# Simique Corp

Voice Picking System (VPS) Software Functionality

An established system is dependent upon a robust and stable software to support its functionality. The Simique's Voice Picking System (VPS) consists of a collection of software. The components, data exchange, device management, AI and business processes, have successfully incorporated human, workflow, technology and data into its ecosystem. This solution has set the foundation for transparency, agility and visibility of an operation.


Simique's VPS operates based on simplicity. The objective is to leverage on concise voice dialogue to complete the task. The voice system integrates host systems (such as WMS or ERP) with human while exchanging data and maintaining real time connection.

Voice System Data Flow

"Aisle23"   "OK"

"Location413"   "87"

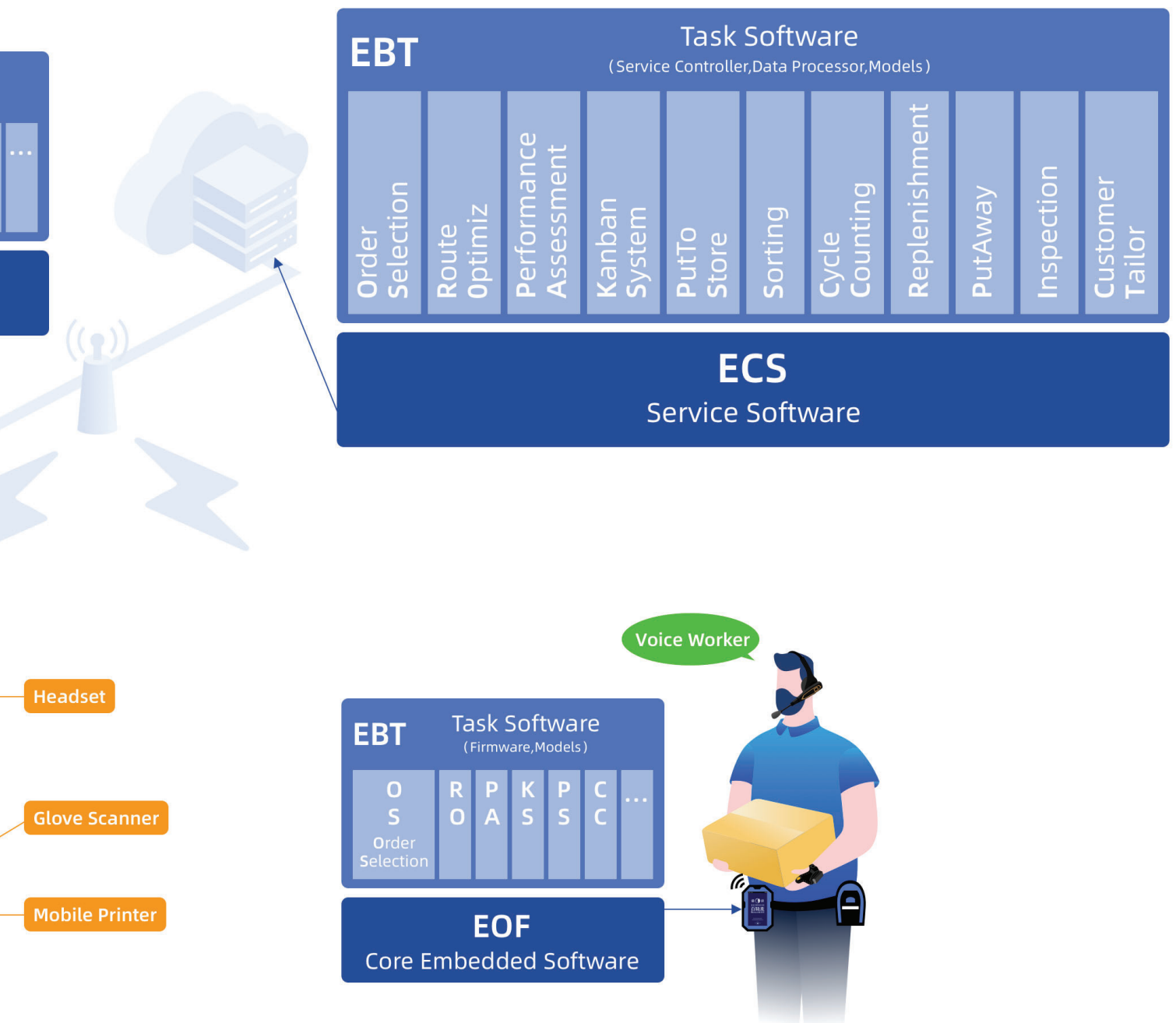"Pick6"   "6"

