The surprise created by being able to count each stitch of sewing machine in real time

Counting every single stitching you did,
it brings you better profits!

sewsmart®
SEWING LINE TECHNOLOGY

powered by **LTM One**

LTM One presents the second revival of the domestic garment industry and the revolution of the global garment industry with the technology that digitally transforms the know-how of the garment industry.

■ Company General

Company	㈜LTM One
CEO	Hyungmin Kim
Date of Establishment	May 2024
Business Registration Number	297-87-03072
location	Grugogae-ro 490beon-gil 76 1F, Eunhyeon-myeon, Yangju-si, Gyeonggi-do, South Korea
Business Areas	Software Development & Supply, Manufacturing
Number of Employees	4
patent	2 types registered, 1 application filed, PCT patent in progress

■ Company History

2024.05	Established LTMONE Incorporation
2024.05	"Continuous Rebalancing Method Using Monitoring of Manual Processes" Patent Exclusive License Agreement
2024.05	"Integrated management sewing work of real-time work reporting platform that collects emissary and immersion data in linkage" Patent exclusive license agreement
2024.05	Credit Guarantee Fund Preliminary Entrepreneur Selection and Support
2024.05	Korea Copyright Commission "AI Manufacturing System Sew Smart"Copyright Registration
2024.06	Patent application for "Artificial Intelligence-based Sewing Automation System"
2024.07	Establishment of corporate research institute
2024.12	'SewSmart Supply Contract with 'Dongsun' which is a company of Defense Supplier.
2024.12	Guatemala J.Apparel Test Equipment Delivery Test Installation
2024.12	ISO9001 SewSmart Quality Management System Certification

LTM One is ahead of the competition through leading technology algorithms and system patents. The competitiveness of the sewing industry in the changing fashion market is defined as the answer to complete the networking of facilities and personnel in the factory by connecting all the data of the factory, and to complete the industrial networking by connecting the owner and the factory, and we are building an environment that can efficiently produce small quantities and customized products based on an efficient production environment based on the transparency of production by developing a technology that can measure each process unit with data by measuring immersion and stubbornness directly from the sewing machine.


Integrated management of real-time work reporting platform that collects cutting and immersion data in connection with sewing work Computerization of sewing work and sewing system that enables compatible installation of counter devices

Continuous rebalancing method using monitoring of manual processes

Here Comes
the Sewing Industry's Future
with Smart Factory System!

At LTM One, we are always committed to customer experience management.
We strive to build lifelong partnerships with our customers,
and we are always willing to listen to their diverse opinions.
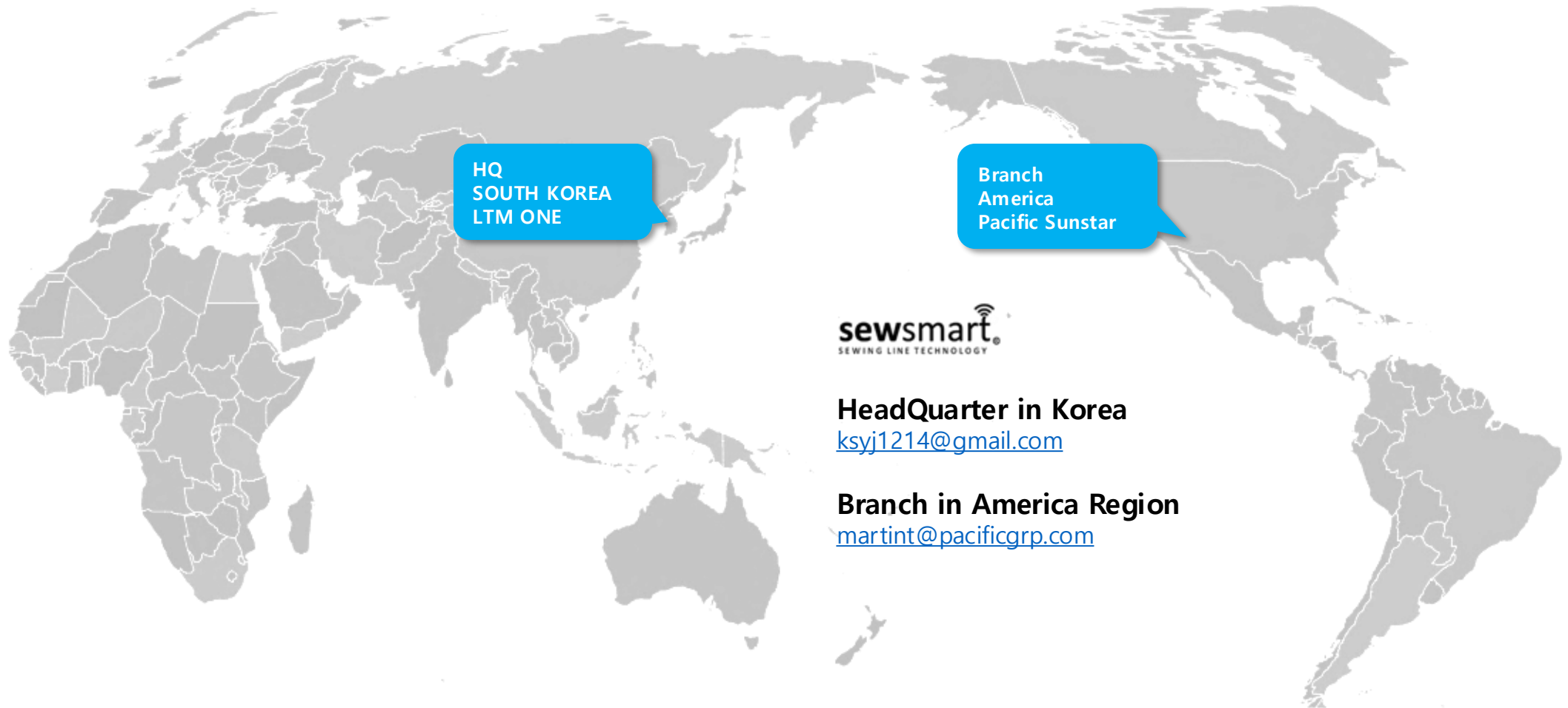
HQ
SOUTH KOREA
LTM ONE

