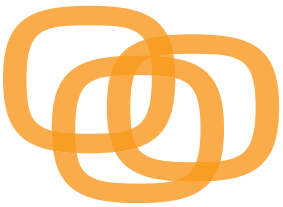
Watchdog Inventory Management System (WIMS)

AN ASSET PROTECTION SOLUTION FROM MODJOUL

7/1/2022



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Introduction

The Problem — Operations Asset Management

Companies across a vast array of industries confront the challenge of lost, misplaced, or stolen assets such as laptops, finger scanners and two-way radios or receivers. Many of these assets are accidentally taken by employees who forget to turn them in at the end of their shift. Most of these assets never return.

Asset loss is prevalent at nearly every warehouse, plant, distribution center, construction site, or other facility where they are used. Asset loss:

- Increases operating costs
- Decreases associate productivity
- As a result, compromises a company's ability to meet KPIs

The Opportunity — Modjoul's Watchdog Inventory Management System (WIMS)

While operations assets such as scanners represent a significant capital cost and play an essential role in workplace operations, most facilities today lack either the infrastructure, the processes, or both, to effectively prevent asset loss.

The Watchdog Inventory Management System (WIMS) developed by Modjoul fills that gap. WIMS is a turn-key solution to preventing asset loss. Pilot results show a return-of-investment period of just weeks.

This guide has been developed to help companies determine how WIMS can address their operations asset management challenges.

Key Attributes

Radio-Frequency Identification (RFID) Technology

WIMS relies on radio-frequency identification (RFID) to identify and track assets such as scanners and two-way radios.

The complete WIMS system is comprised of:

- RFID readers
- RFID antennas **(Figure 1a)**
- Passive RFID tags attached to assets and linked to unique serial numbers **(Figure 1b)**
- A cloud-based software platform

In addition, the system's Watchdog **(Figure 2)** is equipped with a visual and audio alarm system that provides real-time feedback if an asset approaches a Watchdog-equipped exit. The result is a complete RFID platform for asset management.

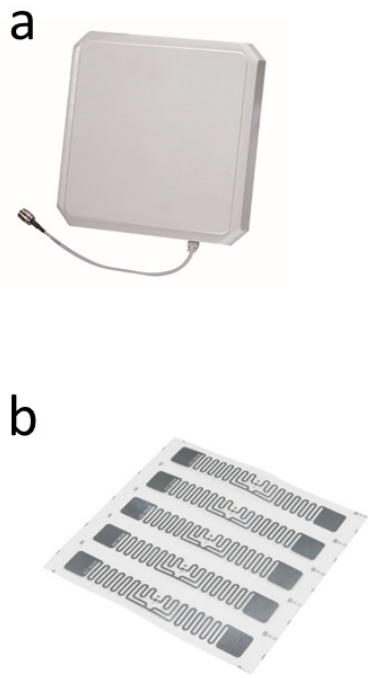

Figure 1. WIMS is comprised of **(a)** RFID antennas and **(b)** RFID tags.

Figure 2. Modjoul Watchdog

Key Attributes Cont.

Data, Reporting, & Cohort Analysis Drives Actionable Intelligence

The WIMS software generates comprehensive, user-friendly reports that allow companies to gain crucial insights into their asset inventories, management protocols and asset recovery efforts. The reports include:

- Asset quantities and statuses data
- Asset categorization reports. Examples of categories include: Loss, Return, Last Located at Exit, Asset Use Peak Periods, etc.
- Customized reporting to support efficiency. For example, WIMS can be customized to interface with a RAD system to alert management when assets need to be replenished in order to streamline asset procurement.
- Additional data generated from the WIMS system includes: peak asset loss times (hours and days of the week); peak asset return times (hours and days of the week); average loss time of returned assets.
- Cohort analysis. These reports allow for actionable insight into each asset category, such as Lost-Off Premises (indicating an asset last detected at an exit multiple days ago) or Lost–On Premises (indicating an asset last detected at a location other than an exit multiple days ago). Assets can be Lost-On Premises if they are used for training, broken, misplaced, or simply left somewhere and forgotten in the facility.

Over time, some lost assets return and re-enter the pool of active assets. To visualize this behavior, cohort analysis provides a robust statistic to track asset status. **Figure 3** is the cohort analysis for one pilot's assets that were categorized as Lost-Off Premises. The red numbers and green numbers indicate the assets lost and returned, respectively, each week. For example, seven assets were categorized as Lost-Off Premises during Week 1 of the pilot. One of these assets was returned during Week 5 of the pilot, and one of these assets was returned during Week 7 of the pilot.

Figure 3. Cohort analysis of assets categorized as 'Lost - Off Premises'.

