises at site WIPtracker enables each manufacturing and/or distribution operations to continue even when the Internet is down.

2. And yet WIPtracker can reliably exchange data with a wide-range of Cloud-based systems, including ERP and other WIPtracker systems at other sites, when the Internet is available.

3. WIPtracker is inexpensive, typically costing less than $2,000 per month including the IOT computer and pays for itself, with proven cost savings of between $6,000 and $30,000 per month in automated data collection as opposed to manual data collection using paper forms and Excel spreadsheets.

4. WIPtracker does not need an expensive IT team to install or maintain. The IOT computer is shipped complete with all needed software, ready to plug and play, and can be remotely configured for each specific IT environment.

5. And yet it is IT friendly, using a standard Windows IOT Enterprise operating system, with standard Microsoft software such as IIS and SQL Server which can be readily integrated into on-site Domains and backup cycles.

6. WIPtracker uses a standard web-browser interface that is compatible with a wide-range of barcode data collection devices, ranging from inexpensive PCs equipped with low-cost barcode scanners to ruggedized mobile computers designed for use on fork-lift trucks.

7. WIPtracker is configurable and customizable by business analysts, manufacturing engineers, IT staff, and third-party systems integrators to meet the specific needs of each application. This is done by using a rules-based expert system for data collection and Python scripts for process-flow management.

8. WIPtracker offers a high level of security by being located in each client's plant, under the control of the client, with all interfaces using secure encrypted protocols.

9. WIPtracker is "Real-Time AI in a Box". Rather than requiring huge, expensive data centers in the Cloud to perform the necessary AI tasks for real-time operations tracking and process flow management, WIPtracker uses methods developed using funding from DARPA, the US Air Forces and NASA, to perform these tasks in small but powerful IOT computers.

10. And, where regenerative AI is required to make recommendations for long-term process improvement, for example, WIPtracker can provide the real-time and historical data needed, without which the advice given by these systems can be seriously wrong.

WIPtracker Technology
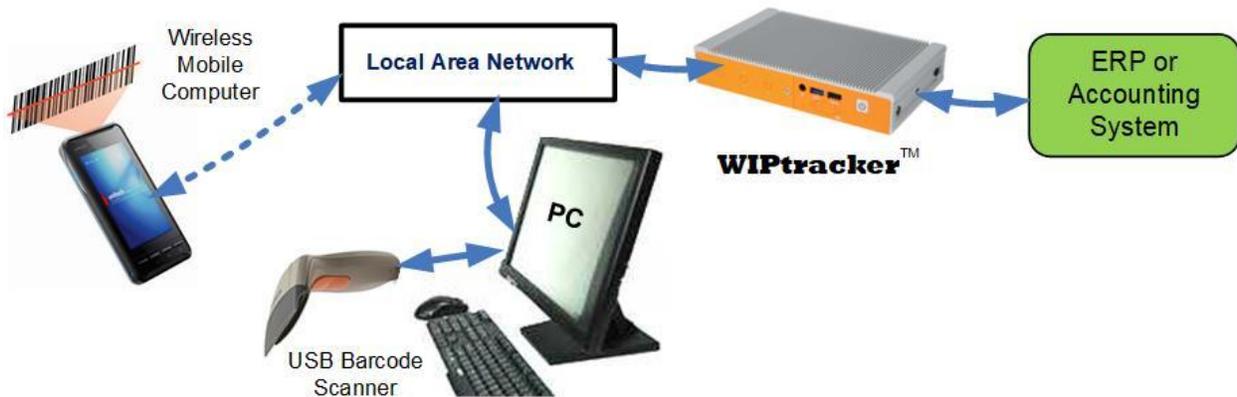
WIPtracker is a complete integrated data collection and operations tracking system that runs 24x7 on a ruggedized Windows IOT Enterprise based industrial computer at each site. As a result, manufacturing and distribution operations are able to continue, even if the Internet goes down. Internet failures, unfortunately, are happening with increasing frequency as the Internet becomes more and more overloaded and has to drop messages or even experiences outright failure.

WIPtracker is shipped as a plug-and-play appliance, complete with all needed software in a ruggedized Windows IOT enterprise computer box, which requires minimal setup after plugging into the site's local area network and an uninterruptable power supply.