Branch
America
Pacific Sunstar

sewsmart.
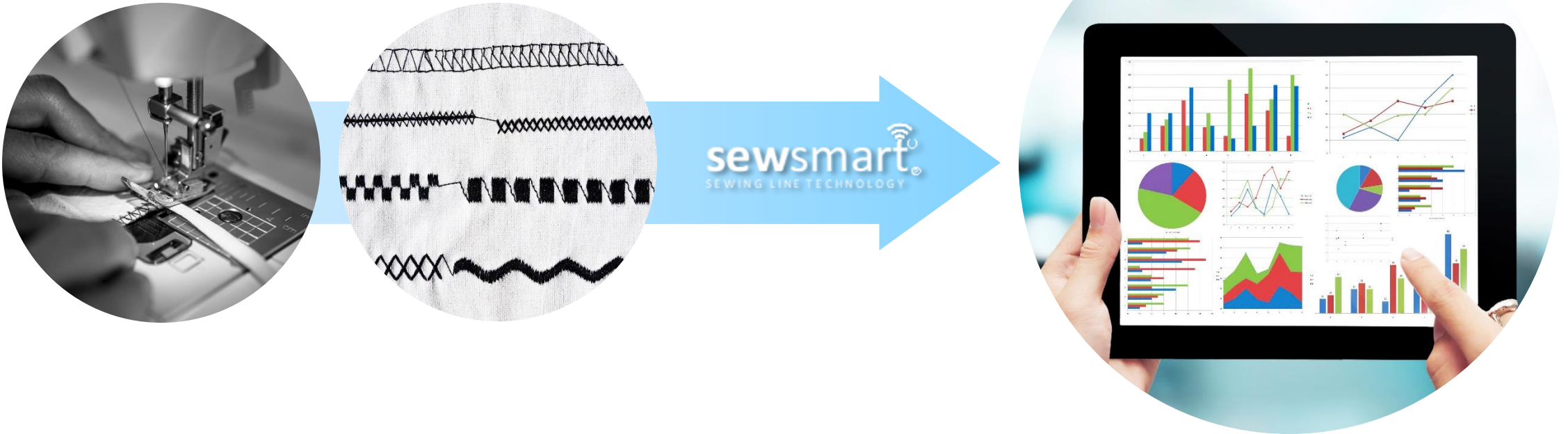SEWING LINE TECHNOLOGY

HeadQuarter in Korea
ksyj1214@gmail.com

Branch in America Region
martint@pacificgrp.com

Data-driven, smart sewing production solutions

The SEW SMART system counts all Stitching and Trimming in real time on the sewing machine and uses them as data in the system.

sewsmart.
SEWING LINE TECHNOLOGY

Korea's garment industry has lost its competitiveness due to poor price competitiveness and environmental deterioration, and the lack of an efficient system for factory operation is making it even more uncompetitive.

Distribution of manpower by age of all workers in domestic garment companies

2010년 — 1.7% / 9.2% / 7.5% / 43.8% / 37.8%

2021년 — 1.8% / 6.6% / 13.8% / 32.6% / 45.1%

■ 20대 이하 ■ 30대 ■ 40대 ■ 50대 ■ 60대 이상

The depletion of the domestic garment industry is just around the corner
발행 2023년 02월 07일   조은혜기자 , ceh@apparelnews.co.kr

한국섬유신문
Even women's clothing is made in China... The crumbling garment industry
릭터, 커리어 브랜드 제조 메카로 자리매김했다.
2021. 4. 2.

APN 어패럴뉴스
Sewing which fell into the swamp of solidification..."There is no hand to sew"
운영하는 한 사장의 말이다.
2023. 7. 17.

APN 어패럴뉴스
Accelerating sewing workforce decline... "Sample production also depends on China"
2023. 6. 22.

The struggling domestic garment industry

- The domestic garment industry is aging its workforce, aging equipment, and weakening of price competitiveness, resulting in increased dependence on foreign countries.
- As the fashion market changes with the global multi-variety, small-batch production methods, the sewing industry system has not kept up with the changes.
- In order to maintain competitiveness, it has changed to focus on small-batch production of various varieties, but it is difficult to maintain the factory in the form of unstable orders that do not know when work will come in.

Problems of analog production management and production management

- ✓ Lack of a scientific methodology for productivity gains
- ✓ Lack of data-driven control of quality imbalances
- ✓ Lack of concrete means of rationale for the calculation of real won and profit and price structure
- ✓ Lack of accurate delivery forecasting and execution means
- ✓ Lack of a line-by-line, individual-specific practical (scientific) evaluation system

Digitalization of the sewing production process with IoT and
Need for a production system that keeps pace with changing industries

Traditional sewing factories are lagging behind other production industries that are developing with the latest technology, so a smart factory management and production management system is needed to improve the analog production floor.

The Solution of Sew Smart Manufacturing

✓ Data connection in the sewing process
   Connecting equipment, people, and time with data plays a key role in transforming efficiency into efficiency and increasing productivity.

✓ Standardization of work processes
   Transforming an unbalanced form of production into a balanced form of production
   Balance people, equipment, and time by balancing algorithm to improve productivity

✓ Introduction of smart algorithms in work orders
   Predict the quantity that can be produced for a given time and provide work orders

✓ Real-time, data-driven production monitoring
   Real-time, individual performance by line becomes DB
   Real-time unit cost measurement enables maximization of profits

Data-driven, smart sewing production solutions

The basis of a system that transparently manages the entire production and shipping process from the materials Expansion of data utilization system throughout production, such as won and subsidiary material management, production management, inspection management, and quality control

'Smart Factory' = DATA !

Establish a data system that identifies the status of each management element and helps in decision-making according to the attributes that data should have in a smart factory.

- **Connected** – Connection of data about equipment, facilities, and management environments
- **Optimized** – data-driven optimization of production processes and lead times
- **Transparent** – Gain data transparency in production status monitoring
- **Proactive** – informational-based data that drives prediction and proactive response
- **Agile** – a system environment that can be improved through rapid change

Systematic connection of sewing equipment lines
You can view the Sew Smart SYSTEM connected to one sewing machine as a single point, the sewing production line connected by the dots as a line, and the factory where the sewing production line is gathered as a face.

