



Factory Insite, Inc.'s *factoryInsite*® shop floor suite of applications provides an **integrated view** of production operations to all personnel. *factoryInsite*® is specifically designed for the shop floor. Data with direct impact on production is collected and presented in real-time. Shop floor information is summarized and pushed up to planning applications, such as Enterprise Resource Planning (ERP).

Shop floor applications are **accessed from entry stations** throughout the shop and by supervisory or management personnel in their offices. Supervisory personnel can also access information from the shop entry stations after entering an appropriate security code. Employees are identified by badges when traceability is required.

factoryInsite® is oriented toward gathering data for **heads up problem solving** and presenting this information in understandable and tailorable displays, giving shop personnel the information they need. Tailoring for the customer is included with every application.

Information is always **validated at the point of entry** so corrections can be made when and where the process is understood. Questionable entry can be rejected or accepted and flagged for later interpretation. Exceptions are always logged for later auditing.

Access control is maintained for 5 levels of personnel: guests, shop workers, shop supervisors, manufacturing management, and computer operations. Each level has defined, but tailorable areas of responsibilities.

Existing applications and *factoryInsite*® can **easily exchange information**. For instance, production schedules feed the Work Order Performance application.

Emphasis for displays is placed on the **current status** of employees, products, and production equipment. This allows supervisors, managers, and even sales staff to answer the "where is it" questions.

Machine Performance

The Machine Performance application spots constraints, warns of capacity limits or underutilization, and tracks down time. It allows operators to report malfunctioning manufacturing equipment and tracks their repair.

Voice Warning

The Voice Warning application provides distinctive spoken warnings for worker safety. Signals from machinery are translated to spoken messages and directed to the appropriate location in the shop.

Time & Attendance

The Time and Attendance application streamlines the payroll process by eliminating multiple human entries. All time spent by employees is allocated to job classifications. Hours approved by Shop supervisors are sent to payroll.

Tool Development Costing

The Tool Development Costing application allows a company to make the best possible estimations for quotes on the development of a die, mold, fixture or other tool.

Order Execution

The Order Execution application tracks employees to standards and order progress. It provides electronic work lists to direct work and track the process flow through the manufacturing facility in real-time.

Calibration Results

The Calibration Results Tracking application ensures all measuring or calibration devices give correct readings. It tracks the calibration of measuring devices in order to ensure their accuracy.

Reject Analysis

The Reject Analysis application allows expertise on reworking failed parts to be shared with all operators. It captures detailed results of product failings from the *factoryInsite*[®] SPC application. Operator actions are suggested based on the failure(s).

SPC

The Statistical Process Control (SPC) application warns of processes trending out of control. It can collect measurements from *factoryInsite*[®] Product Tracking, measurement stations, or manual entry.

Incoming Material Inventory

The inventory application automates receiving, storing, disbursing, and reordering materials used for production or repair within a shop. Configurable chargeback allows allocating material to customer orders, departments, repair, etc. Replenishment is based on a Vendor Managed Inventory model.

Labor Management

The Labor Management application provides labor productivity measurements. Labor can be tracked to workcenters and products. Production rate, direct vs. indirect labor, and overhead vs. manufacturing labor comparisons can guide productivity improvements.

Absence Scheduling

The Absence Scheduling application allows supervisors to schedule employee activities such as vacation, personal leave, off-site training, etc. Staffing levels can be checked ahead of time to decide on granting leave. Hours are submitted to payroll at the scheduled time.

Tool Check-Out

The Tool Crib Check-Out application shows the location, condition, and responsible employees for all inventories in tool cribs. Expendable items and tool usage can be charged to projects, customers, or other user defined codes.



PRODUCT SUMMARY

The Shop Floor Operator and Manager Interfaces present the *factoryInsite*[®] applications in a familiar framework to all of the five different security levels to which personnel are assigned. Tasks are presented in a highly optimized format for efficient data entry and query.

PRODUCT BENEFITS

- Authorization is enforced for all functionality.
- Existing computer equipment can be used because software runs on any standard PC.
- Entry stations can adapt to a variety of environments because keyboard, pointing device, or touchscreen can be used.
- Drill down Information Prospector[™] views quickly display exceptions using real-time data.