SCAN & FSCN | Lost - Off Premises
(as of June 5, 2022)

Lost / Returned

Week	1	2	3	4	5	6	7	8	9	Net Lost	Net Returned
1	7				1		1			5	2
2		6								6	0
3			2							2	0
4				2	1					1	1
5					2					2	0
6						1				1	0
7							2		1	1	1
8								1		1	0
9									-	-	-
										19	**4**

Key Attributes Cont.

Easy Setup and Operation

Deploying Watchdogs at facility exits and near asset storage and charging areas is sufficient to determine asset quantities and statuses as well as to prevent asset loss.

1. RFID-tagged assets are detected by WIMS when they are in proximity to a Watchdog.
2. The detection is communicated in real time to the customer's WIMS software dashboard.
3. The dashboard displays asset quantities and statuses and can be queried to return the serial numbers of the assets included in WIMS.
4. The Watchdog's visual and audio alert system notifies users and any onsite security when an asset approaches an exit.
5. The system can also notify additional onsite leadership in real time when an asset is detected at a Watchdog. (**Figure 4** is a schematic of the flow of data for WIMS alerts.)

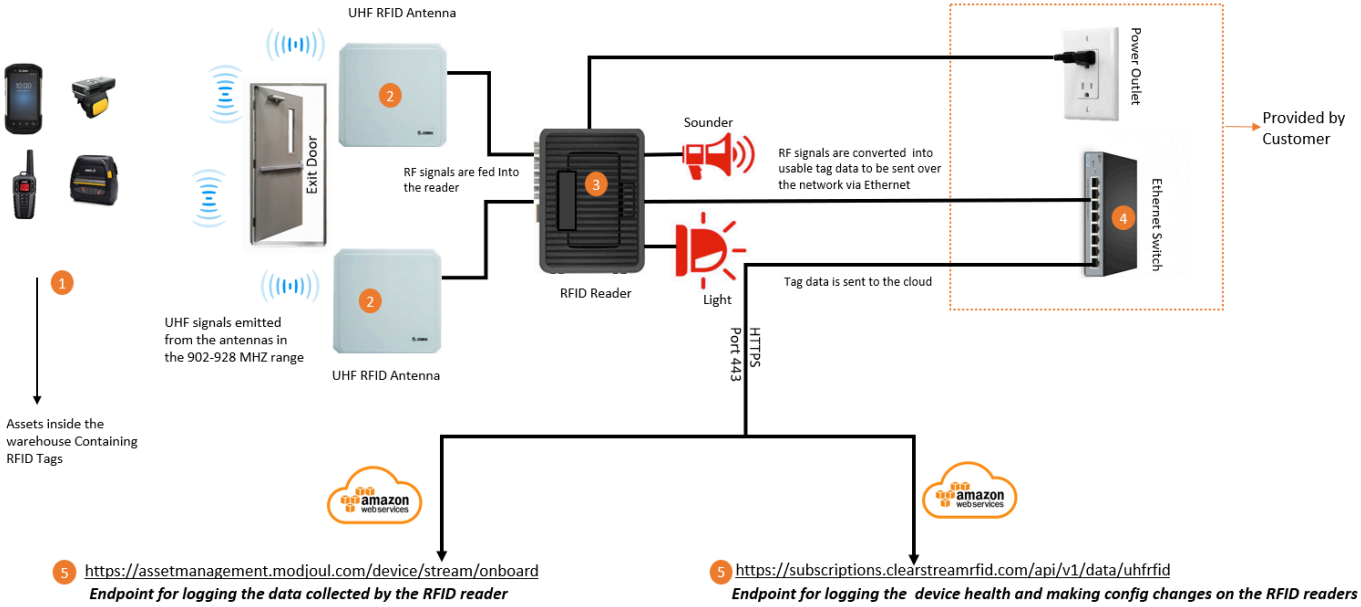

Figure 4. Flow chart of the Modjoul short messaging service (SMS).

Key Attributes Cont.

Implementation and Training – Key Points

There are four key components to implementation and training to ensure optimal results with WIMS. They are:

1. The Watchdog's audio alert, or sounder, is critical to reducing asset loss. Specifically, the number of daily exit detections when both the sounder and the light are activated are half of the total when only the light is activated.
2. Cohort analysis of Lost-Off Premises **(Figure 3)** is a robust analytic to track asset status and loss, raising the possibility for assets to be returned because of the Second, due to the possibility for assets to be returned
3. Tagging all assets with RFID is essential. Assets not protected with tags does not provide protection from inadvertent loss, even with the rest of the system in place.
4. Finally, associates must understand why WIMS is in place and what the Watchdog alerts (sounder and light) signify. Exit detections decrease as associates learn to interact with WIMS. Site leadership can help to decrease the time it takes associates to learn to interact with WIMS (i.e., adoption time) through initial trainings and frequent clear and concise communication.
5. The timeline for implementation depends on the size and scope of the operation, but can be done in about 2-3 weeks for most facilities. The system can be implemented during non-peak hours and be up and running in hours.