Fundamentalization of Smart Production Connectivity through Work Standards
The digitization of sewing factories begins with converting work standards into data.
It provides the ability to digitize the work standards that currently exist in the minds of sewing experts.
The work standard is the most important information that determines the quotation and contract for the order, and it is used as an important basic data that leads to post-contract production.

Providing a reasonable production quotation system
Since the estimate is guided by the Sew Smart SYSTEM, it is possible to make an objective estimate at the sewing site that used to make an estimate with a sense, and the objective estimate makes it possible to make a reasonable contract.

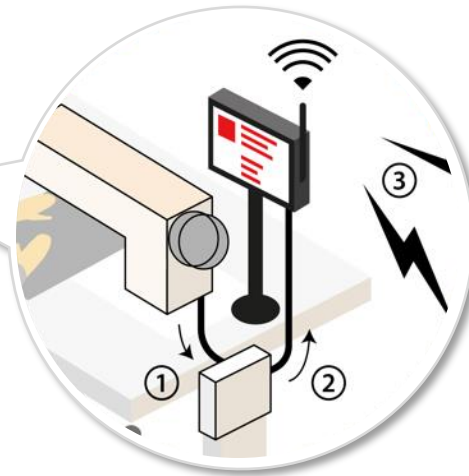# Powerful data connection with patented technology

The patented technology that collects data directly from the sewing machine hardware creates a perfect connection.

The Sew Smart SYSTEM has been developed to direct work in a won manner through a simple connection to all production facilities used in the entire sewing process, and to acquire and manage productivity data.
The Sew Smart SYSTEM can acquire and manage all relevant production-related data from the order stage to the sewing process.

Combi (Set Top Box)

Mounted on the sewing machine Set top box(Combi)

Data Collection and Transfer Process

Data Collection Differentiation Techniques

- With patented technology that collects data directly from sewing machine hardware, we have developed a system that links hardware and software.

① Attached to each machine, the Combi acquires information directly from the equipment and production facilities.
② It collects data through its own attached sensors and transmits the acquired information to the Tablet PC.
③ As a Tablet PC, the OP (Operation Panel) transmits data to the management software in real time via WI-FI.

- The data collected is then applied to solutions that optimize plant operations from production to the SewSmart System.

# Connect data for greater applicability

Develop all-in-one data acquisition hardware to differentiate yourself with quick installation and safe operation.

We develop and supply an all-in-one hardware model that enables more stable and quick installation and application of individual power supply and cable hardware configurations for sensors, set-top boxes, and tablets.
The design and sample tests have been completed and the final manufacturing for mass production is underway. We plan to supply all-in-one devices from the second half of 2025.
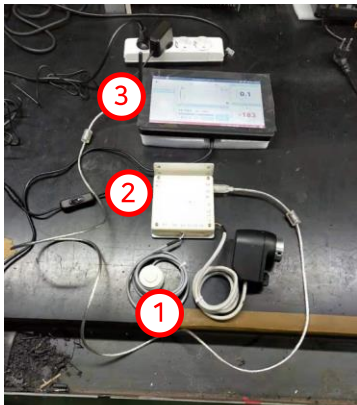
1) sensor,
2) Set top Box(Combi)
3) Tablet(OP)

**All-in-one hardware model development
(CE authentication process is in progress)**
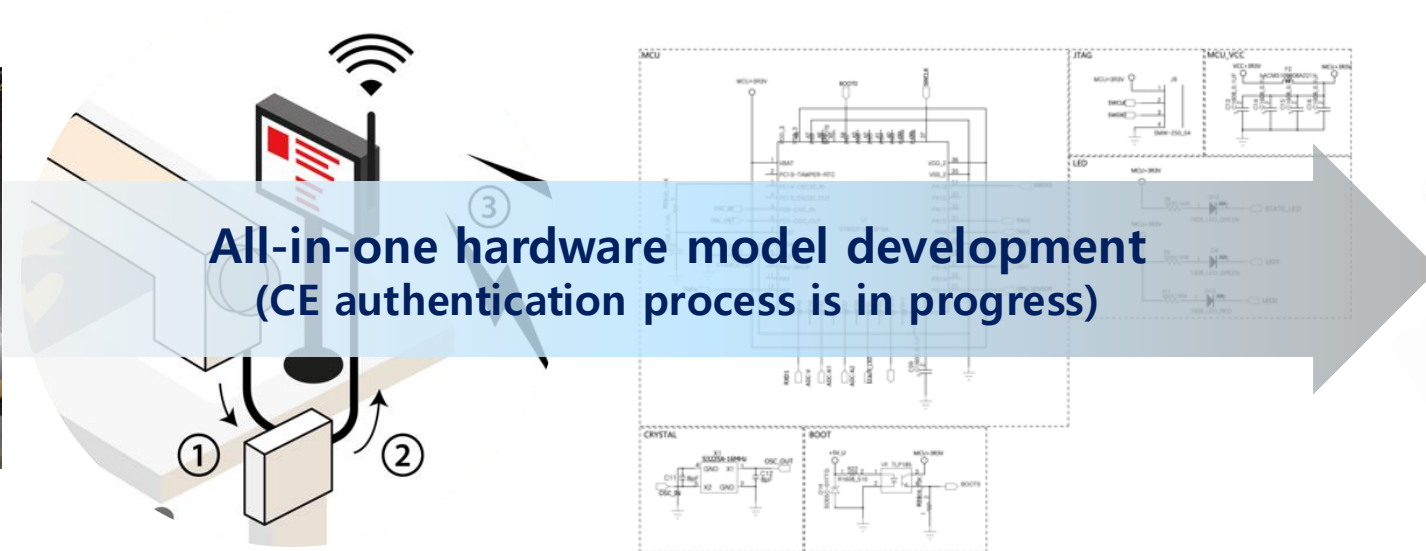
Hardware-integrated design drawing

Sample

All-in-one model integrated into a tablet device
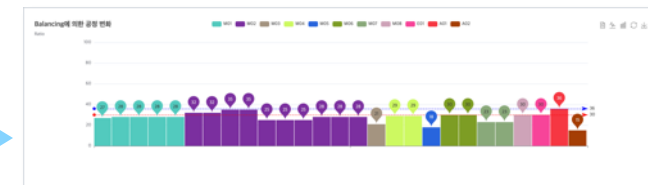(example image)

Process optimization technology using AI technology

Artificial intelligence algorithms were applied to complete smart process optimization balancing simulation.

