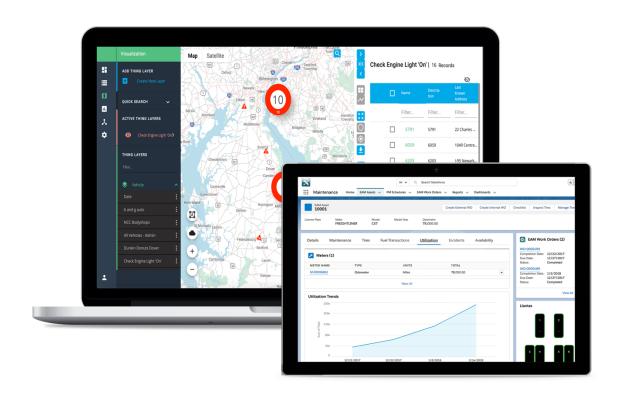


# **Enterprise Asset Management Solution Overview**



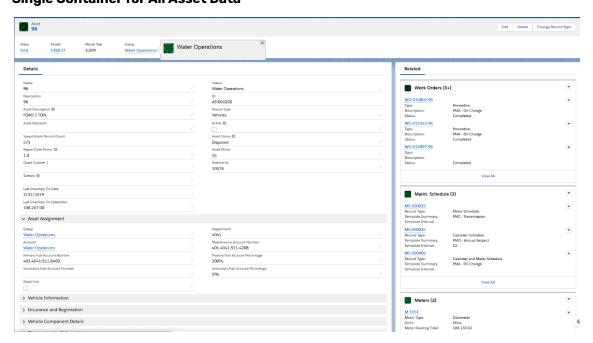
# **TABLE OF CONTENTS**

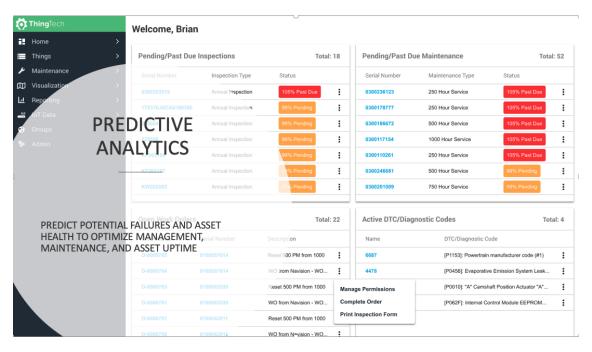
# 1.1. ThingTech Enterprise Asset Management Solution Summary

ThingTech provides enterprise solutions focused on the needs of fleet and asset managers. These are the result of over many years of experience in building and implementing fleet tracking, enterprise asset management, and route and service delivery solutions. These tightly integrated products can be mixed and matched to meet the unique needs of those organizations that require real time asset and workforce information, real time machine to machine or sensor data, enterprise asset and work order management, and field service delivery optimization. Our solutions leverage the latest in geospatial location based technology and GPS vehicle and asset tracking, machine to machine communications, and cellular networking.

- Connecting Your Fleets
- Connecting Your Assets
- Connecting Your Infrastructure
- Connecting Your Workforce
- Connecting Your Systems
- Connecting Your Community

# **Single Container for All Asset Data**





ThingTech a completely configurable and extensible solution that allows customers to manage and integrate all their corporate data and processes in a single application. Access all your data quickly, comprehensively, and efficiently. Easily create user-defined data structures capable of handling large, complex data sets with accuracy. Categorize assets in classes, groups, or parent/child hierarchies. Highly configurable, but with minimal need for customization. Our architecture is a meta-data driven architecture that allows the system to be configured for specific integration requirements to third party systems.

Admins can extend the solution via custom classes, custom fields and custom relationships. Model supports over forty field types. Simply select the Object (i.e. ASSET) and NEW FIELD to extend the data model to support your specific needs. Our architecture and platform is built upon the foundation that solutions should be easy to use, flexible, configurable, and easily accessed from any device, any place in the word. Configuration tools allow our technicians to configure your user interface, user experience, and overall application functionality with a click of a mouse.