PRODUCT FUNCTION AND USE

The Shop Floor Manager Interface is a menu oriented workspace that provides a common platform to which all *factoryInsite*[®] applications add options. The basic menu structure and navigation provide a familiar framework regardless of the particular mix of applications.

The Shop Floor Manager Interface incorporates the Information Prospector[™] technology for viewing information. Shop floor objects (departments, workcenters, orders, employees, etc) are presented to the manager in a hierarchical view for navigation. At each level in the hierarchy information is presented for the object. Generally this information will point out exceptions that the manager can then drill down for a more detailed look at why the exception occurred.

The Shop Floor Operator Interface is a task oriented interface in which all interaction starts by specifying the task to perform and then authenticating the operator. Context specific instructions are displayed as the operator progresses through the task. Individual *factoryInsite*[®] applications add additional tasks to the available functionality.

PRODUCT FEATURES

Security is enforced when accessing menu items, navigation using Information Prospector[™], and individual fields on entry screens.

Choices displayed depend on the context of entry, security level of user, and menu profile (for managers).

Manager menu choices can be configured by site and additional non-*factoryInsite*[®] applications can be added to the menu.



PRODUCT SUMMARY

The Machine Performance application enhances the *factoryInsite*® Labor Management application by adding detailed information on performance, utilization, and availability of manufacturing equipment.

PRODUCT BENEFITS

- Calculate Overall Equipment Effectiveness from Availability, Performance, & Quality.
- React quickly to machine impairments.
- Spot trends in utilization before they become capacity constraints.
- Analyze excessive repair time or scrap produced.
- Track machine conformance to standard rates.

PRODUCT FUNCTION AND USE

Machine Performance distributes time into categories such as production, idle, down, in-repair, etc. It tracks utilization against scheduled time and performance against standard rates.

Repair complaints can be entered by operators and viewed by supervisors/maintenance personnel.

PRODUCT FEATURES

Information entry integrates into labor management entry screens. Status changes of machines (eg. From in-service to down) can be reported with job completion information.

Maintenance personnel can enter notes concerning the progress of repair and the final repair disposition. These historical notes are available for future reference.

Status of machines can be viewed on a layout display where colors indicate the status of each machine.

Material consumed for repair can be tracked.

Machine difficulties can be tracked to part being produced and operator in charge.



PRODUCT SUMMARY

The Voice Warning application provides distinctive spoken warnings for worker safety. Signals from machinery are translated to spoken messages and directed to the appropriate location in the shop.

PRODUCT BENEFITS

- Safety of workers is enhanced by receiving multiple warnings, both visual and audio.
- Tracks and records warnings announced to provide a record for liability issues.

PRODUCT FUNCTION AND USE

Voice warning utilizes the spoken word to apprise people in the plant of status changes or alarm conditions. In a shop where lights and buzzers are everywhere, a vocal message can give the safety edge that is needed. Indications are sent via a simple serial interface that can originate with PLCs or control computers. Messages can be any printed phrase and voices or inflections can be specified and easily changed.

PRODUCT FEATURES

Signals are identified by their source, signal priority, message to speak, and paging zone. The signal priority ensures that emergency messages are delivered before normal status changes. Each message consists of a type of voice (male/female, adult/child, high/low, etc.) and typed message text.

Message voice and text can be easily modified and may be tested before utilizing in the shop. Frequent changes will keep shop personnel from getting used to a particular message.

Spoken messages can be directed to any telephone device that accepts DTMF codes to control paging. This includes most existing PBX and paging systems.

Positive confirmation is returned to the material handling equipment or machine control that a voice warning was completed. All messages are recorded by date and time in a history log file for future reference.

Signals from equipment can be extracted with times and dates for analysis by plant maintenance personnel. This can be used to calculate running time for preventative maintenance or time between failures.



PRODUCT SUMMARY

The Time and Attendance application streamlines the payroll process by eliminating multiple human entries. All time spent by employees is allocated to job classifications. Hours approved by Shop supervisors are sent to payroll.