The time difference that occurs in each process is applied with AI algorithms to allocate the optimal process time and quantity.

productivity
Approx. 130%
increase

Original process and turnaround time

process 1	process2	process 3	process 4	process5	process 6	process 7

7 min

3 min

5 min

2 min

2 min

1 min

2 min

Avg.

Max.

All remaining processes, regardless of individual lead times, are all affected by 7 minutes

Full process lead time: '7 minutes' x '7 processes' = 49 minutes in total

Lead Time 51% reduction

Optimized

Automatically calculate optimal process time and quantity allocation

process 1	process 2	process3	process4	process5	process 6	process7	process 8

3 min | 3 min | 3 min | 3 min | 3 min | 3 min | 3 min | 3 min

Full process lead time: '3 minutes' x '8 processes' = 24 minutes in total

If a process takes longer than the average, it will be divided with the process using the same machine, and when a different machine is used, a new machine will be added to the process and then balanced.

(e.g. if process 1 and process 2 use the same machine, the quantity can be divided, otherwise a new machine can be inserted)

Based on LTM One production process standards
Optimization Balancing Real-World Results Example

Factory Management & Operations Tailor-made Solutions

We supply a smart work network system that connects production workers, plant managers, and managers.

For Business Managers
- Production Optimization

Provides 7 types of business management functions to build the most optimized factory operation system

- Order Management – Systematic management of orders and orders
- Work Standards – Management of production standards for each product
- Work Orders – Remote Delivery of the work order of each product
- Production Status – Monitoring by each process and facility
- Basic Information – Registration of Worker and Production Facility Information
- OP Status – Check the list of work orders you are working on
- Process Balancing – Calculating the Most Efficient Process Line
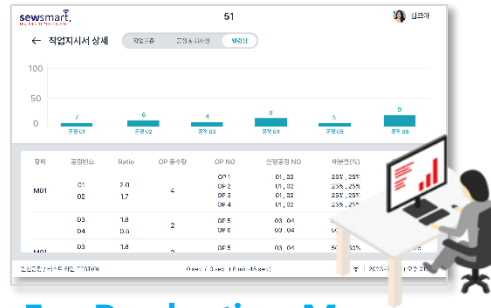
For Production Managers
- Production Monitoring

Obtain data related to process productivity to manage production at the highest level

- Real-time monitoring of the productivity of all domestic and overseas garment factories operated by one company
- Productivity monitoring for each process in the garment factory
- Check the utilization rate and productivity of all kinds of production facilities such as sewing machines, cutting machines, and high frequency
- The manager confirms what kind of product all field workers are currently responsible for and what work orders they are responsible for.
- Sample mode function automatically calculates the exact standard for standard sampling

For Production Workers
- Maximum Productivity

Provides a wide range of features to help workers achieve their best productivity

- Ensure accurate work orders for the products you produce
- Check productivity data for your own equipment
- Each operator checks the productivity of other workers in their own process and directly monitors productivity bottlenecks throughout the process in real time
- Validate your productivity against standard productivity over time with Standard Over Time
- After completing a task, you can directly select the work order for another job and start work.

Expected effect of introducing smart sewing production solution

With sewing machines and data-connected systems, you can minimize lead times, optimize work orders to maximize productivity, and achieve maximum profitability through transparent cost counting.

Increased productivity and profitability

Increased Productivity

Improved quality

Shortened delivery times

Lower cost

Sew Smart System Expectation

- Establishment of product production plan and use of standard cost calculation reference information
- Real-time data of the process allows you to predict the lead time of each product and get a real-time view of the production status
- Optimize the production process by improving working methods, working processes, facilities, and working environment using work standards as reference values
- Maintain consistency in product quality and reduce defect rates
- Reduction of inventory and logistics cost reduction according to production forecast
- Real-time production status at global production bases
- Accurate logistics planning due to accurate forecasting of finished goods with real-time production data
- Significant reductions in inventory costs and logistics costs
- Efficient worker education and training
- By educating and training workers to work according to standard working methods, we eliminate wasted time due to lack of skill of workers.

Description of the System main functions
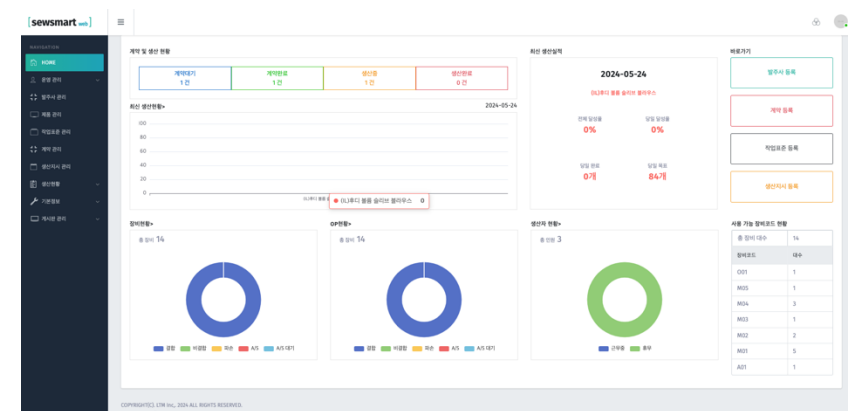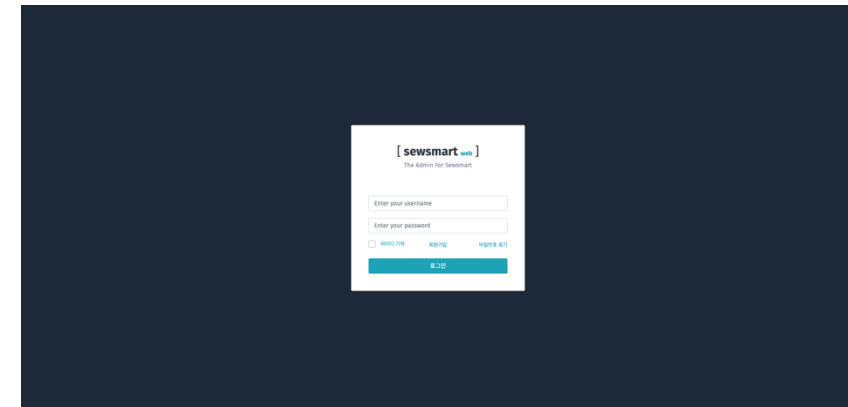
Sew Smart System' Main Functions

