

## Driving the development of Auto-ID solutions, addressing problems common to each industry

In Japan, we are moving from individual solutions for specific customer problems to standardized solutions for entire industries, including transport and logistics, manufacturing and retail. This allows us to propose customer-centric ideas to even more customers with speed.

One example is our Visual Warehouse solution, which we developed to cater to new needs of Japanese logistics providers triggered by e-commerce growth.

### A 3D mapping and voice navigation system to improve efficiency at logistics centers

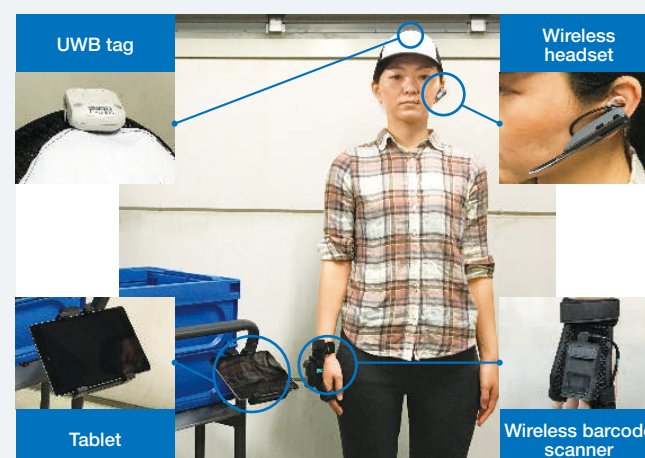
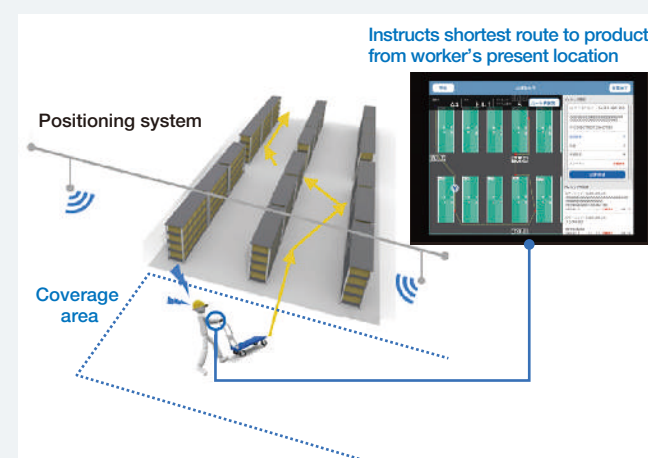
The scale of e-commerce is growing every year, having expanded in Japan by about 80% from ¥7.8 trillion in 2010 to ¥13.8 trillion in 2015 (up 7.6% from 2014)<sup>1</sup>. With more online retailers offering same-day deliveries, logistics providers are now required to fulfill their services with greater focus on speed and convenience. With more and more products, warehouse operators find themselves grappling with the complexity of inventory management, lower worker productivity, and labor shortages. It is for these users that SATO launched Visual Warehouse, a solution to help improve accuracy and efficiency in incoming/outgoing shipments and itemized storage.

Traditional e-commerce fulfillment — picking, packing, and shipping single items and small volume orders to consumers — is extremely labor-intensive. This new solution can support and optimize e-fulfillment with its ability to identify and present the shortest picking route via a virtual 3D map displayed on a

wrist-mounted wearable device. In addition to a route mapping feature, the solution also gives simple voice guidance instructions like, “Turn right at the next aisle” or “Picking quantity changed to XX.”

SATO's solution lineup for logistics customers already includes inventory management systems to inspect and take stock of inbound/outbound goods. By adding “+One” value of third-party speech recognition, indoor positioning and virtual 3D mapping technologies to our existing item inspection system, the result was an innovative and unique solution unlike any before.

Workers in conventional warehouses have to find and pick items on their picking lists relying on shelf numbers. They are unable to handle on-the-spot order changes, and varied levels of experience lead to inconsistencies in picking speed, which impede productivity.



### Delivering Auto-ID supply chain management consulting services

DCS & Labeling + One Consulting

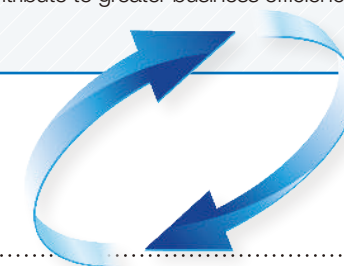
Established in 2015, SATO Solution Architects is a consulting company that provides high-level logistics insights from a management perspective to make improvements across the entire supply chain.

We work closely with Japan sales teams to support customers primarily in the logistics, manufacturing, and distribution industries by offering comprehensive services ranging from identifying issues across supply chain management (SCM) to driving business process changes, developing IT infrastructure plans and implementing new systems.

Combining our consulting expertise with the SATO Group's core strengths in Auto-ID technologies and expanding the scope of existing services, we aim to optimize customer operations and SCM to contribute to greater business efficiency for our valued customers.



**Kenjiro Akikawa**  
President, SATO Solution Architects Co., Ltd.



DCS & Labeling + One

Voice recognition  
3D mapping  
Wearables

But with Visual Warehouse, workers receive picking data on their wearable devices and follow images and audio instructions to pick the right items. They can deal with order changes flexibly and have both hands free to work more efficiently. As the solution tracks the precise location of workers from the UWB (Ultra Wide Band) tags on their hats to navigate them effortlessly from their present locations to their picking destinations in the shortest route, it allows even the less experienced worker to fulfill order picking with speed.

Performance tests we carried out found that the use of Visual Warehouse helped reduce average travel time per picking order from 4 minutes and 5 seconds to 2 minutes and 7 seconds. This improves productivity throughout the entire warehouse operation of storing, receiving and shipping out products by 30%.

By analyzing the operation data logged, the operator can

change warehouse layout or reassign workers' pick zones to improve picking routes and shorten the time it takes to ship products out. SATO Solution Architects plans to work with SATO Corporation to start providing analytics and consulting services using data logs from Visual Warehouse.

1. METI e-commerce survey published in June 2016

