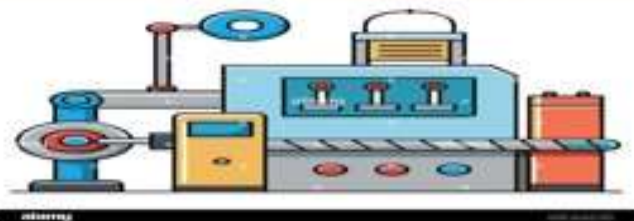


SMART MACHINE: AUTOMATED PLC SELF-VALIDATION



LEGACY PROFESSIONAL VALIDATION

Machine Compensation and Validation Done By Engineer



- **Validation Stop / Delay Machine:** sits idle at changeover while waiting for technical professional/auditor to arrive at the station.
- **Manual Calibration Gage Technician:** manually uses high-precision physical gauges, Vernier's, and checklists to test axis tolerances and limits.
- **Sign-Off Paper Trails: Manual** data entry into local logbook database. Minor adjustments require tools and human estimation cycles.

PLC SELF-VALIDATION SYSTEM

Automated System Validation and Compensation

Customer

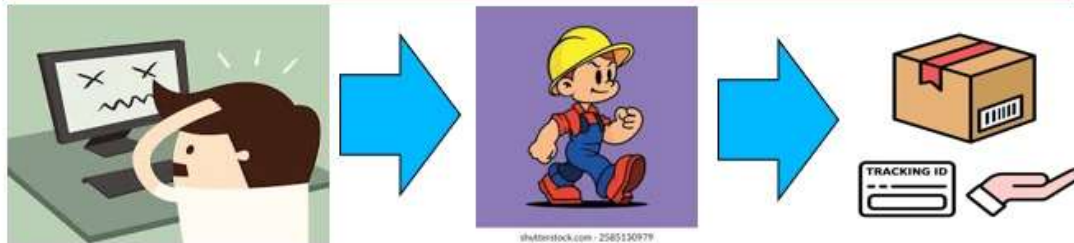


- **Instant Auto-Trigger Initiation:** of new batch triggers closed-loop PLC pre-flight sequence instantly. Zero human waiting period.
- **Self-Diagnostic Sensors High-speed:** analog feedback loops check motor curves, physical alignments, limit sensors, and signal integrity.
- **Dynamic Compensation & Release System:** algorithm shifts mechanical offsets inside PLC memory registers to compensate for wear. Automated QMS approval.

SMART MACHINE: AUTOMATED PLC SELF-PRINTING

OLD PROCESS

The operator Generates The Required Label At The Printing Station And Affixes It To The Product



- Human error in label selection
- Wrong labels printed on products
- Product traceability issues
- Production delays and rework
- Customer Claim Due Wrong Delivery of Product

NEW PROCESS:-PLC SELF PRINTING LABEL

Integration of Barcode Scanner and Label Printer with Machine PLC

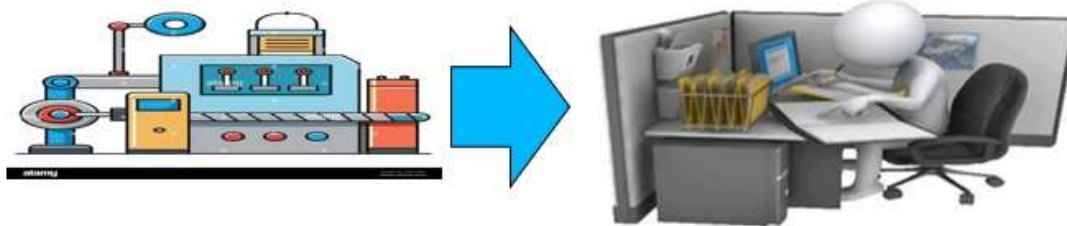


- Eliminated wrong label printing
- Reduced operator intervention
- Improved productivity
- Improved traceability
- Reduced rework and quality issues
- Reduced rework
- No Operator Movement
- No Need to wait for batch completion
- Satisfied Customers