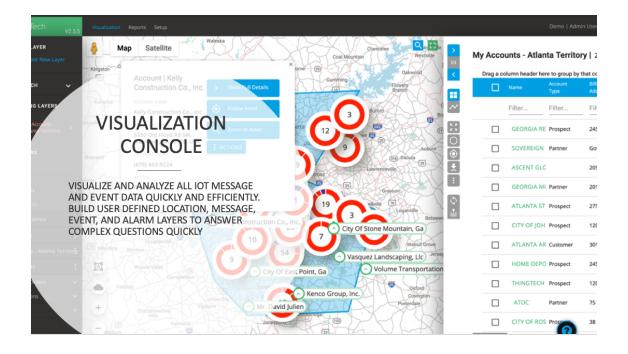
- Standard Field Pick list modification
- Unlimited Custom Field Definition
- Page Layout Editor
- Trigger Definition

- Validation Rules
- Search Layouts
- User Roles and Permissions
- Sharing Rules
- Departmental Hierarchy
- Workflow Process
- Approval Process
- Email Alerts
- Task Assignment Rules
- Mobile App Access and Privileges

# 1.2. Intelligent Asset Management

ThingTech has been designed for mission critical problems faced by enterprise customers that need to manage and maintain complex real time datasets, things, and processes. It a completely configurable and extensible solution that allows customers to manage all their corporate data and processes in a single application. Access all your data quickly, comprehensively, and efficiently. Easily create user-defined data structures capable of handling large, complex data sets with accuracy. Categorize assets in classes, groups, or parent/child hierarchies. Highly configurable, but with minimal need for customization.

- Manage all your assets, infrastructure and equipment in a single view
- Visualize Asset Location using Geo-Spatial Tools and ESRI Integration
- Assign Work Orders to Any Asset, Account, Location, or user defined object
- Automate Predictive Maintenance
- Automate Compliance Programs
- Digitally Transform Field Data Collection
- Apply Rules and Workflows
- Visualize Asset Location, Status, and Utilization



Say goodbye to spreadsheets and get a comprehensive view of Utilization, Maintenance, and Finances for all Assets. Get a 360-degree view of your assets including Asset Hierarchy, PM Programs, Real-Time Meters, Work Orders, Service Requests, and much more. Asset Manager is the central enterprise repository for all data related to the Asset. Users create and edit asset records and view any data relating to the asset including service requests, work orders, condition ratings, maintenance schedules, meters, fixed asset depreciation, and budgets. All data is easily tracked and presented using a flexible user interface that incorporates automated formula fields, charts and graphs, and rich GIS mapping tools.

- Asset Detail including Type, Category, Department, and Location
- Asset Descriptive Information
- Asset Geospatial Metadata
- Asset Service Requests
- Asset Work Orders
- Asset Tasks and Maintenance
- Asset Condition and Inspection Data
- Asset Financials
- Asset Hierarchy
- Asset Warranty Tracking
- Open Activities
- Activity History

Approvals and Workflows

# 1.3. **Asset Manager**

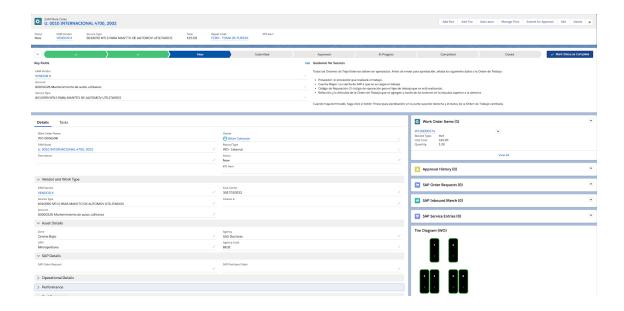
Assets are simply the fleets, equipment, infrastructure, or machines you wish to manage, maintain, and track in real time. Asset manager provides the ability to manage your entire fleet and assets in a single application and gives the user a single point of reference for all asset activities, alarms, data, and status. Users can create, edit, and update asset attributes through our intuitive web-based interface. Relevant descriptive, purchase, regulatory, and financial data can be maintained and managed through the asset manager object.

