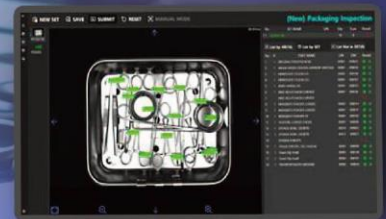# AI-BASED REUSABLE
INSTRUMENTS TRACKING SYSTEM

> **Sterilization Workflow Support System for CSSD**

> **100% UDI recognition of 200 instruments in 0.3 seconds**

> **Laser Engraving Technology EverTrace™ - Our proprietary marking solution, A truth that never fades out.**

SIMS TECH
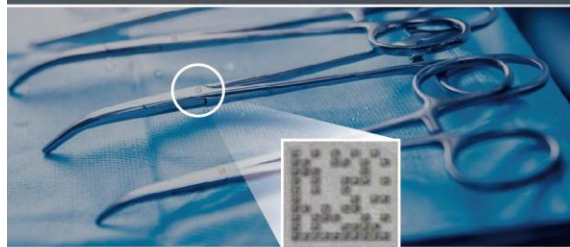Surgical Instrument Management System

TECHNOLOGY

EverTrace™ Laser Marking

- 2×2(mm) micro Data Matrix Code engraving
- Applicable on most surgical instruments (including curved surface)
- Proprietary software for engraving automation system
- Easily designed for operation for non skilled people
- Code recognizable over repeated high temperature (134 °C) sterilization processes

　※ Advantage over RFID : no extra supplies and radio interferences
　※ Advantage over handheld scanner : Simultaneous multiple recognitions, Increased processing speed over 100 times
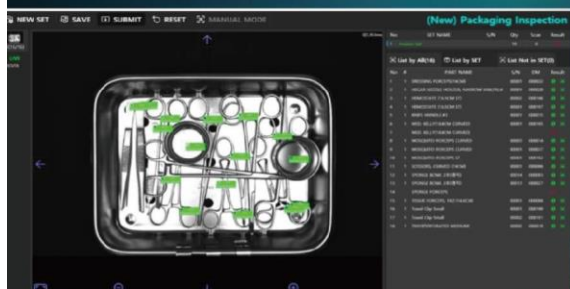
ClariTrace™ AI Vision

- AI deep learning based high precision vision system
- 100% recognizable of 200 instruments within 0.3 sec
- Automatic recognition within 15cm height difference
- High performance over multi-angled, shadow and reflection

　※ Advantage over RFID : no extra RFID devices, only one camera required
　※ Advantage over handheld scanner : Simultaneous automatic multiple recognitions, Prompt instrument set verification before and after surgery

CSSD WORKFLOW SUPPORT SYSTEM

System Components

Wash

Incoming (Return)

Package

AI Vision System

EverTrace™
Laser Engraving System

Outgoing (Use)

Store

Sterilize

ClariTrace™
CSSD S/W Platform

Main Functions

- Simultaneous multiple recognition of instruments and counts
- Set components analysis (missing/redundant/extra)
- Managing number of uses and period for each instrument
- Interface with hospital legacy systems (ERP/EMR)
  → integrating both patients and instruments management
- Tracking each instrument history aligned with CSSD work flows (Wash, Package, Sterilize, Use, Return)
- Managing stock Inventory in real time
- Tracking each instrument's maintenance history in real time

Expected Benefits

- Prevent instruments missing and recognition errors
- Minimize infection accidents and human errors
- Improve asset operation efficiency with instruments life-cycle management
- Reduce CSSD and OR work hours
- Real-time inventory management and purchase plan optimization
- Consolidate UDI-based traceability and regulatory compliance

Reference (General Hospital in Korea)

- 820 beds, over 75,000 reusable instruments and 400 sets managed daily
- Proven reliability with 0.0% recognition error rate
- Interface with hospital EMR system

Competency Analysis

Item	QR/BarCode	RFID	ClariTrace™
Recognition Rate	Low	High	High (100%)
Recognition after Wash	Low	High	High
Extra supplies	None	Required	None
Installation	Easy	Complex	Easy
System Interface	Low	High	High
Automate Recording	None	Partially supported	Fully supported

SIMSTECH
Surgical Instrument Management System

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ClariTrace™ Technical
Paper Download