PRODUCT BENEFITS

- Time saved by employees not writing timecards
- Time saved by supervisor not needing to approve each timecard
- Time saved not reconciling timecards against billed labor
- Time saved not entering timecards for payroll
- Errors made in data entry are reduced
- Misreported overpaid/underpaid time captured
- No paper timecards
- Real time employee status available
- Minimal employee clock-in/clock-out effort
- No time spent looking for lost timecards
- Check on overtime work in progress
- Supervisors approve all work by exceptions only
- Native linkage to most payroll systems

PRODUCT FUNCTION AND USE

Time and attendance accepts employee badge entry to check in and out of default jobs. Employees can switch from one job classification to another during a shift. Supervisors can display current or past work information to monitor late or absent workers and overtime. Managers can establish new employees and allowed time windows for shifts. Computer operations personnel can update the employee list or transfer work records to payroll.

PRODUCT FEATURES

Employees are identified by a badge, employee number, department, and default job classification and shift. Job classifications combined with shifts give a time window of normal operation. Work outside this window is considered overtime and may require prior authorization by a supervisor.

Employees can change job classifications within a shift but only a supervisor can authorize reporting on another shift. Check-in to the default job only requires entry of a badge. All job classifications are fully user definable.

Supervisory personnel can view information from any time entry station after entering a valid security code. Displays and reports can be produced to show employees currently working, absentees, late employees, employees who left early, overtime work, and historical time summaries. Displays can be selected by department and shift.

Employee work records can be corrected by supervisory personnel before it is transferred to payroll. Information is transferred to payroll based on an ending shift on a particular date.



PRODUCT SUMMARY

The Tool Development Costing application allows a company to make the best possible estimations for quotes on the development of a die, mold, fixture or other tool.

PRODUCT BENEFITS

- Track time spent in development of die, mold, fixture, or any manufacturing equipment for charge-back or costing.
- Historical database gives you information on actual time spent to prepare quotations.
- Time can be split for analysis by user defined breakdowns such as manufacturing station type, operation performed, etc. to give costing summary.
- Development operation steps can be reported as partially complete to give the most accurate real-time status possible.

PRODUCT FUNCTION AND USE

The Tool Development Costing applications allows an operator to track time for a tool by selecting station type, tool type, station number, detail number, revision, press size, and operation. Each of these selections will categorize the time spent so that costing reports can be developed for any of these selections. When an operator checks out they can enter Work In Process (WIP) completed, Quantity finished and Quantity in WIP.

PRODUCT FEATURES

By breaking an operation down into the different categories, costing reports can be produced to show the total cost of a tool or the total cost of all tools for each category. These reports can be utilized by sales, various levels of management and for machine capacity.

The WIP and completed work is tracked so that an operator is aware of WIP when they check in for an operation.

Operators are validated against a list of authorized operators.

The date and time during check in and check out are automatically entered so that accurate elapsed time is kept.

All entry screens allow for easy touch screen data entry with pull down lists to select from.



PRODUCT SUMMARY

The Order Execution application tracks employees to standards and order progress. It provides electronic work lists to direct work and track the process flow through the manufacturing facility in real-time.

PRODUCT BENEFITS

- Linkage into scheduling systems verifies and defaults entry by operators eliminating errors.
- Measure actual performance of employees against standards.
- Electronic worklist displays orders by scheduled priority, eliminating operator guesswork.
- The ability to determine the location of products saves supervisor time.
- Having production queue status at all workcenters points out failures or bottlenecks.
- Scrap analysis can be performed by department identifying areas of improvement.
- Order movement can be sent as ERP transactions, eliminating manual entry.

PRODUCT FUNCTION AND USE

Order Execution associates manufacturing orders and routing sequences with direct labor activities. It accomplishes this via a real-time linkage into ERP/MRP scheduling systems and uses the schedule to direct factory floor activities.

PRODUCT FEATURES

Production is identified by an order/lot number, part number, routing sequence/operation, workcenter or department identification, and machine/location. These identifiers are user-defined and flexible.

Entry by employees is defaulted by expected outcomes. For example, the highest priority order is displayed for acceptance at start of work and starting quantity is displayed for accepting completed good quantity.

