

The NeWave® Sensor Solutions Smart Shelf™

A major technology advancement to continuously monitor merchandise availability

Smart Shelf can help prevent Out of Stocks without needing to tag each individual item.

When an item leaves the shelf, our patented “Smart Shelf” sees it even when it is not tagged. Smart Shelf places the tags on the product pusher, the spring of the pusher blocks the tag until an item is removed and the tag is exposed to be read with 99+% read rate accuracy. There is no need to tag items, so you get all the benefits of an RFID solution, without the added labor, item tag and maintenance costs.



Dramatic Reductions in Out of Stock (OOS)

Based on criteria set for low inventory limits, Smart Shelf signals an immediate alert to appropriate personnel that they need to restock specific items in a timely way before they are OOS. In real-world in-store tests, on shelf product availability improved by nearly 70%.

LowStock Occurrences Report						
A log of all occurrences of LowStocks by store.						
Location	Super Convenience Store					
Start	2016-08-08 09:00:00					
End	2016-08-08 23:59:59					
Summary By Product						
SKU	Size	# of Times # of units Was LowStock	# of Times # of units Was Replenished	Total Minutes # of units Were LowStock	Total Minutes # of units Were Replenished	Low Stock (minutes) / (Units)
Product #110	125 ml	1	0	0	0	0
Product #110	355 ml	1	0	0	0	0
Product #122	750 ml	0	0	0	0	0
Product #222	355 ml	1	0	0	0	0
Occurrences By Supplier						
SKU	Size	Low Stock At	Replenished At	Amount of Time Low Stock (Minutes) (This Report)	Low Stock (minutes) / (Units)	
Product #222	355 ml	2016-08-07 22:42:16	2016-08-08 21:43:33	1503	1503	1
Occurrences By Supplier						
SKU	Size	Low Stock At	Replenished At	Amount of Time Low Stock (Minutes) (This Report)	Low Stock (minutes) / (Units)	Alert
Product #110	250 ml	2016-07-28 15:58:51	NA	1439	1439	F504
Product #110	500 ml	2016-07-11 23:49:24	NA	1439	1439	F502
Product #110	500 ml	2016-08-02 17:38:15	NA	1439	1439	F502
Product #222	355 ml	2016-08-08 16:16:42	2016-08-08 21:43:33	3093	3093	F504

Smart Shelf works for Theft Prevention too

Loss prevention personnel can receive an immediate alarm message when an unusual (as defined by the end-user) number of items are taken off the shelf simultaneously signaling a theft is taking place. This can be easily backed-up by a video capturing the action at the shelf. Smart Shelf in real-world tests reduced theft of a popular energy drink from 30% to 3% in just three days. The alarm is done in such a way that the normal customer is not bothered. For example, the alarm could be “customer assistance needed at Smart Shelf”.

Key Features and Benefits of the NeWave Smart Shelf

Accuracy and Timely

- 99.9% read rates provides a high degree of confidence in data accuracy
- 10 second alert reliability to any authorized smart device
- Instant visibility to OOS, organized retail crime and/or shoplifting activity

Versatile

- Can be retrofitted and installed within hours to be operational and can be easily powered up
- Best to target the most vulnerable product categories
- Readily scalable



Small Items



Large Items

Efficient

- No recurring label tag costs or costs to tag
- Less cost than EAS source tagging
- No worry about RFID privacy issues
- Attractive Return on Investment (ROI), in real world tests in months not years
- Simple to use barcode scanner for easy installation and maintenance

This Solution Provides Real Time Visibility to Your Shelf Inventory via any smart device as well as the capability to prevent OOS!