WMS/ERP   **Simique VPS**
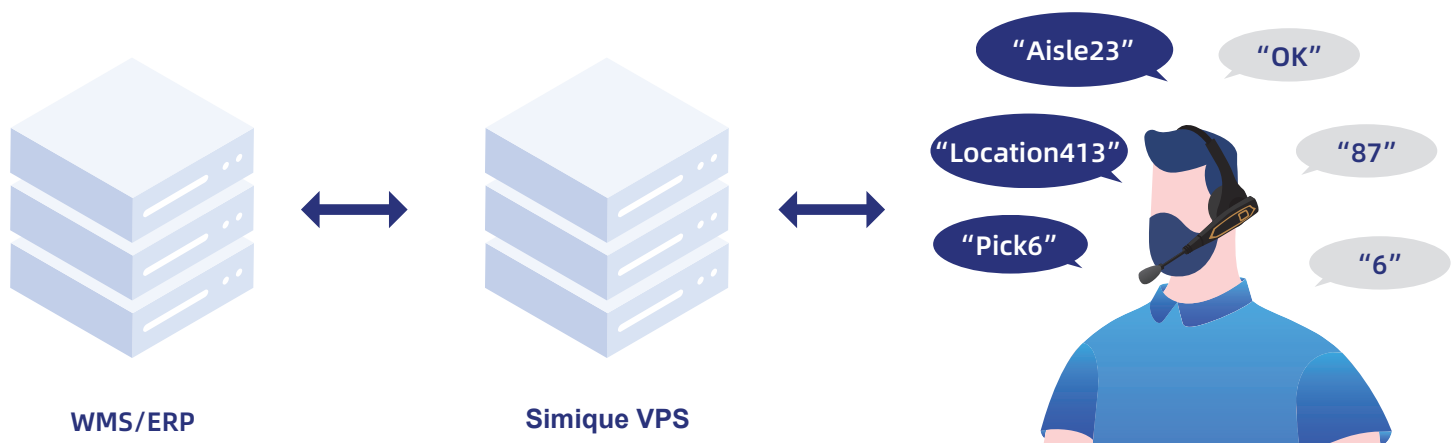
Simique Voice Picking Solution consists of the following five components:

- Simique ECS Server Software
- Simique ECM Client Software
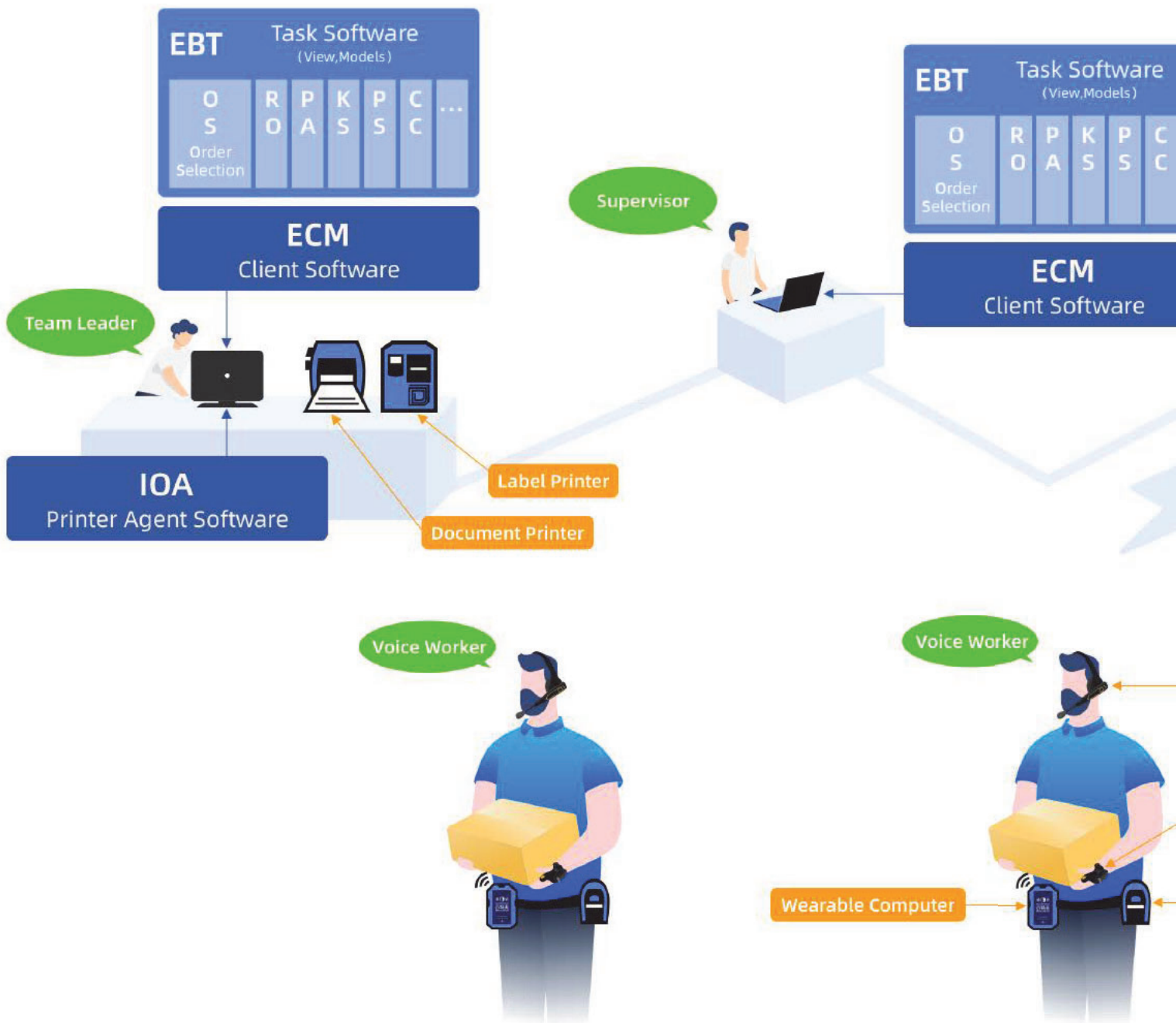
- Simique VPS Operation Software (This includes multiple operating modules and they are picking, put-to-store, receiving, put-away, replenishment, cycle counting and auditing, just to name a few)

