

KIMS HEALTH, TRIVANDRUM OPTIMIZES CSSD WITH SEEMYMACHINES

A CASE STUDY ON TRACKING OF SURGICAL INSTRUMENTS IN CSSD

About the Client

- flagship quaternary-care hospital in Trivandrum
- 900+ beds and part of a 2000+ bed healthcare group
- among the top 10 hospitals in India
- accredited by the National Accreditation Board for Hospitals (NABH) and the Australian Council on Healthcare Standards International (ACHSI)

CHALLENGES IN CSSD

Manual inspection of the thousands of instruments that make up a surgical set is error-prone and time-consuming

OBJECTIVES

KIMSHHealth Trivandrum turned to SeeMyMachines as their partner in their CSSD digitization journey. SeeMyMachines carried out an assessment across business processes to identify, evaluate and confirm the best technology suited to the processes at KIMSHHealth Trivandrum.

TECHNOLOGY EVALUATION - RFID

Automation approach

Tag instruments with RFID micro tags and use RFID readers at checkpoints

Benefits

- Unique ID for each instrument
- Fast automated reads
- Geo-fencing/gating
- Auto verification if packed with linen

Challenges

- RFIDs cannot withstand the sterilization process
- Possible detachment of RFIDs during wash cycles
- Disproportional tag-to-instrument cost in some cases
- Requirement for clinical-grade adhesive
- High hardware cost on RFID readers
- Recurring cost on lost RFID tags

TECHNOLOGY EVALUATION - VISION

Automation approach

Use machine vision to identify instruments and use vision analyzers at checkpoints

Benefits

- No requirement for physical tagging
- Moderately fast automated reads
- No manual intervention

Challenges

- No unique ID for instruments
- Need organised packing, increasing package size/form factor
- Only checks and counts, no tracking
- High hardware cost on computer, camera, lighting
- The system might require continuous training

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TECHNOLOGY EVALUATION - LASER CODING

Automation approach

Laser engrave/etch ID to instruments and use camera-based readers at checkpoints

Benefits

- Unique ID for each instrument
- Quick reads
- Permanent tagging
- Minimal hardware cost
- No recurring cost

Challenges

- Manual scanning
- Moderate hardware cost on engraving unit

STANDARDS EVALUATION - LASER CODING

1D Coding

Uses a barcode that captures the unique ID of the instrument

Benefits

- Easy to read micro-sized codes
- Engrave without errors
- Less erroneous reads

Challenges

- Instrument details are not self-contained, needs connectivity to read them

QR Coding

Uses a QR code that captures the unique ID and details of the instrument

Benefits

- Instrument details are self-contained, no connectivity is required

Challenges

- Requires high-precision engraver
- Requires optical magnifiers for reads

SOLUTION-FIT

Based on this evaluation of technology and coding standards, KIMSHealth Trivandrum decided to adopt 1D Laser Coding for its CSSD digitisation

BENEFITS FROM IMPLEMENTATION

- Reduced errors in kits received in the Operation Theatres
- Identification of anomalies within one cycle of the sterilization process
- Digital records of every process in the cycle
- Automated sterilization expiry calculation
- Tracking of sterilization expiry
- 100% traceability of instruments, condition, location

About SeeMyMachines

SeeMyMachines is an IoT cloud solutions platform focused on solutions for healthcare processes. Our motto "Real Solutions for Real Problems" is in line with our mission to provide intelligent platform solutions to our clients by automating processes and systems leveraging decades of business, process, and engineering expertise, thereby enabling operational excellence while enhancing patient and employee experience.