Production counts and % good/bad by order, part number and shift are available for display.

Work orders can be viewed by sequence progress and by conformance to schedule. Exceptions from the work schedule can be spotted early. Estimates of completion are available based on real-time rates and standards.

Checks can be made for part quantities in progress regardless of order/lot to check for in progress availability.

Recovered scrap counts and time spent can be analyzed to determine effort expended.



CALIBRATION RESULTS TRACKING

PRODUCT SUMMARY

The Calibration Results Tracking application ensures all measuring or calibration devices give correct readings. It tracks the calibration of measuring devices in order to ensure their accuracy.

PRODUCT BENEFITS

- Can handle any measurement device (gauges, automated test equipment, CMM, etc.) calibration runs.
- Historical database of calibrations can predict early failures of measuring device.
- Measuring standards history is also tracked to record replacement requirements.
- Supports measuring of sets of calibration standards, which allows immunity from individual standard failure.
- Ensures production/test equipment is within required specifications.

PRODUCT FUNCTION AND USE

A calibration standard is a part or device whose test readings are stable. Standards are assigned to control sets and their audited value is recorded when a set is established. Periodically the control sets are measured with the production measuring equipment and the results are compared against previous measurements from the same equipment and the audited value. Calibration tracking receives these measurements either from the automated product tracking system or manual entry.

PRODUCT FEATURES

Control sets contain standards that are identified by tracking number, production part number, serial number, audited readings, audit date and audit equipment identification. Each set has control limits for the mean values and the standard deviation.

Readings for a control set are compared against that set's control limits to indicate pass or fail for a run. Calibration readings are identified by the date and shift, the control set, and an identification of the production measuring equipment.

Individual calibration measurements can be tagged with an action code to explain a particular circumstance of the measurement. Each test run must be reviewed before it is stored in the historical database.

Historical reports showing measurements by date and shift are available to indicate whether the production measurement equipment is drifting.

If the production measurement equipment is appropriately configured, the operators running the control set can review and accept the run from the measurement equipment control panel.



PRODUCT SUMMARY

The Reject Analysis application allows expertise on reworking failed parts to be shared with all operators. It captures detailed results of product failings from the *factoryInsite*[®] SPC application. Operator actions are suggested based on the failure(s).

PRODUCT BENEFITS

- Operator views history of calibration/testing attempts and is advised as to part disposition.
- Better utilization of operator time because of level of information available.
- Suggestions can be based on best knowledge giving operators benefit of experience.
- Eliminates scrapping all failures, you can tell if part is able to be re-worked.

PRODUCT FUNCTION AND USE

Calibration and test data is transferred automatically to reject analysis when the product is marked as failing by a calibration or test process. A detailed database is maintained of calibration and test results linked to the tracking number. Production personnel can request displays of calibration/test history based on the tracking number. Suggestions are displayed for the operator based on the test history. Quality analysis personnel can utilize a wide variety of tools to perform more detailed investigations into failures.

PRODUCT FEATURES

Suggested recovery actions are displayed when the operator enters the product tracking number. These actions are based on the type of failure and the number of calibration or test re-runs for the individual product.

Intermediate testing or calibration results can be associated with the part runs. This allows capture of test equipment settings or number of calibration retries by automated machinery.

A reject analysis station accepts the product tracking number and can display a summary screen of the most recent failure for the product or a history of all failures for the product. The most recent failure screen displays the suggested resolution.

The reject station does not require a keyboard for operation if the product or holder is barcoded. A barcode reader can be used to select the product and switch displays.

Reports can be produced analyzing the type and frequency of failures experienced. This information can be used to analyze the effect of process changes or to determine the effectiveness of re-calibration on a particular type of failure.



PRODUCT SUMMARY

The Statistical Process Control (SPC) application warns of processes trending out of control. It can collect measurements from *factoryInsite*[®] Product Tracking, measurement stations, or manual entry.

PRODUCT BENEFITS

- Gives quality charts for in-progress operations to allow fastest possible handling of potential problems.
- Handles results from assembly, calibration, and test equipment allowing a view of the total process.
- Part measurements can be kept with individual serial numbers or can be grouped only by part number.
- Statistical analysis can use normalized measurement allowing comparisons across product families.