- Simique VPS EOF Embedded Firmware

- Simique VPS input/Output Agent (printing agent software)

EBT — Task Software
(Service Controller, Data Processor, Models)

| Order Selection | Route Optimiz | Performance Assessment | Kanban System | PutTo Store | Sorting | Cycle Counting | Replenishment | PutAway | Inspection | Customer Tailor |

ECS
Service Software

Voice Worker

EBT — Task Software
(Firmware, Models)

| OS Order Selection | RO | PAS | KSS | PSS | CC | ... |

EOF
Core Embedded Software

Headset

Glove Scanner

Mobile Printer

Simique ECS - Introduction

A stable and robust middleware is crucial for data exchange with the host system. With the recent technological advancement, middleware's role has been extended to communication management, end-user management and reporting.

Simique ECS - key features:

- Flexible deployment options: Single or Cluster-Server

- Data interfaces using multiple file formats such as *.txt, *.xlsx, *xml, database intermediate table or Webservice

- Flexible data exchange frequency: batch, near-real time or real-time

- MDM functionality for centralized device management and monitoring

- The guarding process ensures auto-restart of main services after shutdown

- ECS server software could realize cluster deployment to support continuous operation

System Architecture
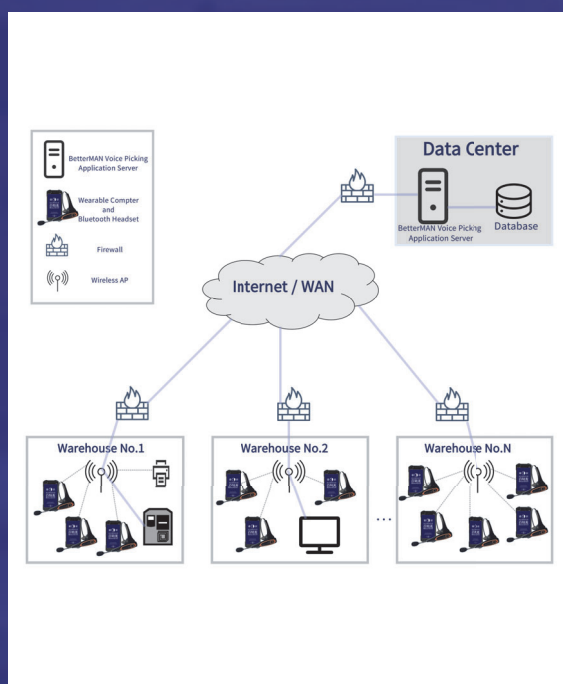
## Application and Database Server Architecture
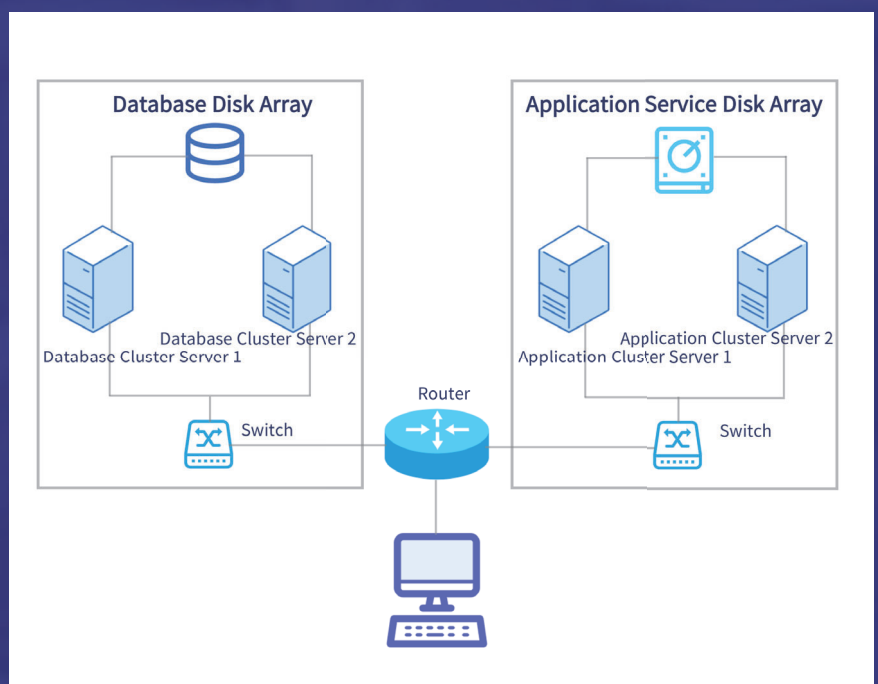
Simique ECM - Introduction

The ECM plays the role of a management tool. It manages the devices and end-users depending on the access rights of the administrator. In addition, any system maintenance, upgrade or irregularities can be executed through this platform.