Addressing the Underlying Cause of Asset Loss

Every workplace has its own unique set of characteristics — from workforce development and retention to workplace culture to the type of assets it utilizes — that could impact asset loss.

However, WIMS results to date indicate asset loss is driven more by associates simply forgetting to return them at the end of shifts rather problem than by theft. This is evidenced by the fact that after WIMS is implemented, asset loss plummets even though some employee exits are not equipped with a Watchdog. In other words, the WIMS alerts serve as a robust workforce training mechanism that reinforces a company's asset loss goals.

Key Entitlements & Competitive Advantages

For Employees:

- Provides confidence equipment will be available to complete their job
- Reduces likeliness of voluntary time off due to lack of scanners
- Reduces time off-task

For Management & Reporting:

- Accurate tracking of inventory
- Ability to set alerts on low inventory and reduce manual counts
- Ability to track a wide variety of assets – scanners, two-way radios, wearables, printers, totes, laptops, tablets
- Ability to forecast supply of company assets
- Ability to generate real-time reports on asset inventory
- Ability to compare sites on the above metrics

For Innovation:

- Ability to check for PPE compliance (safety shoes & freezer wear)
- Ability to check for time spent on location for other assets – sprinter vans
- Ability to protect other key tools and assets – totes, heated gloves, etc

Future Enhancements

Modjoul is currently developing several enhancements that will make the system even more robust. These will be rolled out over the remainder of 2022. They include:

- Automated, real-time feedback to facility management when an asset leaves the facility.
- Asset attribution system that links specific assets with specific associates.
- Additional RFID technology applications. These include expanded asset tracking (for totes, packages or other valuable supplies and merchandise), as well as time management/productivity tracking (for example, vehicle or trailer loading times, etc.).

The Costs & ROI — A Case Study

The actual costs of lost assets are substantial versus the cost of implementing the WIMS system and the recurring cost of asset tags. **Indeed, results show WIMS serves as a tech-based "insurance policy" that prevents asset loss.**

The Modjoul WIMS costs approximately $6,500 per RFID reader location, plus installation and software. With an average facility needing 2-3 RFID readers, the costs for a single facility to deploy the system is $26,500 to $33,000. Meanwhile, with the cost of scanners alone as much as $600 apiece (or more), many facilities sustain asset losses of $100,000 or more annually on asset loss/ replacement.

Case Study: Sort Warehouse

Modjoul implemented a WIMS pilot at a sort warehouse in Northern Virginia in 2022. Prior to the pilot, the warehouse was sustaining losses of approximately nine scanners each week. During a 10-week period in early 2022, the warehouse lost 88 scanners.

The cost of the WIMS installation created an annual break-even point of fewer than 50 asset loss preventions. **In the warehouse piloted, the system paid for itself in the first month.**

The results also included:

- During the first eight weeks of the pilot, WIMS reduced the number of scanners lost to a total of seven, **or less than one scanner per week**.
- During the first 36 days of the pilot, the number of exit detections per day (7-day average) **decreased by 64 percent** (from 25 to 9).

The results are summarized in **Table 1** below.

These ROI results do not include loss of productivity/lost time while waiting for available assets.

DATA SUMMARY (AS OF JUNE 5, 2022)

	Current (since April 6, 2022)		
	SCAN	FSCN	Total
Baseline Inventory (one or more detections)			
	116	62	178
Asset Status - Counts			
Active (detected in last 7 days)	94	7	101
Lost - Off Premises (last seen at an exit more than 7 days ago)	7	12	19
Lost - On Premises (last seen at inventory counter more than 7 days ago)	15	43	58
Asset Status - Percentage of Baseline Inventory			
Active	81%	11%	57%
Lost - Off Premises	6%	19%	11%
Lost - On Premises	13%	69%	33%

Table 1. Pilot Summary (as of June 5, 2022)

About Modjoul

We utilize data to help keep employees safe and on the job and provide companies a variety of ways to reduce risks and gain an edge.

We accomplish this through a comprehensive and flexible IOT platform, supported by industry-leading data analysis. With a wide range of technologies from wearables and sensors to RFID, we seamlessly integrate our solutions into the workplace. The result is a safer environment and a measurable, lasting return on investment.

At our core, we are problem solvers. We are driven to find better ways to prevent injuries and make workplaces safer, leading to happy employees and stronger, more profitable companies.

We provide free demos and ROI assessments. For more information about the WIMS platform, please contact:

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