The WIPtracker box comes with a web-browser interface enabling data capture with a wide variety of mobile data collection devices, as well as on PCs and tablets equipped with barcode scanners, without needing to load any special software on these devices. WIPtracker can also print out custom barcode labels on demand on a wide variety of barcode label printers and automatically collect tracking data using RFID and from weighing scales.

WIPtracker uses rules-based software which can be easily tailored for a wide variety of applications. In addition to which clients can easily write and upload Python scripts to generate Email alerts when certain events happen or to send routine reports by email to specific people on a routine basis or when specific situations arise. In addition, these intelligent-agent scripts can be used to automate much of the "intelligent grunt work" that plagues operations managers and their staff.

WIPtracker has proven to be easy to use for capturing operational tracking data by machine operators and material handlers with limited computer knowledge. It also offers a wide-range of operational reports to make operations management as straight forward as possible for production and materials managers, as well as for warehouse managers and shipping & receiving supervisors.

WIPtracker supports an easy-to-use web-services interface through which external systems can send orders to WIPtracker and retrieve operational status and history data. In addition, systems analysts, manufacturing engineers, and IT specialists can write and upload Python scripts to WIPtracker which exchange data with a wide variety of ERP and other systems, through their REST interfaces, as well as to exchange data with supply-chain trading partners.

These Python scripts can also be used to monitor the data in the WIPtracker operations tracking database, in near real-time, and to generate Email alerts when situations arise that managers or their staff need to pay attention to.
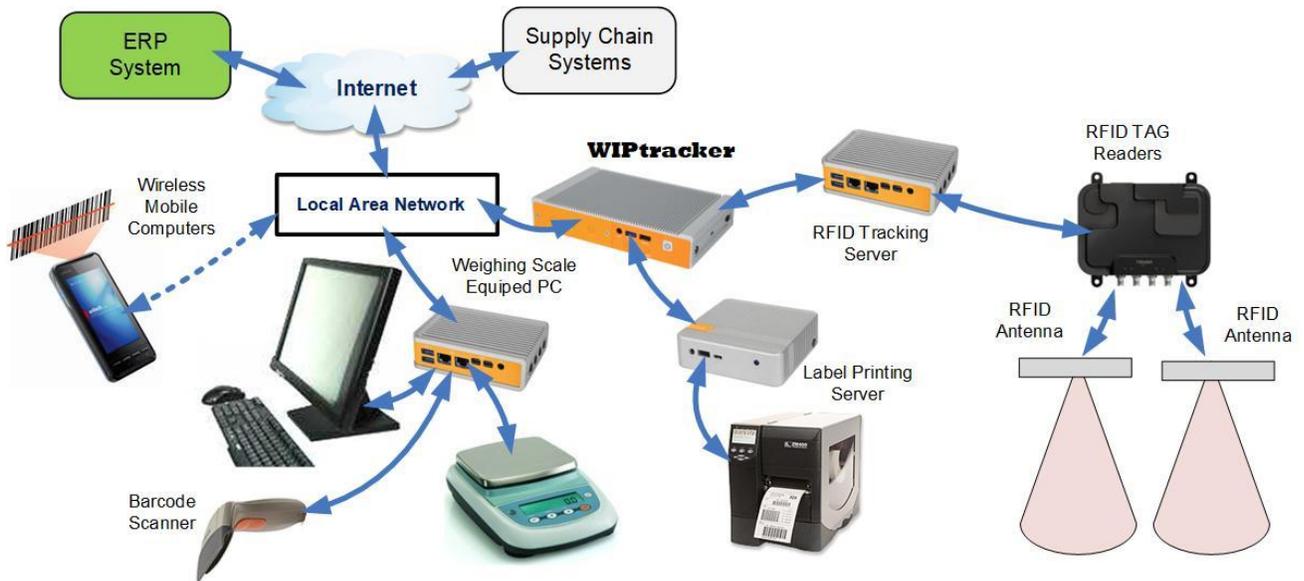
For those organizations that need more advanced capabilities, additional IOT boxes can be added to WIPtracker for barcode label printing, RFID tracking and the integration of data from weighing scales, to ensure accurate data capture. WIPtracker can also use customized software in yet more IOT boxes to pass orders to process control lines and test stands as well as to retrieve data from these systems.