# Easily manage:

- Asset Details
- Budget
- Expenses
- Grants
- Device Assignment
- Manufacturer
- Warranty
- Condition
- Life Cycle Deterioration Models by Asset Class
- Maintenance Schedules and Meters
- Capital Replacement
- Financials
- State and Federal Reporting

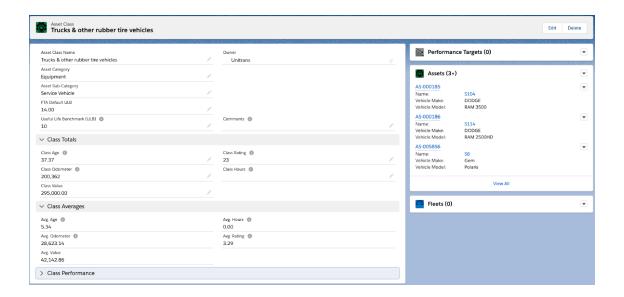
All data related to the Asset record is found below the Asset Detail page in "Related Lists". Related Lists are configurable based on the user's roles and permissions and displays data only relevant data. To access any data related to the Asset – i.e. Preventive Maintenance Schedules, Budgets, Meters, etc. – the user simply selects from any of the records organized in the related lists.

# **Total Cost of Ownership for Lifecycle of Asset**



# 1.4. Asset Class Manager

This Asset Class Object allows you to consolidate and summarize the statistics on assets for reporting, dashboarding, scoring, and replacement analysis. You can assign Assets to each class, as well as a Class Performance monitor. Easily define your Usefile Life Benchmarks, KPI's and Performance Metrics by asset class to automate your NTD reporting and planning efforts. Different asset groups may have different monitoring requirements. This allows our customers a flexible tool to assign rules based on specific needs. Roles and permissions are defined to determine who can view, edit, or manage mobile assets. This allows for an enterprise deployment that is configured to individual departments, fleets, or asset types. Asset classes



Feature	Description
Asset Class Name	Name of the Asset Class
# of Assets	Number of Assets that qualify to be categorized in this class according to their specifications.
Miles vs. Hours	Determines whether Assets in this class deteriorate based on Miles or Hours.
Odometer	Total Mileage of all Assets included in the class.
Ave. Hours	Avg. Hours of use for all Assets in the Class
Ave. Odometer	Avg. Odometer of use for all Assets in the Class
Maintenance Cost Per Mile (MCPM)	Avg. Maintenance Cost Per Mile (MCPM) for the entire Asset Class.
# of Assets Past ULB	Number of Assets past their Useful Life Benchmark (ULB)
Class Age	Total Age of all Assets in Class
Class Rating	Total Rating for all Assets in Class
Useful Life Benchmark (ULB)	Useful Life Benchmark for Assets in this Class in Years
% Past ULB	Percentage of Assets past ULB
Ave. Age	Ave. Age of Assets in this Class
Ave. Rating	Avg. Rating of Assets in this Class

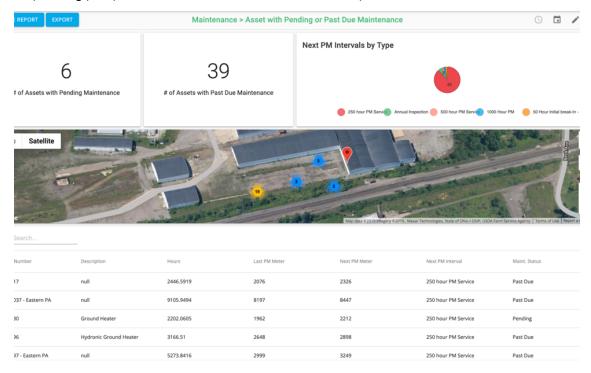
# 1.5. Work Order Manager

Flexible Preventive, Corrective, Safety, Inspection and Capital Improvement work orders in a single web-based solution that tracks parts, labor, and 3rd party costs for a detailed financial tracking of your maintenance operation, including planned vs. actual costs. The Work Order Manager serves as the record for any work, or potential work, to be performed on a specific Asset record. Work Orders can be written against any Asset record in the system and scheduled for automatic creation based on the defined Maintenance Schedule for a given Asset.