PRODUCT FUNCTION AND USE

SPC receives measurements from automated test equipment or manual entry. Production workers can view pre-formatted graphs and reports selected from menus or they can create ad-hoc queries. Quality control personnel or engineers can use a wide variety of tools to view production in real-time or analyze historical measurements.

PRODUCT FEATURES

Quality measurements can originate with Factory Insite, Inc.'s automated product tracking or scrap and rework reporting as well as data collection software and equipment from many vendors.

Product measurements collected can contain multiple sets of nine variable measurements and four characteristics. This information can be correlated by the SPC analysis when product tracking is used.

The real-time component of SPC provides graphical control charts of the current production. This is invaluable when automated equipment is used to test production in a relatively unattended operation. If measurement data from a calibration process is available, this data can be used to produce control charts.

Production measurements can be combined with SPC sampling to provide cross correlation and check both production and test measuring equipment.

Real-time analysis can be set to signal out of control band readings via log files, electronic mail, or the Factory Insite, Inc.'s voice announcement system.



INCOMING MATERIAL INVENTORY

Factory Insite

PRODUCT SUMMARY

The inventory application improves availability while decreasing inventory levels of materials used for production or repair. Visibility is provided by a Vendor Managed Inventory model and real-time updates. Configurable chargeback tracks materials.

PRODUCT BENEFITS

- Reports on material outages which can assist in determining on-hand levels and re-order levels.
- Graphical diagram of location in shelves or drawers that enable quicker retrieval of parts.
- Material picks are charged to department, work order, repair order, etc. for charge back costing.
- Actual size of storage locations is kept to suggest storage locations appropriate to size of items.
- Individual part numbers are mapped to commodity managers who are internal or external organizations responsible for re-ordering a group of material.
- Performance information is available to rate suppliers.
- Audit trails are kept for picks, receipts and adjustments to allow historical analysis of material use.
- Inventory adjustments are accessible from other transactions allowing corrections anytime. This encourages immediate error recovery.
- Remote pick stations allow displaying material requests at storage location.

PRODUCT FUNCTION AND USE

Incoming material inventory allows receiving material into ASRS, shelf, drawer, or other storage locations. Part numbers are defined in storage location(s) dedicated for their storage. Picks of material are made against inventory and the system determines the best location(s) from which to retrieve parts. Restocking orders are generated from material depleted. Orders can be transmitted via paper documentation or via Electronic Data Interchange (EDI) Value Added Network providers.

PRODUCT FEATURES

Physical locations are described in the application database. This allows graphical diagrams to illustrate any type of part storage and pick locations.

Material storage areas can be subdivided by physical location with different personnel responsible for operation in those areas.

Individual storage locations can be divided further, if required. For instance, drawers can have defined inserts of various sizes.

When a part is defined, the type and size of storage required is also defined. This allows the application to utilize the database of physical locations to suggest appropriate storage locations.

Parts can be mapped to commodity manager organizations, which are responsible for restocking the material. Commodity manager organizations can be mapped to reorder methods - such as paper, e-mail, EDI, etc.

Audit trails are provided for material receipts, picks, and inventory adjustments. Material receipts are tied to a receiving slip. Pick orders are tied to a user defined charge code. All transactions are tied to employee.

The system will prompt employees through counting inventory and track exceptions to stored counts. Inventory can be driven by location or part numbers. An inventory run can also be restricted to those parts from a single supplier, part list, or manual entry.



PRODUCT SUMMARY

The Labor Management application provides labor productivity measurements. Labor can be tracked to workcenters and products. Production rate, direct vs. indirect labor, and overhead vs. manufacturing labor comparisons can guide productivity improvements.

PRODUCT BENEFITS

- Accurate labor time for cost analysis and control.
- Historical data for future job estimating.
- Minimal entry effort for employee.
- Measurement of actual set-up/breakdown times.
- Real time status information available.
- Reduce time spent tracing production.
- Direct labor hours are linked to payroll information.
- Track quality activity time for ISO compliance.