SMART PROCESS: Digital Loss Capture System

OLD PROCESS:- MANUAL ENTRY OF LOSSES

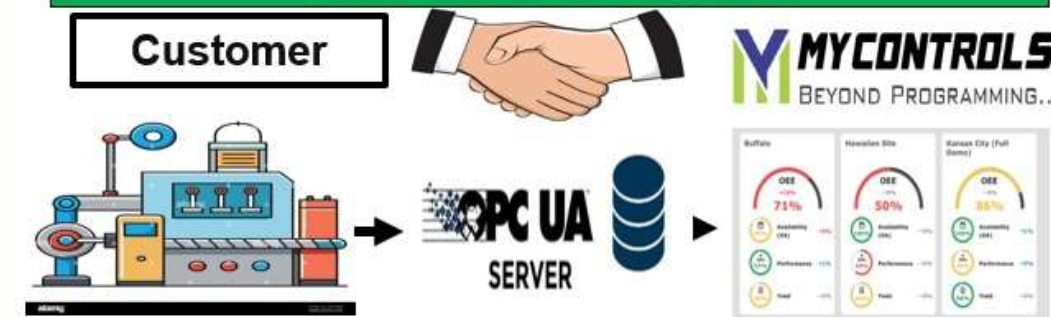
During each shift, the operator or supervisor manually entered production loss details into the production logbook and in system.



- Operator manually recorded 16 loss reasons
- Time-consuming and inconsistent
- Higher chance of human error
- Manual report preparation
- Manual OEE Calculation

NEW PROCESS:-DIGITAL ENTRY OF LOSSES

PLC-Integrated Automated Loss Capture & Machine Interlock System

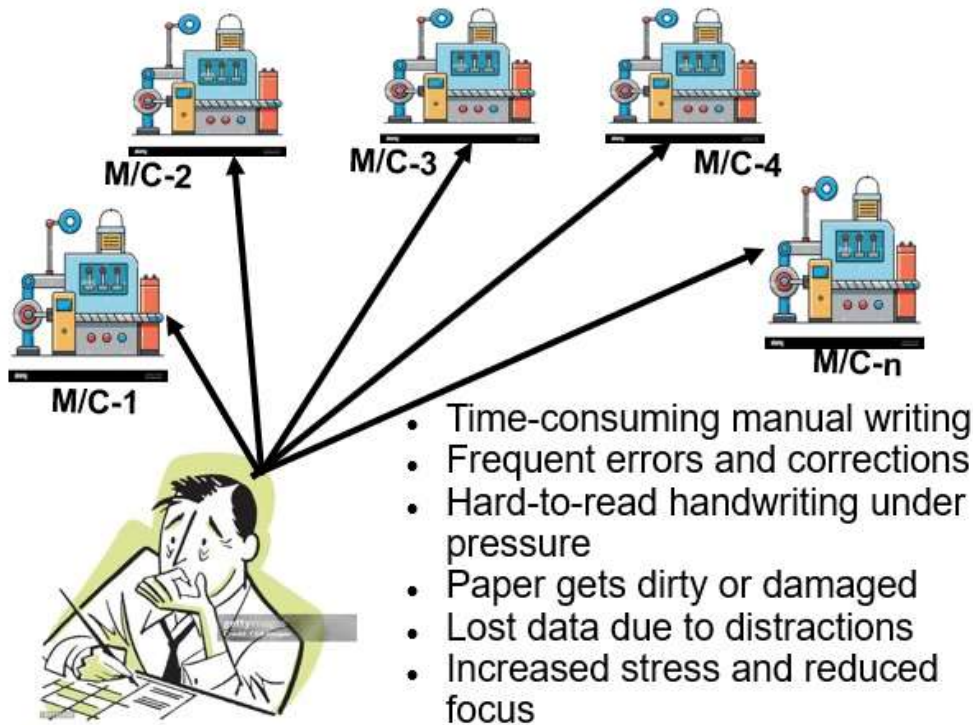


- Real-time visibility of production losses
- Better decision-making
- Increased productivity
- Reliable data for continuous improvement
- Automatic OEE Calculation
- Facility to change OEE as per product selection on machine

Future-Ready with Digital Transformation

Before:- Manual Record Sheet For Audit Purpose

Machine Monitoring and Data Logging



After:- Auto Generated Record Sheet

End User