From company management perspective, ECM is designed to provide visibility and transparency to support and reward employees. The visualization permits the management to make strategic decisions and drive improvement. It can also be customized to fit individual industry and customer needs.
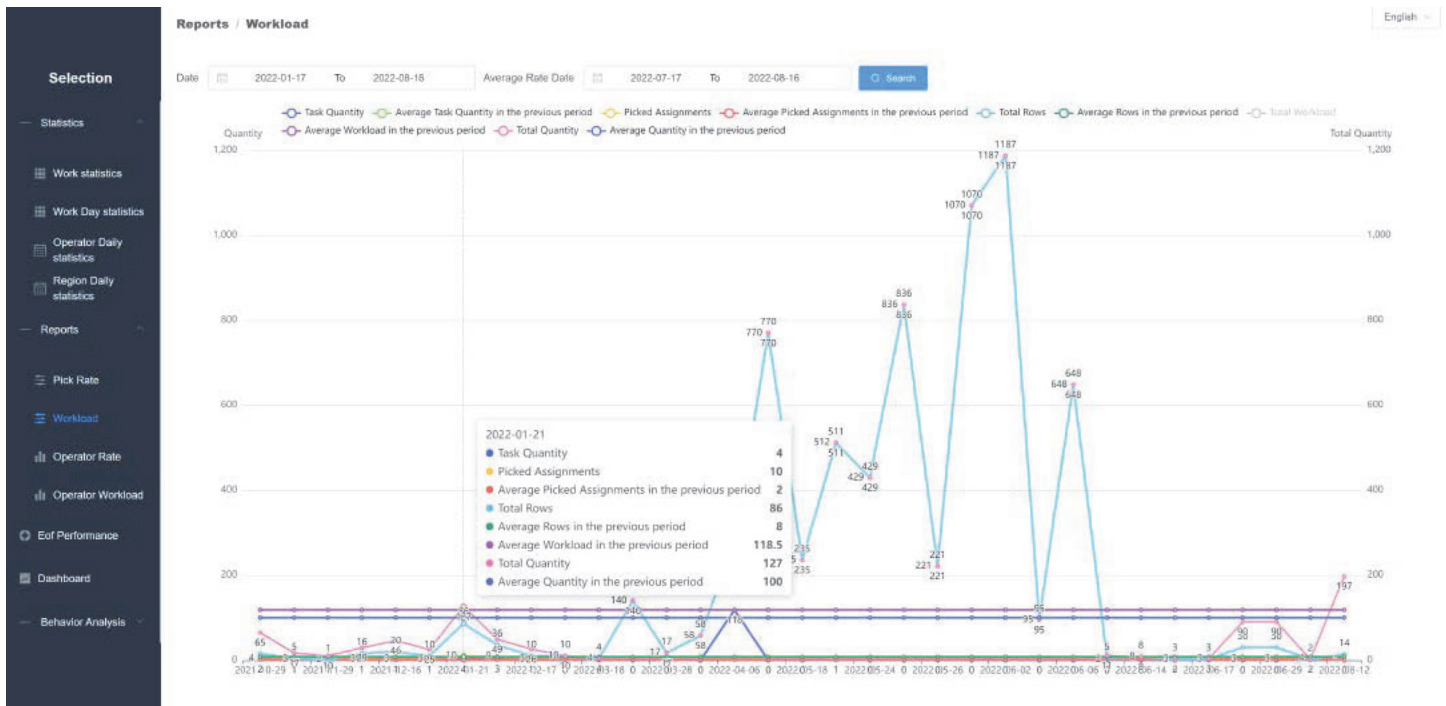


ECM Client Software - Key Features:

- Support Windows 7, 8, 10 & 11 and Windows Server 2008, 2012, 2016, 2019 & 2022

- Latest WPF interface. User-friendly and efficient

- Support seamless automatic updates - most up-to-date version

- Support efficient deployment

- Software embedded with reporting feature, no additional login required from web end

- No limit on number of concurrent users, individual user can have flexibility to access to specific modules

Simique IO Agent Software - Introduction

The IO Agent software has been developed to fulfill the complex business settings for ECS deployments in the cloud, server or distribution centre. The IO Agent supports seamless system communication for on-site printing needs.

The IO Agent can be installed in Windows (7, 8, 10 & 11) as well as Windows Server. Moreover, file and label printings through printers of any brands have been tested and optimized where communication with ECS, ECM and EOF can happen simultaneously. This allows developers to conveniently work on any customized requirements.

Two-way communication is also feasible through IO Agent. It not only supports printing, but also connects with other external devices such as mobile printers, fixed printers, weighing devices, automated equipment and dimension scanners.
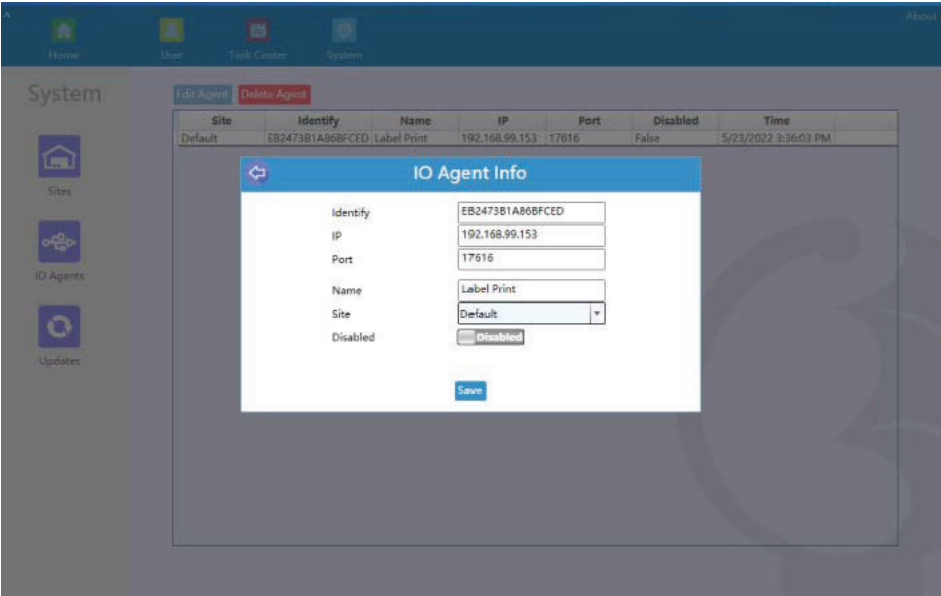
IO Agent - Key Features:

- Support centralized and decentralized deployment as well as multiple IO Agents

- Through authorization from ECS to centrally manage ECM. Simplified maintenance support

- Compatible with files and printers from multiple brands while optimizing and improving efficiency

EBT Functional Software - Introduction

EBT is a task software which cover multiple modules. Within an operation, the tasks normally include

Picking, receiving, put-away, replenishment, cycle-counting, loading, transfer and auditing, just to name a few. The EBT provides the package of individual task modules covering a wide range of activities within the distribution centre. The simple and easy to manoeuvre interface allows an administrator without any technical background to complete the settings easily. Also, the implementation permits full control and management of all the workflows leading to better visibility.

01 Order Selection Module

Selection/Picking is the most hectic process in a distribution centre where it contributes to 70% of the overall workload. The Simique's Order Selection module has the flexibility to support single-order picking, batch picking, pick then put-to-store and simultaneous pick & put-to-store, with the highest productivity gain. Order assignment can be system-directed or manual, depending on operational needs. This module also captures operator productivity for incentive and wage calculations.

Order Selection Module - Key Festures:

- Easy deployment on Simique EBT platform. Rapid updates on EOF upon customization of picking task

- Supporting concurrent operation of various picking options

- Closely integrate with WMS to reflect latest inventory status and timely trigger goods replenishment

- Availability of all the picks and order data to support detailed analysis

02 Route Optimization Module

Historical data show that operators spend approximately 70% of their time on walking. For extreme cases, it could be up to 90%. Simique's unique offering through AI algorithm helps reduce walking distance by up to 40% through route optimization and human-machine interface while not adding burden on operators to learn and adapt. Furthermore, the optimization and productivity gain can be extended to orders within the picking pool through batch picking.
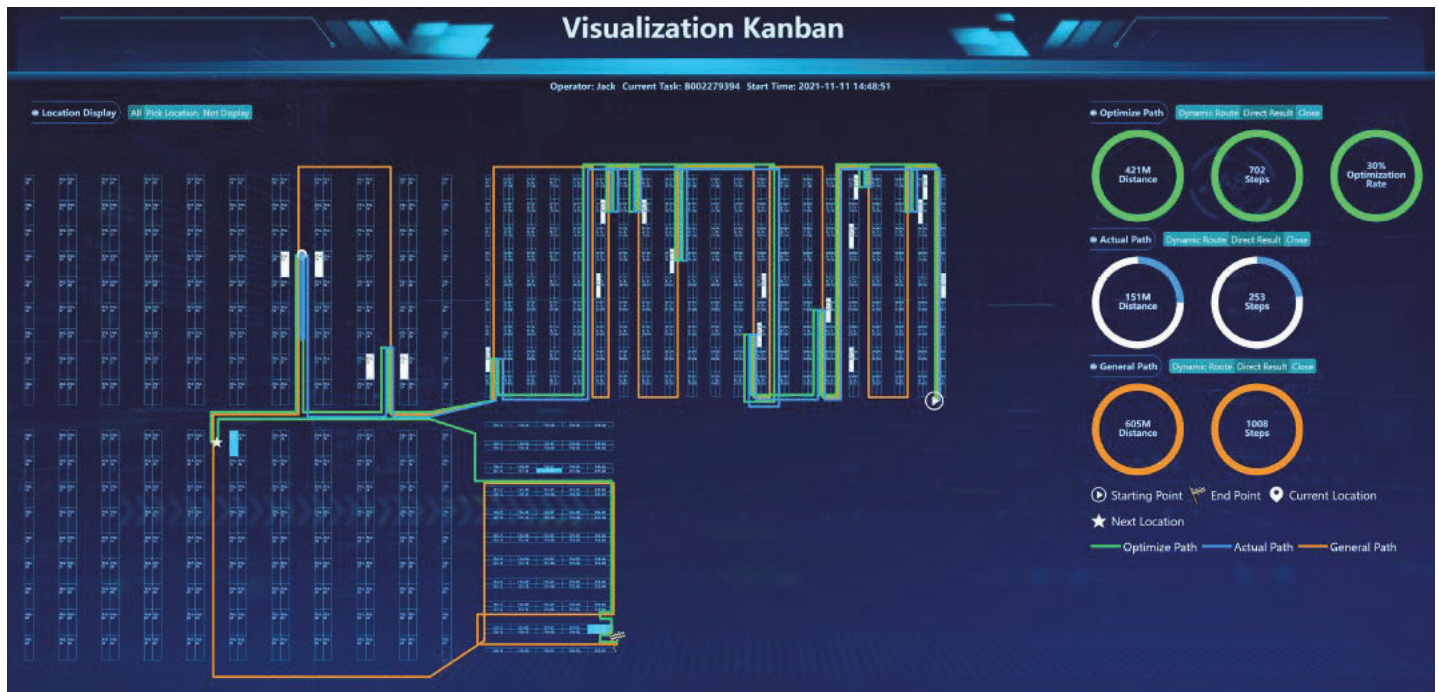
Route Optimization - Key Features:

- Flexible installation and setting WEB Service (Support Microsoft IIS)

- Virtual warehouse layout can be generated through simple data input steps

- Immediate implementation of embedded route optimization through AI

- Clear navigation instructions of recommended pick path

0.60 km	12120678
	2021/07/19 13:03

Slow — Fast

708	00:06:20	26
Steps	Time Costing	Kcal

Regular path of picking

0.41 km	12120678
	2021/07/19 12:56

Slow — Fast

553	00:05:35	19
Steps	Time Costing	Kcal

Optimized path of picking
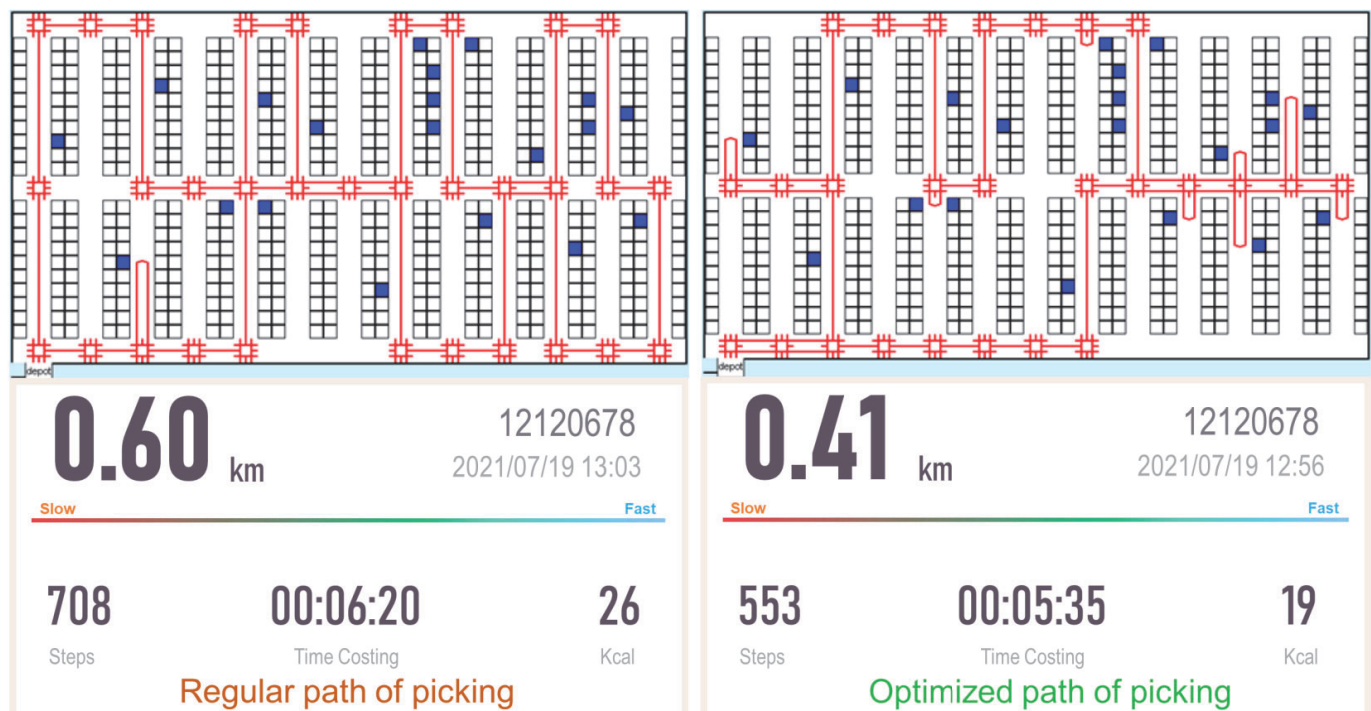
03 Performance Assessment Module

There is a possibility of driving employee motivation through gamification technology. Simique's EBT challenges and rewards operators by taking their performance to the next level. The management could reduce supervision time through the intelligence of the software. The data also set the basis for employee engagement measurement.

Performance Assessment Module - Key Features:

- Flexible installation and setting (IIS deployment through wed services)

- Option to set basis of performance calculation based on operation's needs

- Management and operators could view performance data through visualization platform and promote visibility and transparency