Work Orders capture a 360-degree view of the work performed including:

- Status
- Parts, Material, or Equipment Used
- Labor
- Planned Labor
- Descriptive Information
- 3rd Party Vendor or User Assignment

All Service Requests received internally, or via a Customer or Vendor Portal, are logged in the system as a Work Order flagged specifically as a "Work Request". Work Requests are automatically routed to a designated user for processing and can be immediately converted into a Work Order or the status updated. Any updates to Work Orders started as a Work Request can automatically update the Requesting party – whether an internal user or external partner or customer.



#### Automate Preventive Maintenance and Recurring Work

Manage time, distance, counts, or absolute value for user defined Meters associated with any asset. Use ThingTech's Connected Devices or suite of supported API's to automatically capture Meter values and drive your PM Program forward with confidence and accuracy.

- Automated PM Task Generation
- Service Alerts and Warnings
- Automated Odometer Capture
- Third Party Vendor Portal for Collaboration
- PM Audit Trails
- Integrated Diagnostic Trouble Codes from Vehicle

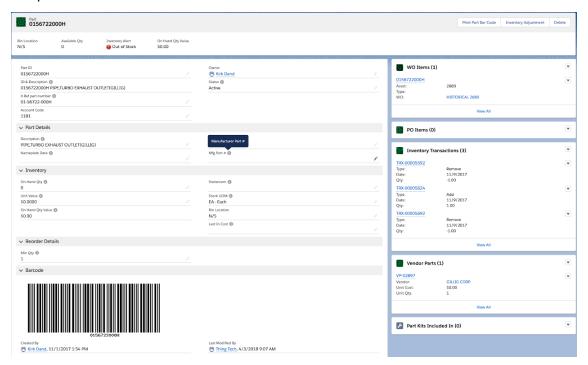
Reduce costly repairs and extend the life of your fleet with 100% adherence to your PM Program. Create Maintenance Schedules by Meter, Calendar, or both and track PM Program adherence automatically. Create and manage your Preventative Maintenance schedules for all assets.

- Trigger work orders by time, days, mileage, or telematics data to ensure that work orders are generated and executed.
- Analyze your fleet via Reporting & Dashboards for costly assets, fleet right sizing, and more...

## 1.6. Parts and Inventory

Inventory management has been one of the most time-consuming and dreaded tasks carried out by wholesalers behind the scenes. It can be painstakingly boring and steals staff away from focusing on more important facets of the business. In contrast, web based inventory management delivers the same results, with greater efficiency and effectiveness. As well as giving businesses back their time and manpower; web based stock management systems reduce the likelihood of human error or theft.

Know what's in stock in real time. Track inventory quantities across your channels and warehouses from one location. Use views to quickly see what products are available, running low, or awaiting to be replenished.



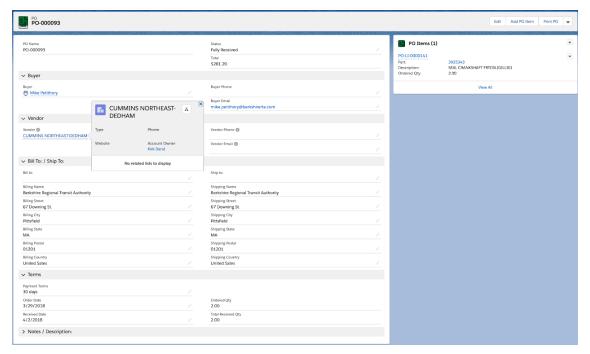
- Shop and Warehouse Location
- Bin Assignment
- Manage Parts Catalogs
- Real Time Stock Control
- Real Time Parts Quantity and Stock

- Automate Shipping and Receiving
- Bar Code Integration Option
- Access via Mobile App

It's easy to run an efficient business when you have everything working together in our inventory management software. Use current and historic sales to forecast upcoming inventory needs. Create purchase orders, track order statuses, and automatically update inventory all in one location. Optimize your warehouse, inventory and materials management to reduce inventory costs and support you support your Just-in-Time supply chain with parts and accurate cost tracking.