1. **Working Standards**
   - System creates optimized working standards for all products
   - Automatic generation of work standard DB through the OP of sewing machine during sample work

2. **Process Balancing & Production Simulation**
   - Optimize the human equipment time required for the process
   - Calculation costs, margin rates, time required to make a finished product, daily production quantities, and forecasting/adjusting delivery dates

3. **Simulation & Work Order**
   - Based on the delivery date, work instructions to workers by adjusting input manpower

4. **Real-time production status monitoring**
   -Poem. Monitoring at any time without space limitations, - Accurate management without additional management personnel in directly managed/subcontracted factories, accurate logistics prediction

System Description

1. Working Standards

For the first time in the garment manufacturing industry, Sew Smart System creates optimized work standards for every product you manufacture. The work standard is the most important information that determines the quotation and contract for the order, and it is used as an important basic data that leads to post-contract production.

Digitization of work standard know-how

※ **The digitalization of garment factories begins with the dataization of work standards. It provides the ability to digitize the work standards that currently exist in the minds of sewing experts.**

OP Tablet UI for workers

Creation of working standard DB at the time of sample production
- When you use the instrument to make a sample, the data is automatically generated

Includes all elements that clearly define the production process
- Process Number, Process Name
- Information such as process type (no sword, immersion, time) and sweat width
- Equipment name and management code
- Number of tasks, time required

Visual graphs of the time and percentage of each process in the overall production
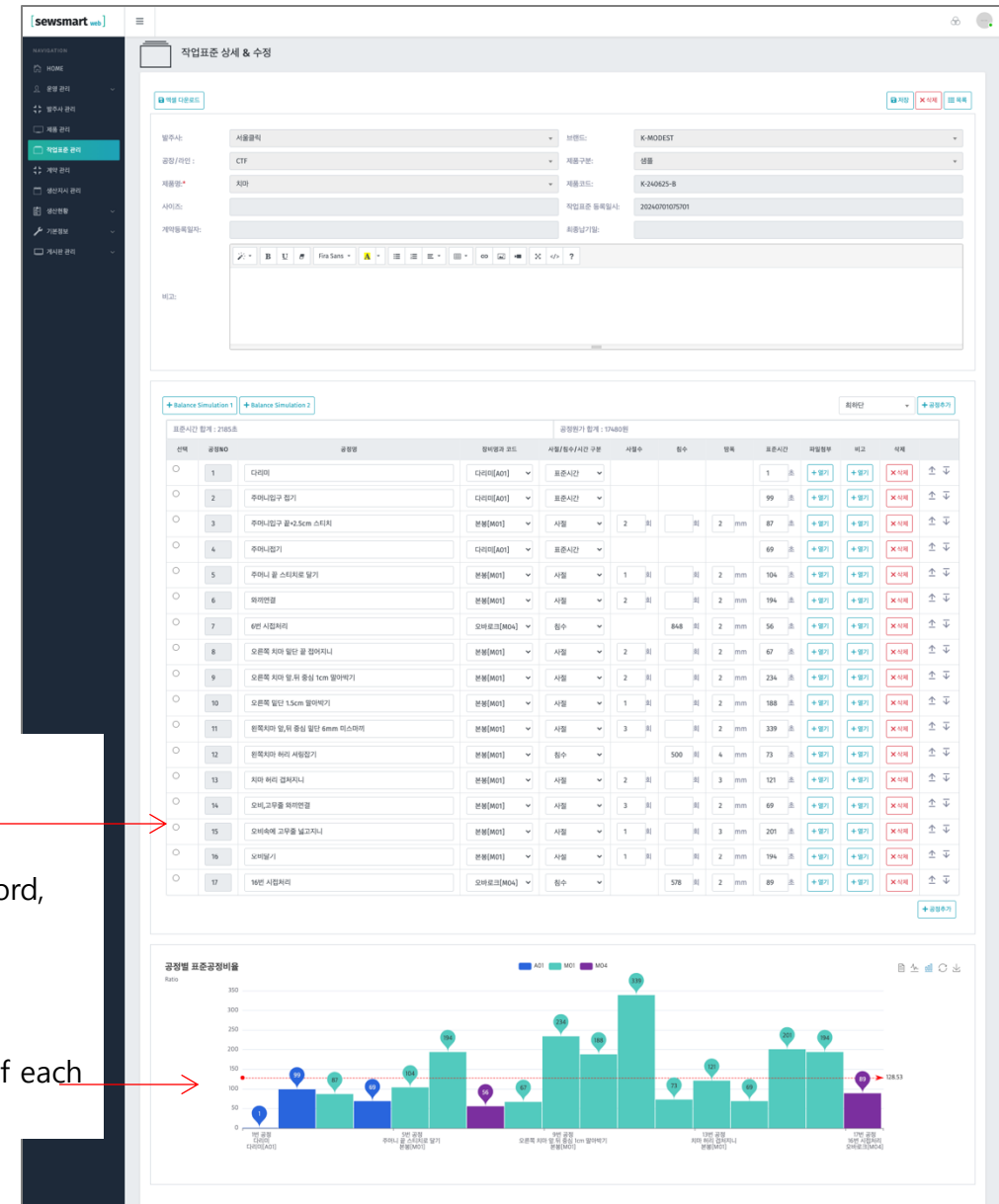
System Description

2. Process Balancing & Production Simulation

The work standard produced by the work standardizer is
It is optimized according to the current equipment status of the plant and the workforce.