- Direct access to individual performance and progress status

- Charts and visualization for ranking and individual progress

04 Kanban System Module

Full visibility of the operation could be achieved through Kanban System. Site management could leverage on the platform to timely act based on progress status, backlog and available resources. The individual shift could also view the team's performance.
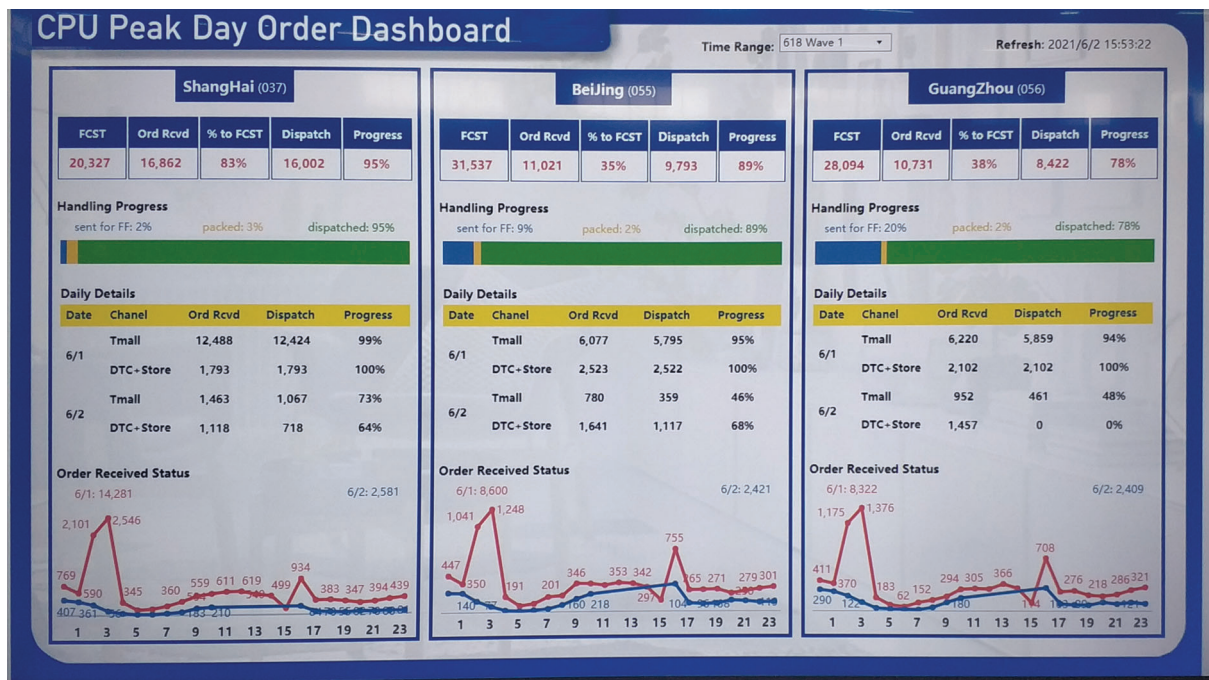
Kanban System - Key Features:

- Flexible installation and setting (IIS deployment through wed services)
- Visualization provides most up-to-date status and improves visibility
- Highly customizable reporting format depending on individual site management requirements
- Total view of work progress. Leverage on data and results to drive motivation

EOF
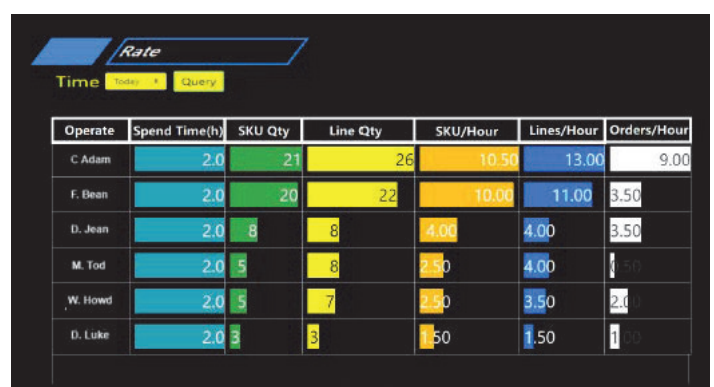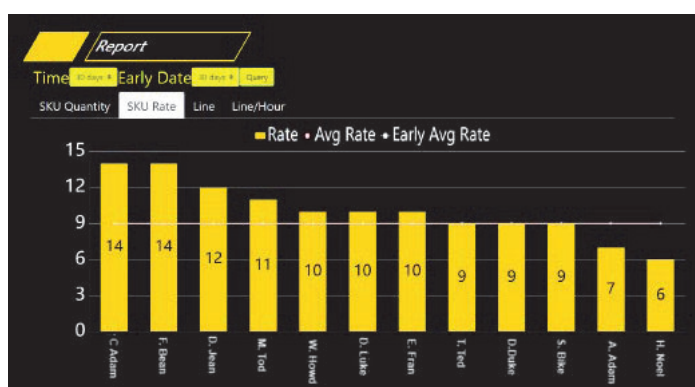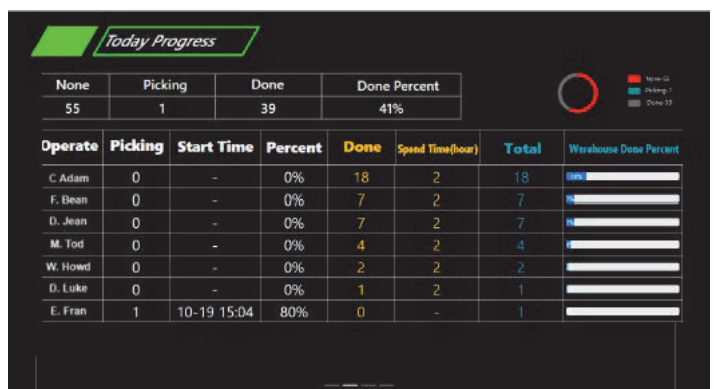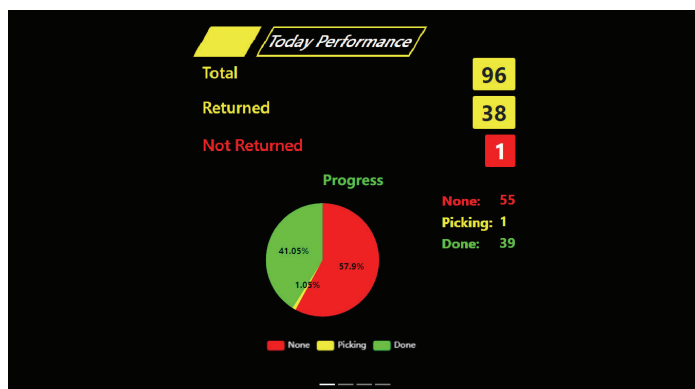
Firmware - Introduction

The Simique's EOF is an embedded firmware for voice application. EOF is compatible with most handheld terminals in the market.