#### 1.7. Purchase Order

Automate the purchasing process and reduce asset downtime by keeping inventory levels where they need to be 100% of the time while all but eliminating administrative cost.

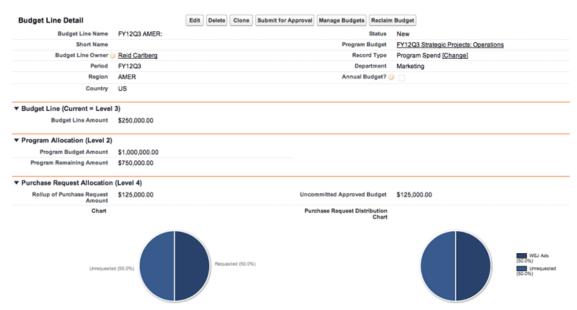


# 1.8. Grants Manager and Project Center

Purchase or Operate Assets with State or Federal grants? No Problem. Easily Track Grants, Budget and Activity Line Items and charge Capital or Operating expenses for 100% compliance. Grant and Project management is critical to public and private sector organizations. Understanding your current and future funding capabilities for your capital asset programs is required for accurate planning and forecasting. Easily manage all your grant related information including cost allocations. The Grant component records the source, amount, and federal, state, and local share of any dollars provided to the organization. It also allows for users to track how grant dollars are used

and charge capital or operating expenses against the Grant amount. The result, like budgets, is full cost allocation and compliance reports for federal or state grant money. Assets can be linked to grants to understand cost allocations and remaining dollars. Budget and activity line items are integrated to model your current federal grants program.

The Budget and Grants Module allows users to define and establish an unlimited number of Cost Centers and associated periodic (i.e. annual, quarterly, monthly) budgets. Once defined, users define the business rules for how costs are allocated to the budget cost centers and the system automatically allocates costs per the user-defined rules. For example, the user may establish a department as a cost center and create a rule that any work orders completed for an asset associated with that department be allocated to that departments' cost center.



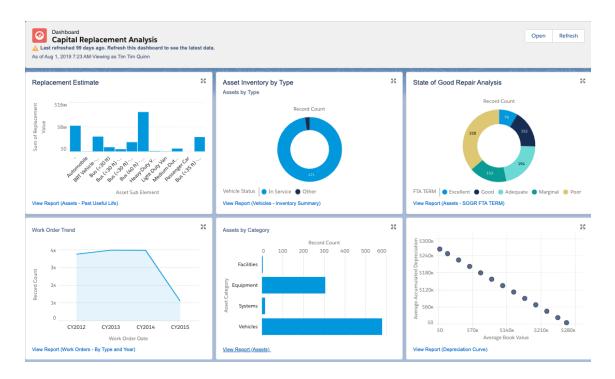
#### **Grants and Budgeting**

- Associate all Assets with Grants
- Add Budgets and Activity Line Items
- Automated Grant Allocation Calculations
- Project Cost Center Analysis
- Grant Planning and Analytics

# 1.9. Capital Planning Project Manager

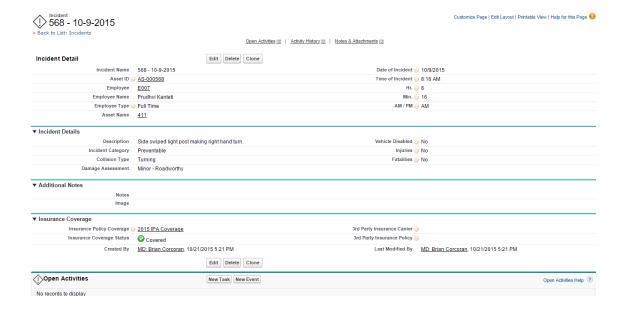
Create unlimited Expense Accounts, Projects, and Budgets for multi-faceted cost allocation, budgeting, and planning of all capital and operating costs to keep your business operating and on-budget.