Intuitive simulation for efficiency determination

※ It provides an intuitive basis for judgment with visual simulation of the imbalance between processes and the time required.
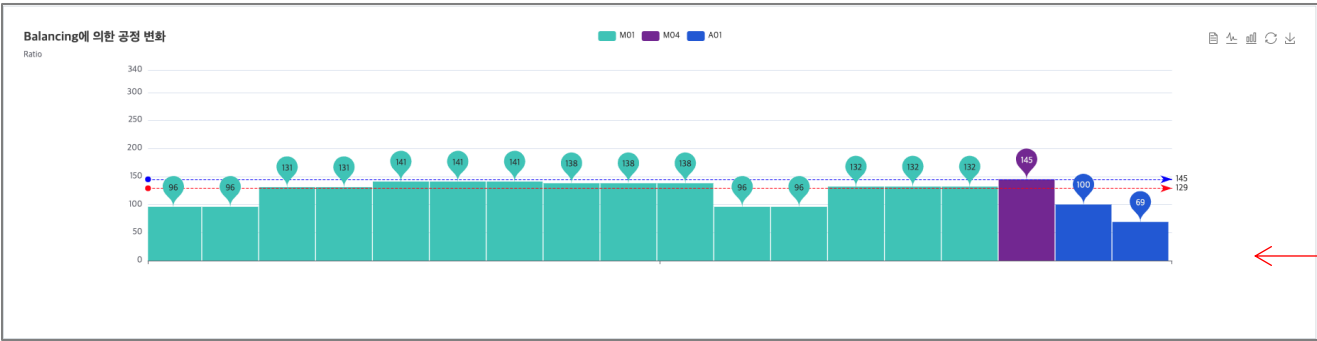
Algorithms generate optimal process standards based on work standards generated by work standardizers

Provides a comparison of the time difference between standard process times and balanced optimized processes

관리자 시스템 화면
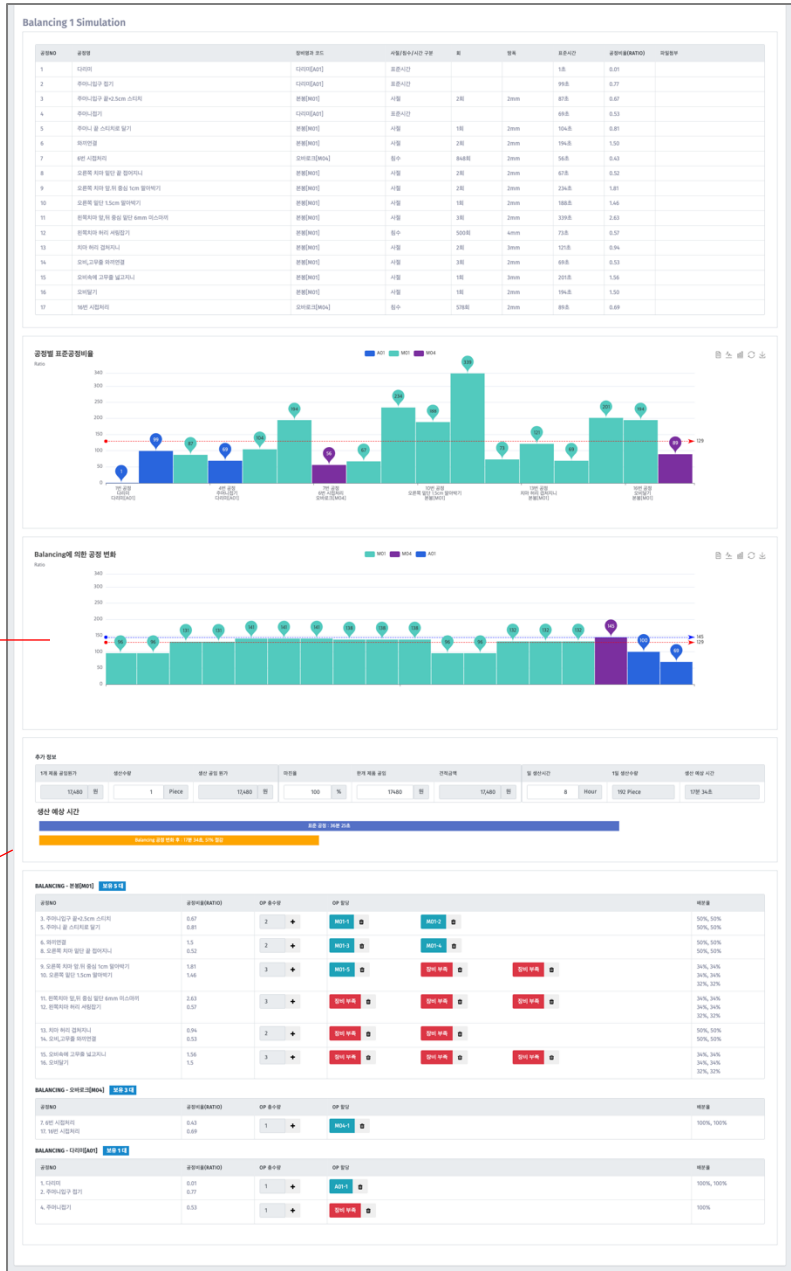
System Description

2. Process Balancing & Production Simulation

Flexible rebalancing

Function to view worker work status data and change input equipment to rebalance if there is a manpower or equipment issue on the production line or if production needs to be adjusted.