Multi-Site Integration
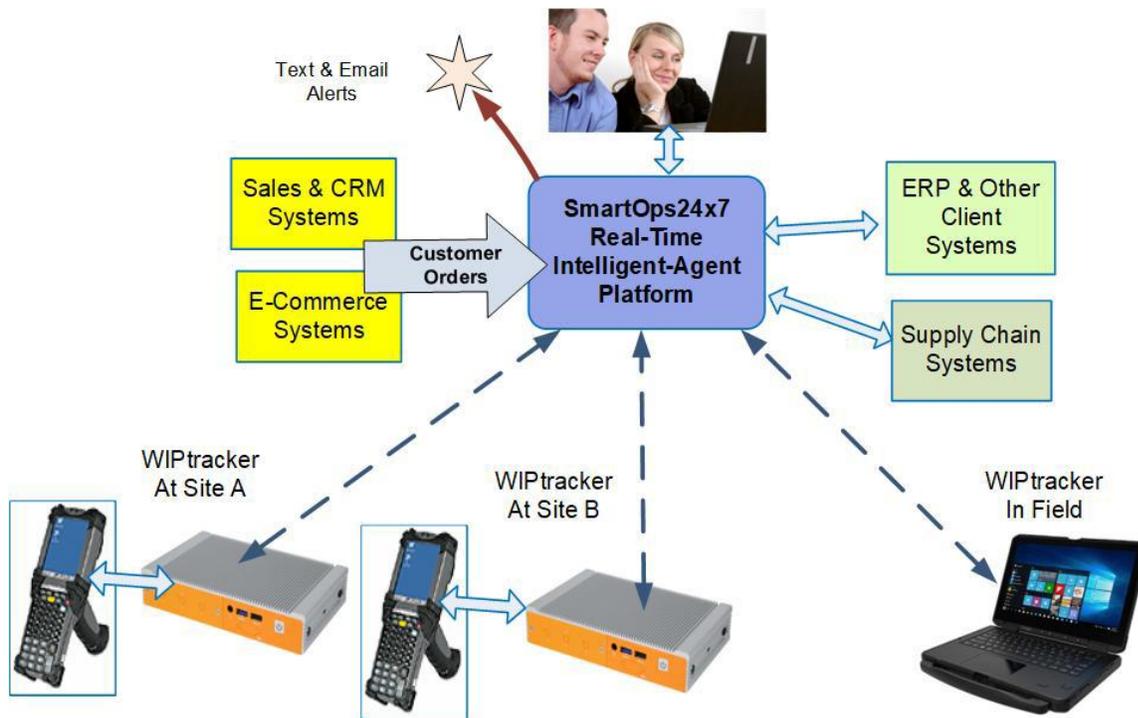
A WIPtracker box is designed to support operations at one site, over its local area network, thus providing a secure, reliable operating environment.

Where operations at multiple sites need to be operated as an integrated enterprise and interfaced to a single ERP system, then there is a companion SmartOps24x7 intelligent agent platform available. SmartOps24x7, which runs on a Windows Server in the Cloud, integrates operations being tracked by WIPtracker boxes at multiple sites as well as WIPtracker systems run on ruggedized PCs in field applications.

Because each WIPtracker system communicates with its SmartOps24x7 "mothership" using battlefield hardened store and forward technologies, operations can continue uninterrupted at each site, even when the internet goes down. Also, data can be collected in the field, in locations where there is no internet connection, with data being automatically "synced" again when internet connectivity is available.

Intelligent agents within SmartOps24x7 can also convert an incoming flow of customer orders from multiple sources and automatically convert these into manufacturing and shipping orders, which are then routed to the most appropriate plant or warehouse for action.

Then operational data from each WIPtracker box can be integrated into an enterprise level operations tracking database, which can be used to provide decision support and problem alerting capabilities for senior management.

For more information

Please contact Marketing-Support@SmartOpsMgt.com or see www.WIPtracker.com.