- Create Projects for Capital Planning
- Model Assumptions and Financial Conditions
- Run Scenario Analysis
- Create Capital Projects based on Criticality and Investment Priority Strategies



# 1.10. Incident and Accident Management

Integrate fleet and asset incident, accident, and safety issues into the application for improved safety, auditing, and asset maintenance. Easily log driver safety issues, accident reports, incident issues, commendations, or other events to track the performance of your fleet. An integrated document management system allows you to upload images, pictures, or videos to the record for future analysis and review. Incorporate our unique "Location and Event Playback" functions to easily recreate any event in the past.



# 1.11. Certification and Safety Compliance

Ensure all your assets are properly registered, insured, certified and trained on. Manage all your asset and operator requirements in this extensible module. All driver or operator training and certification requirements are proactively managed. Key components include:

- Vehicle Registrations
- Insurance Coverage
- Safety Certifications
- Driver Training and Credentialing

Alerts and notifies proper staff and users when certain conditions are met or are expired.

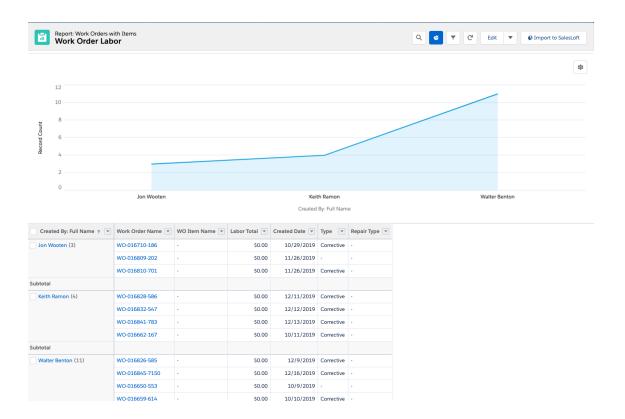
# 1.12. Asset Analytics



Perhaps the most important aspect of our enterprise solutions is the access it provides to relevant and actionable data. ThingTech is taking a leadership position in the market for reporting, and intuitive, dashboard based analytics. Our approach ensures that any piece of

data managed in the system can be delivered in a standard or custom report and flexibility in building powerful and engaging charts, tables, and graphs to constantly monitor key performance indicators (kpi's).

Enterprise asset management system should serve as a major corporate decision support system. Data is available for reporting and analytics for the life cycle of every asset. Our solutions provide over one hundred standard reports and dashboards plus an intuitive custom report builder for any user.



Each report has drill down capabilities to allow users to see the data behind the visual displays to allow you to make informed decisions on the fly. In addition, reports can be customized on the fly by following a few easy steps. Easily build and design your own reports and dashboards using simple and intuitive user interface.

Finally, all reports have a "Subscribe" feature that allows users define when the report should be distributed to them. The feature allows users to define "Exception Reports" and instruct ThingTech to only send the report when the exception occurs.

All reports and dashboards can be scheduled to run at pre-define times and distributed to you and / or your team. In addition, all reports can be exported from the system for integration with other systems or data or manually manipulated in standard formats – i.e. .csv, excel, access, pdf, etc.

# **Reports and Dashboards**

- Comprehensive Standard Reports (over 75!)
- Eight Standard Dashboards
- Intuitive Ad Hoc Dashboard and Report Wizard
- Schedule and Subscribe to All Reports
- USDOT Compliant

- Capital Planning and Replacement Tools
- Access Your Data and Reports via Mobile Device

# Build and design your own custom reports and dashboards using our intuitive asset analytics wizard



#### 1.13. Fuel Management

Reduce fuel budget with intuitive reports detailing your exact fuel spend, fuel efficiency, and fuel leakage issues. We can integrate and support the industry leaders in fuel cards and onsite fueling systems such as WEX and Fuel Master. All fuel card and fueling transactions are stored as events with the asset for analysis, trending, and playback. Minimize fuel theft or improper usage of fuel facilities. Powerful reports and pattern analysis provide insight and validation to fuel loss challenges.