※ **Flexible simulation for production efficiency of production lines is possible.**

Web Admin UI
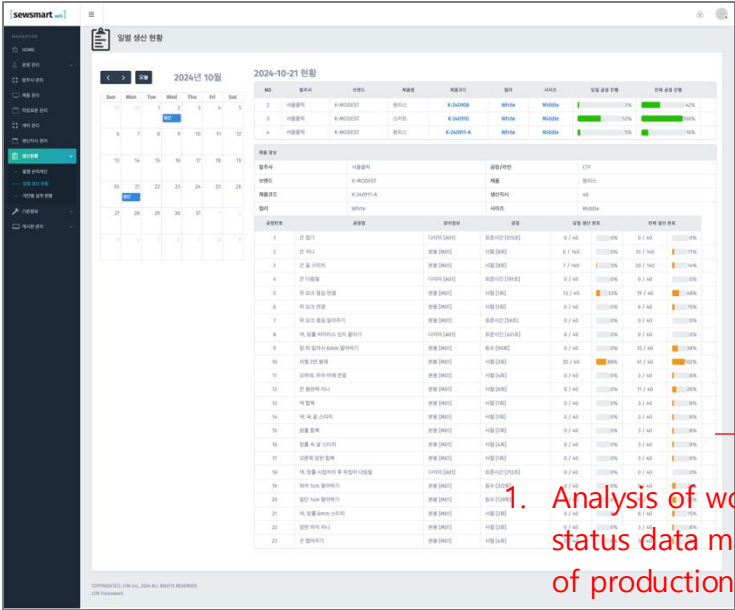
Web Admin UI

1. Analysis of workers' production status data managers' judgment of production line adjustments
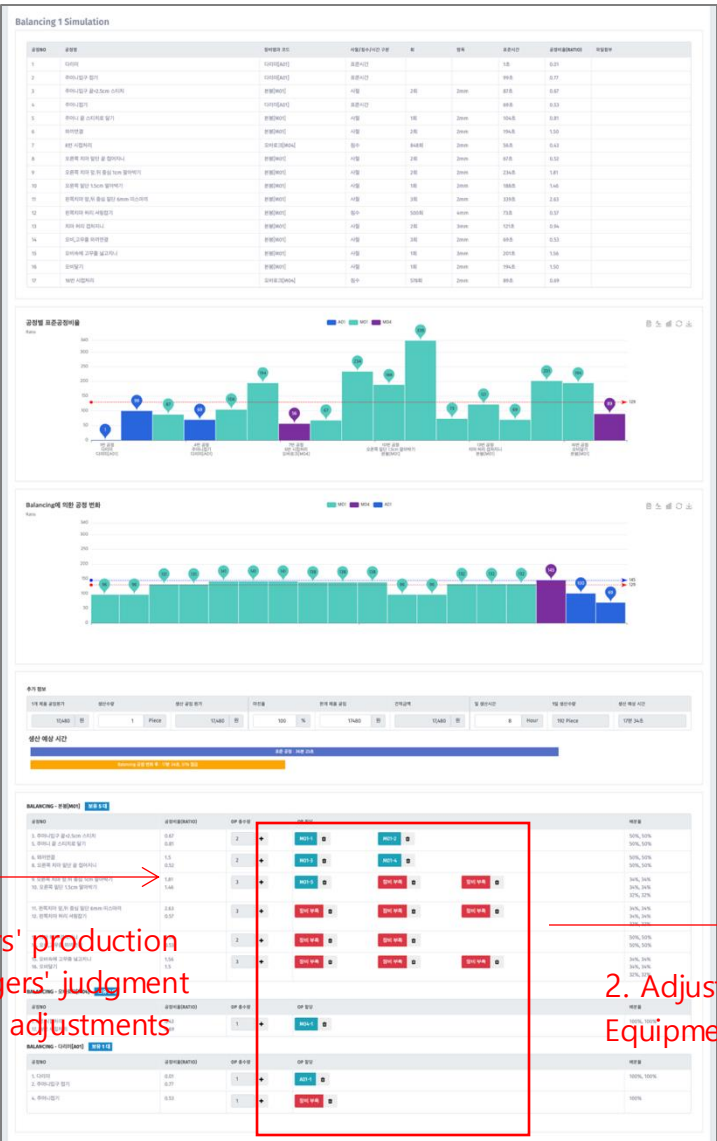
2. Adjusting the Input Equipment

3. Through rebalancing according to adjustments Simulation of production lead time, efficiency, etc.

System Description

3. Simulation & Work Orders

Web Admin UI

OP Tablet UI for worker

Create production orders based on the generated work standards

Enter/modify production order details

The workers' logs in to the OP tablet attached to the sewing machine and selects the job to proceed with the job

System Description

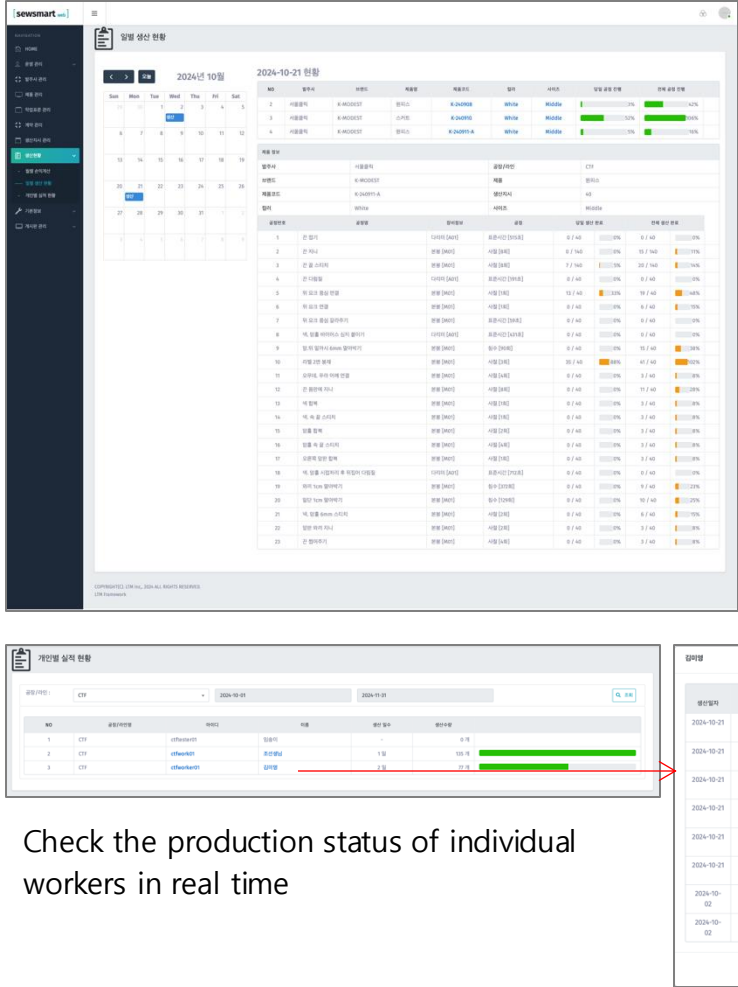# 4. Real-time production status monitoring

Collect the work data from the OP tablet of the operator sewing machine to record the progress in real time.