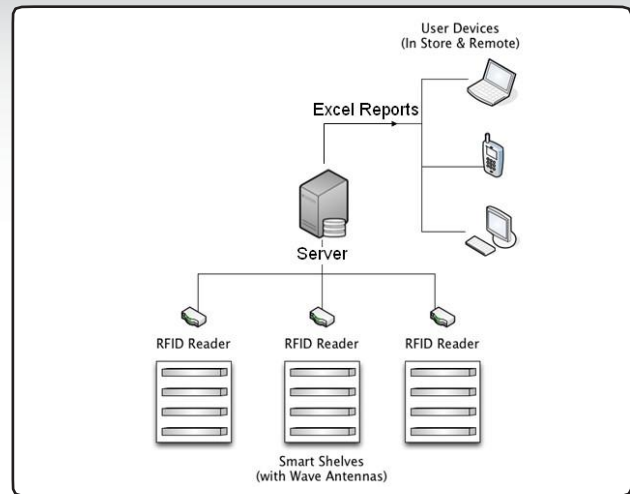
- Real time information on Out of Stocks, Low Inventory Conditions, Shelf Movement, and Replenishment needs
- Detailed information on shelf sales by season, week, day, and time of day.
- Confirms Planogram compliance and effectiveness
- Real time inventory analytics are easily customizable and can be available in timely reports (see the Smart Shelf presentation for actual report samples).



**NeWave Sensor Solutions
Innovation Center**
9011 Heritage Drive
Plain City, Ohio 43064
888.677.7343
sales@newaverfid.com
www.newaverfid.com

How Smart Shelf Works

- Product sensors installed on the shelves detect product movements.
- Data from product sensors is transmitted wirelessly to a reader installed under the shelf unit.
- The reader has a smart programmable controller that collects, processes, compresses and sends the resulting data to the end user.
- The reader monitors the inventory movement detected by the sensors.
- In-store alerts are triggered when inventory conditions occur such as Out of Stocks, ORC sweeps, or distributor restocking. These alerts can also start recording video of the shelf area if a camera is installed.
- Alerts can also be sent over the PA system, text message, or email.



Major Smart Shelf System Components (Quantity varies based on # shelves, product sections, and product size)

- Wave® antennas (vertically mounted or integrated into a shelf)
- Nobel Smart Reader
- Product Pushers
- Product Dividers and Front Fence
- Cables
- Wireless Bar Code Scanner
- Audio Speaker
- Wifi Module



The end result: Customizable Information

- Real Time Information
- Item Out of Stock Time Duration
- Out of Stock Occurrences by Size and SKU
- Restocking
- Low Inventory Conditions
- SKU Movement on Shelf
- Planogram Effectiveness

Item	Status	Last Stocked Date	Out of Stock Occurrences	Out of Stock Duration	Out of Stock Count	Out of Stock Value	Out of Stock Percentage	Out of Stock Rate
Item 1	Out of Stock	2010-08-15 11:00:00	1	15 min	1	\$10.00	100%	1.00
Item 2	Out of Stock	2010-08-15 11:00:00	2	30 min	2	\$20.00	100%	2.00
Item 3	Out of Stock	2010-08-15 11:00:00	3	45 min	3	\$30.00	100%	3.00
Item 4	Out of Stock	2010-08-15 11:00:00	4	1 hr	4	\$40.00	100%	4.00
Item 5	Out of Stock	2010-08-15 11:00:00	5	1 hr 15 min	5	\$50.00	100%	5.00

About NeWave®* Sensor Solutions, LLC:

NeWave® Sensor Solutions is a leading provider of optimized solutions for today's most challenging item-level Radio Frequency Identification (RFID) problems. The company develops industry-standard RFID technology based on the patented Wave® antenna that sets a new standard for accuracy, versatility and efficiency. The Wave is the first and only antenna specifically designed to be used for item-level RFID solutions. NeWave's core technology was developed by the world-class Electro Science Laboratory (ESL) of The Ohio State University, a pioneer in RF research and development, under the direction of NeWave's Chief Technical Officer (CTO) and is produced in partnership with Wistron NeWeb (WNC), the Taiwan-based global leader in antenna manufacturing. Wave's management team leverages a strong technical and international heritage in a variety of industries for accomplishing its mission of providing optimized solutions to today's greatest RFID challenges.

For more information, please visit us at www.newaverfid.com.

*NeWave and Wave® are registered trademarks of NeWave Sensor Solutions, LLC Plain City, Ohio USA



NeWave Sensor Solutions Innovation Center

9011 Heritage Drive
Plain City, Ohio 43064
888.677.7343
sales@newaverfid.com
www.newaverfid.com