The Simique's EOF standardizes the human-machine interface through natural voice communication. The standardization minimizes the safety risk owing to distraction while operating a device and offers a safe and ergonomic work environment.

Simique EOF - Key Features:

The Simique's EOF is flexible to work with operators with different accents and dialects. The adaptive deep learning optimizes recognition rate over time. Apart from voice input, EOF supports barcode scanning, RFID reading, Mobile Direct Recognition (MDR), keyboard or touchscreen. In addition, EOF is compatible with multiple external devices such as bluetooth ring scanner, RFID reader, fixed printer, mobile printer, bluetooth weighing scale, dimension scanner and so forth. EOF has been tuned and optimized where it is expected to respond in not more than 50 ms upon voice input.

The EOF can effectively eliminate loud and consistent background noise. It supports the latest Android operating system including live-updates. The device log can be activated as needed for troubleshooting purpose. In anticipation of unstable WIFI environment, EOF could automatically switch to data caching mode to minimize dependency on WIFI for data transmission.
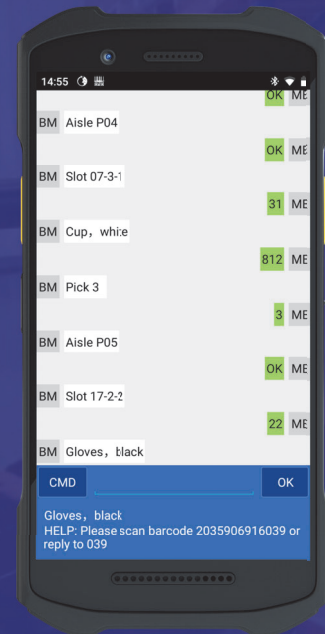
01 Industrial-grade Voice Recognition

Best-in-class voice recognition algorithm and voice output. This industrial-grade mechanism has been designed to work in noisy environment and is capable of recognizing any languages. The voice recognition processing can operate without WIFI environment.

02 Fluent and Natural Conversation

The conversation between operator and machine mimics natural conversation. EOF speaks up to 40 languages where the user could have the flexibility to reply using his/her own langauge.

03 Deep Learning

Through deep learning algorithms, the EOF software learns the changes in noise from the work environment and adapt accordingly, thus significantly improves recognition rate over time.

04 Handling of Noise in Work Environment

EOF operates based off historical data from the actual work environment and has taken into consideration loud and continuous noise such as pallets falling off, conveyor and forklift honking. It could easily manage the noise and accurately eliminate any background noise.

05 Offline Transmission

Along with RTF communication protocol, developed based on warehouse working environment, EOF could operate in offline environment and transmit the data when WIFI is back online. RTF will encrypt and compress to ensure secured and optimized transmission in the network.

06 Automatic Software Updates

Automatic update feature is included within EOF. This feature minimizes the support and commitment expected from the IT team.

07 Support Multiple Languages

EOF supports multiple languages. From user perspective, operator can speak in any language of preference while operating while keeping everything natural.

08 Robust Device Log Features

In case of any irregularities, other than the text device log. There is a possibility for EOF to retain voice communication record for investigation needs.

09 Support Android And Windows OS

EOF not only supports Android system, but also Windows (7,8,10 & 11). This creates more opportunities for voice usage in different settings and types of devices.

10 Support Multiple Forms of data Input

Other than voice input, it is feasible to scan barcode, read RFID, MDR recognition, keyboard and touch screen to fulfill multiple needs.

11 External Device Advanced Customization Requirements

The application of bluetooth scanner has been redefined. It could also be used for frequently responded words with the click of a button by the operator. Whereas, for a scanner with display, any important messages can be directed to the display on the back of the palm. These new applications create higher employee job satisfaction as well as productivity improvement.

12 Pairing with other Devices

There are options to pair with bluetooth ring scanner, RFID reader/writer, fixed printer, mobile printer, bluetooth electronic scale, dimension scanner and so on.

Company Profile

Simique's Voice-Directed Solution is your trusted global partner solution. We offer cost effective and efficient solution from day one. Regardless the business or project size, our flexible, agile and innovative solutions can help you to achieve your strategic goals.

After years of experience in optimization of supply chain implementation, we enhance our solution – Voice Picking System (VPS) to fulfill distribution centre and warehouse daily requirements, such as order selection, route optimization, replenishment, put-away, cycle count and performance analysis, etc.

Our goal is to extend our partner network to each part of the world in order to provide the first-class solution and support to our customers effectively. Meanwhile, we continue to develop the innovative voice solution to assist our customers to improve the productivity so that they stay at the forefront of competition.

For more information, please visit: www.simiquecorp.com