PRODUCT FUNCTION AND USE

Labor tracking expands time and attendance to allow recording of set-up, direct labor, breakdown, rework, and indirect labor within a job classification. Employees are guided through this process by fill-in-the-blank screens. Supervisors can display information on the current status of employees, machines, and orders.

PRODUCT FEATURES

Direct labor is identified by employee, machine, manufacturing order, and labor type. Indirect labor is identified by machine and a user defined labor code. Selected job classifications from time and attendance can be reported as indirect labor (breaks, lunch, meetings, etc.).

All entry is verified against tables for machines and indirect labor codes. Unverified information can be rejected or accepted but flagged after confirmation by the employee. Order set-up and breakdown time can be measured or a standard time reported.

Supervisory personnel can view current status of employees, machines, and orders as well as historical information. Operators can view status information for themselves on the shift in progress.

Information on labor time is available for costing. Measured production and set-up time can be used to update standards.



EMPLOYEE ABSENCE SCHEDULING

PRODUCT SUMMARY

The Absence Scheduling application allows supervisors to schedule employee activities such as vacation, personal leave, off-site training, etc. Staffing levels can be checked ahead of time to decide on granting leave. Hours are submitted to payroll at the scheduled time.

PRODUCT BENEFITS

- An advance planning tool for supervisors to ensure proper staffing.
- Supervisors can view scheduled activities by department to avoid conflicts.
- Pre-payment for absence can be scheduled eliminating last minute scramble for approval.
- Supervisors see scheduled absences in regular attendance views.

PRODUCT FUNCTION AND USE

Employee absence scheduling accepts job classification, number of paid hours, a date range, and a payroll processing date for an employee. The scheduled time is entered in the time and attendance database. Payment notification is sent to the payroll system on the payroll processing date, which can be before the scheduled time for prepaying the employee.

PRODUCT FEATURES

Supervisory personnel can view scheduled information by week and department to determine whether or not vacation time should be allowed.

Scheduled time is entered in blocks and automatically allocated to shift times on allowed days of the week based on the job classification and employee's default work shift.

Scheduled time is linked into the time and attendance system and the advance scheduling entry screen can be accessed directly by pointing at a scheduled time in the time and attendance entry screen.

The date range is blocked for the employee's shift in time and attendance. This ensures that the employee cannot check in and be paid twice. The supervisor status displays show the employee on the specified job classification.



PRODUCT SUMMARY

The Tool Crib Check-Out application shows the location, condition, and responsible employees for all inventories in tool cribs. Expendable items and tool usage can be charged to projects, customers, or other user defined codes.

PRODUCT BENEFITS

- Assigns tools to employees for accountability.
- Shows locations (department, job site, workcenter, etc.) of tools in use for tracking.
- Tool condition on each return is traced to predict when repair or replacement is needed.
- Tool utilization can be tracked to determine whether additional tools need to be purchased.
- Tools and expendables can be billed to a project.

PRODUCT FUNCTION AND USE

Tool crib check-out allows location tracking of tools and expendable items either in the tool crib or signed out by an employee. The tool crib attendant verifies tool conditions on their return and distributes the tools and expendables. Assets to be signed out are identified by user definable bar code labels which can be entered via bar code reading equipment.

PRODUCT FEATURES

Tools are identified by an asset number, a serial number, and a tool crib location. All of these are user definable. Expendable items are identified by an asset number, a tool crib location, and a quantity on hand. The expendable quantity can be modified as needed.

Both attended and self-serve tool cribs are supported. If the tool crib is attended, requests can be made for items ahead of time for pick-up.

A tool crib employee in an attended crib must identify themselves with their identification badge when assuming responsibility for authenticating sign-outs. Each employee checking out assets is also identified by their identification badge. When a tool is returned the employee is required to assign a returned condition of the tool and an additional explanation if the condition is "not good". Historical records of sign-out information can be removed based on the date of the sign-out.

Displays and reports can be produced on quantities on hand, tools currently signed out, expendable usage, and defined locations for assets. Reports can be produced sorted by employee, asset, or location depending on the report.