OP Tablet UI for worker

Web Admin UI

Real-time check of daily production status
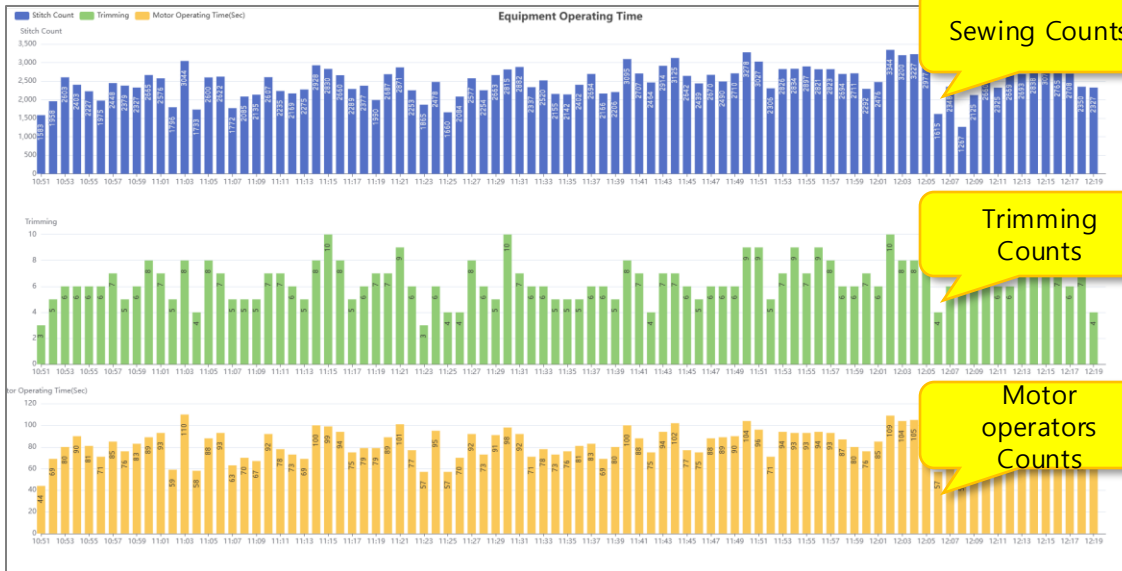
Real-time transmission of workers' progress data to the server

Check the production status of individual workers in real time

4. Real-time production status monitoring

The flooding and refusal of the sewing machine, as well as the number of motor runs, can be monitored on site in real time.
You can also check the progress of partners in the desired form by linking data.

Manager & Field Monitoring Screen

In connection with CCTV, you can check the on-site situation and equipment operation status in real time.

Sewing Counts

Trimming Counts

Motor operators Counts

Real-time judgment of factory equipment utilization is possible.
※ We provide specific figures for the device utilization rate that is consciously thought of and provide data that can be used to judge efficiency.
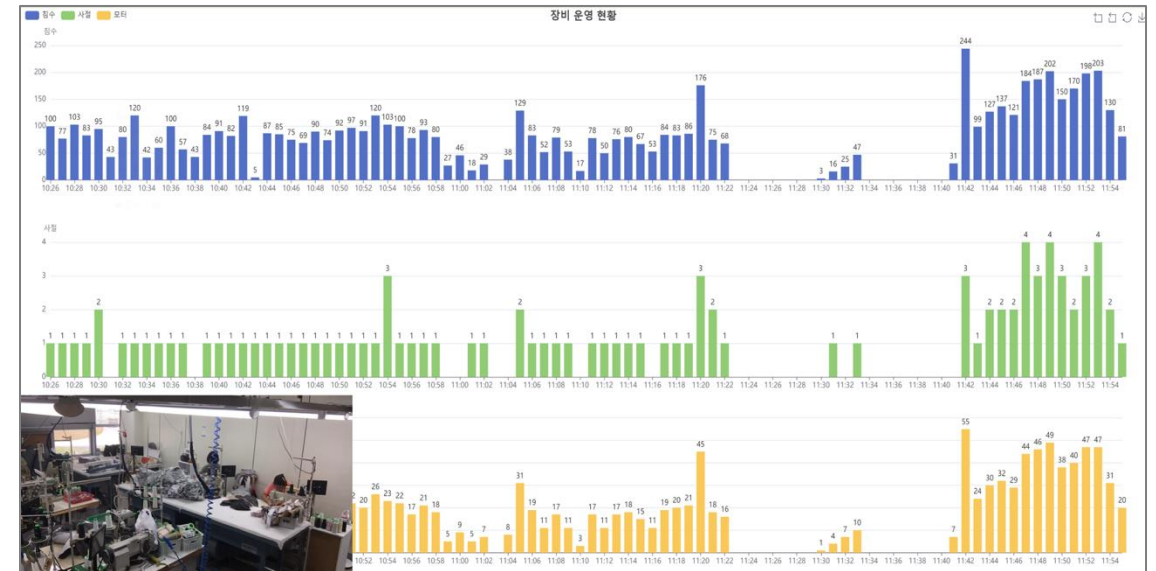
It is possible to judge the skill level of the operator.
※ It is possible to judge the operator's proficiency because it shows the operation of the device by immersion, refusal and motor operation, and it is possible to check the frequency of pre- and post-work processing and correction work by the blanks shown during the process.

Definition of Sew Smart System provided by LTM ONE

A system that optimizes profitability

What is the difference between MES and MPS?

Manufacturing Execution System

MES is

A system that monitors the production status and provides information on the operation and production status of the factory.

Manufacturing Profitability Strategic System

MPS is

A system, based on the production status management of MES, that optimizes profitability by increasing the utilization of manpower and equipment required for production.

Get ahead of the curve by being able to count every stitch of a sewing machine in real time, and experience the surprise that is created!

Contact Us

ksyj1214@gmail.com

sewsmart ®
SEWING LINE TECHNOLOGY

powered by **LTM One**