SmartPort Solution: Optimizing Port Ecosystems with IoT Analytics

At-A-Glance

The Challenge
More than 80% of global trade travels by sea, passing through ports en route to its final destination. A critical component of the port ecosystem, many major ports have hundreds of barges that transport freight to and from ships and barge transport through inland waterways. In fact, barges are the most efficient, affordable and environmentally friendly choice for transporting bulk commodities. A single barge can carry 1,500 tons—the equivalent towing capacity of 15 rail cars or 60 semi-trailers.

Surprisingly, there is no real-time tracking and monitoring system for today’s barges—barges are effectively “off the grid”. When real-time barge location and status are not known, ports experience inefficiencies and safety issues:

- Sub-optimal mooring space utilization
- Barge operations not optimized
- Inflexible and flat pricing model
- Increased potential for in-port collisions

The Solution
SmartPort identifies and tracks barges in real time using RFID tags that are continuously detected by a port-wide Wi-Fi real-time locating system (RTLS). The system displays real-time barge location and tracking on a layered map of the port, providing situational awareness, monitoring barge locations and status in real time and issuing alerts when usual behaviors or patterns occur.

SmartPort processes and applies IoT analytics to the locations and tracking data, creating valuable new information, such as efficiency percentages and daily revenue and turnaround times, which it distributes to port stakeholders through operator consoles and mobile device applications. This is the kind of information that businesses need to make a difference.

SmartPort dashboard delivers valuable information to decision-makers

This information can also be used as input for simulations and prediction models. For example, port authorities can evaluate the effect of variable pricing models on mooring space utilization, while barge operators can forecast future utilization rates.
**Key Capabilities**

**For Port Authorities**
- Real-time asset identification and tracking
- Management of mooring and parking space occupancy and queues
- Capacity of goods prediction
- Evaluation of port ship and port traffic throughputs, ship turnaround times and barge and terminal company performance

**For Barge Companies**
- Smart routing for operators in real time
- Evaluation of barge transport efficiency
- Prediction of mooring space costs, number of ships to serve and capacity of goods

**For Shipping Companies**
- Evaluation of ship loading and unloading times, turnaround times and barge company performance

**For Terminal Companies**
- Evaluation of terminal and queues efficiency
- Prediction of mooring space costs and capacity of goods

**How it Works**

**Solution Architecture**

**Services**

SmartPort is supported by a full suite of professional services, including consulting, design, integration and implementation services, as well as training, support and maintenance.

**Benefits**

SmartPort adds value across the port ecosystem—for shipping companies, barge operators, port authorities and terminal companies.

- Improves barge operations efficiency
- Maximizes port asset (mooring spaces) utilization
- Decreases ship turnaround times
- Increases in-port safety
- Reduces water path congestion
- Enables new revenue-generating opportunities

**About Us**

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AGT’s analytics and software platforms enable customers to improve efficiencies, reduce costs, increase transparency and introduce new business models.

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