#### 1.14. Configuration Tools

Our architecture and platform is built upon the foundation that solutions should be easy to use, flexible, configurable, and easily accessed from any device, any place in the word.

Configuration tools allow our technicians to configure your user interface, user experience, and overall application functionality with a click of a mouse.

- Standard Field Pick list modification
- Unlimited Custom Field Definition

- Page Layout Editor
- Trigger Definition
- Validation Rules
- Search Layouts
- User Roles and Permissions
- Sharing Rules
- Departmental Hierarchy
- Workflow Process
- Approval Process
- Email Alerts
- Task Assignment Rules
- Mobile App Access and Privileges

#### 1.15. Data Loader Tools

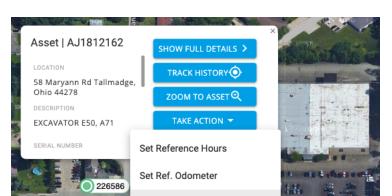
Data Loader is a client application for the bulk import or export of data. Use it to insert, update, delete, or export records. When importing data, Data Loader reads, extracts, and loads data from comma separated values (CSV) files or from a database connection. When exporting data, it outputs CSV files.

- Data Loader offers the following key features:
- An easy-to-use wizard interface for interactive use
- An alternate command line interface for automated batch operations
- Support for large files with up to 5 million records
- Drag-and-drop field mapping
- Support for all objects, including custom objects

API connections to third party systems can be implemented using WDSL, SOAP, or REST API's. An "integration" user would be configured in the system in order to track what and how the streaming API data impacted the system. Any third party system integration conducted via an API must be defined and agreed upon.

#### 1.16. IoT for Smarter Things

The Internet of Things (IoT) is revolutionizing how both the public and private sector operate; especially those that



own

and operate expensive assets, infrastructure and equipment and are responsible for ensuring those assets and infrastructure are maintained and managed properly. Our technology focus on the IoT and Smarter Cities focuses on infrastructure sensors. We can support over sixty sensors that plug into our smarter city framework.

- Smart Transportation
- Smart Energy
- Smart Parking
- Smart Metering
- Smart Buildings
- Smart Waste
- Smart Traffic
- Smart Environment
- Smart Security
- All Plug and Play connect via Ethernet, Wi-Fi, ZigBee, or cellular

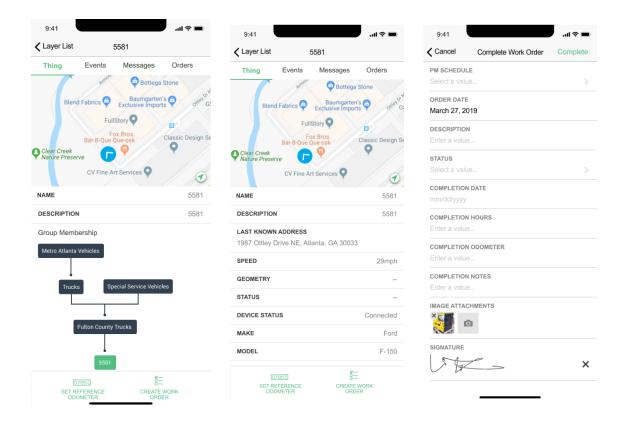
Real time data collected from the sensors are captured and integrated into our intelligence platform. Alarms and notifications can be sent to users. Actionable data is generated to assist in predicting and preventing events before they happen.

ThingTech Mobile allows you and you to harness the power of ThingTech's desktop



#### 1.17. ThingTech Mobile

application in the palm of your hands. Access asset inventory, work orders, reports and dashboards using your Smartphone or Tablet. Simply download the app to manage and maintain all your assets and equipment. Easily navigate to view assets on a map, add ThingTech layers, view alerts, chat or message with your co-workers or customers, and view reports and dashboards. Users can search, sort, group, and filter assets to access the data they need now. Users only see what their assigned roles and permissions. A site supervisor may only see the assets on their assigned worksites. Push notifications proactively alert users and customers of potential issues or failures. Drill down to the details of the asset to see location, utilization statistics, diagnostics, and productivity data. Add and share comments with your ecosystem. Manage and track both drivers and mechanics with built-in location information. Perform routine inspections on assets and equipment. Manage workflows and approvals from the palm of your hands. With ThingTech Mobile, managing your entire operation and tracking the day-to-day activities of your entire operation has never been easier.

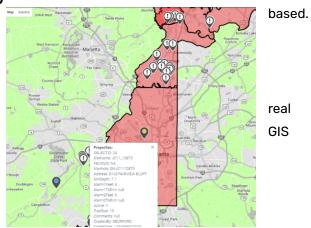


Our field mobile app allows your remote and field workforce access the system for inspections, data collection, task management, condition rating, attach images and media, and much more. The mobile app is a reflection of the enterprise application and also serves as a communication and notification application. Users are notified of outstanding tasks or events as well as alerted based on any work flow rules and process approvals. Our platform has been built with "mobile first" in mind.

# 1.18. ESRI GIS Connector (optional)

Our products are inherently geo and location Leverage Google Maps for location based analysis as well as advanced Google Maps Engine functionality such as integrate street view, thematic mapping, heat mapping, clustering, and time traffic. Utilize your existing investment in data via our geospatial Integration API Integrate Your Custom ESRI GIS Data

- Work Orders
- Stops
- Routes
- Facilities

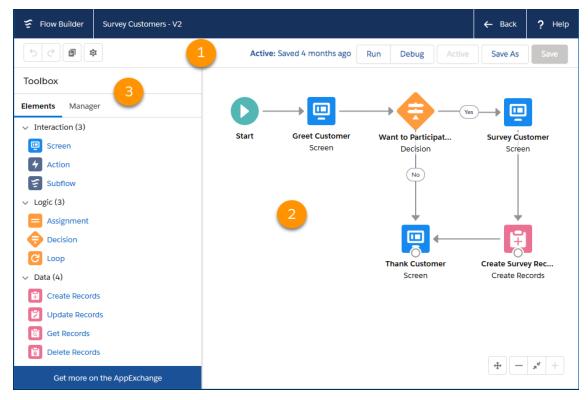


- Building Footprints
- Infrastructure Maps
- CAD Drawings

# 1.19. Business Process Builder

Many of the tasks you assign, the emails you send, and other record updates are vital parts of your standard processes. Instead of doing this repetitive work manually, you can configure processes to do it automatically. Process Builder helps you automate your business processes and gives you a graphical representation as you build it. Use the more powerful and flexible Process Builder to perform the same actions as Workflow. With Process Builder, you can:

- Create a record of any object type
- Update any related record—not just the record or its parent
- Use a quick action to create a record, update a record, or log a call
- Invoke a process from another process
- Launch a flow-you can't schedule this action with workflow
- Send an email
- Send a custom notification
- Post to Chatter
- Submit a record for approval



# 1.20. **RFID / Bar Code Option**

The Motorola LI4278 takes 1D barcode scanning to the next level, allowing workers to scan faster and farther. Workers can capture virtually any 1D barcode - including the typical barcodes that are printed on paper labels, electronic barcodes displayed on the screen of a mobile phone, tablet or computer that allows retailers to easily process loyalty cards, mobile coupons and more, and the high density (HD) barcodes commonly used in electronic component manufacturing. 100 percent UPC barcodes can be captured from near contact to over 30 in./76.2 cm away, while 200% UPC codes can be scanned at 55 in./139.7 cm away. Since the LI4278 can capture barcodes at extreme angles, scanning is easier than ever, so workers spend less time maneuvering the scanner and more

time on task. And an optional that enables presentation mode your workers the flexibility to use scanner in handheld and hands-free modes.



cradle gives the