

Proposal for OCR Reading Solution

MANUFACTURING, RETAIL OR WAREHOUSE



AGen ALC
ALC-TECH (M) SDN BHD | WWW.ALCAIDC.COM

Contents

Executive Summary.....	3
Current Challenges	4
Proposed Solution	5
OCR Reading System	5
Solution Architecture	6
Key Features	7
Automated Text Recognition	7
Real-Time Data Capture	7
Part Verification	7
Traceability Management.....	7
Integration Capability	7
Business Benefits	8
Operational Benefits	8
Reduce Human Error	8
Increasing Production Throughput.....	8
Improve Product Traceability	8
Regulatory Compliance	8
Better Decision Making	8
Use Cases	9
Use Case 1: Automotive Components.....	9
Current Process	9
Proposed Process	9
Benefits.....	9
Use Case 2: Electronics Manufacturing.....	9
Current Process	9
Proposed Process	9
Benefits.....	9
Use Case 3: Food & Beverage	9
Current Process	9
Proposed Process	9
Benefits.....	9

Proposed Hardware & Software	10
Hardware (Depend on the customer requirement)	10
Software	10
Implementation Scope	11
Expected ROI	12
Tangible Benefits	12
Intangible Benefits.....	12
Conclusion.....	13

Executive Summary

Manufacturing, Retail and Warehouse organizations face increasing pressure to improve production efficiency, product traceability, quality compliance, and data accuracy. Many production processes still rely on manual recording of serial numbers, batch numbers, lot codes, part IDs, and product markings, which can lead to human errors, production delays, and incomplete traceability.

We propose implementing an OCR (Optical Character Recognition) Reading Solution that automatically captures and converts printed, engraved, laser-marked, or labeled information into digital data in real time. The solution integrates industrial cameras, OCR software, and Manufacturing Execution Systems (MES) or ERP systems to provide automated data collection and verification throughout the production process.

The solution will improve operational visibility, reduce manual labor, eliminate data entry errors, and support compliance requirements while enabling end-to-end product traceability.



Current Challenges

Common Manufacturing Issues

Operators manually key in serial numbers and lot information.

Human errors during data entry affect production records.

Missing or incorrect labels are detected too late.

Traceability investigations require significant effort.

Production reporting is not available in real time.

Quality inspections are highly dependent on manual checks.

Compliance audits require substantial paperwork and record verification.



Proposed Solution

OCR Reading System

The OCR Reading Solution utilizes industrial cameras positioned along the production line to capture product markings automatically. Or using mobile computer camera to capture directly the character and translate it to computer text.

The system can recognize:

Serial Numbers

Batch Numbers

Part IDs

Date Codes

Lot Numbers

Product Labels

Laser Marked Codes

Engraved Text

Expiry Dates

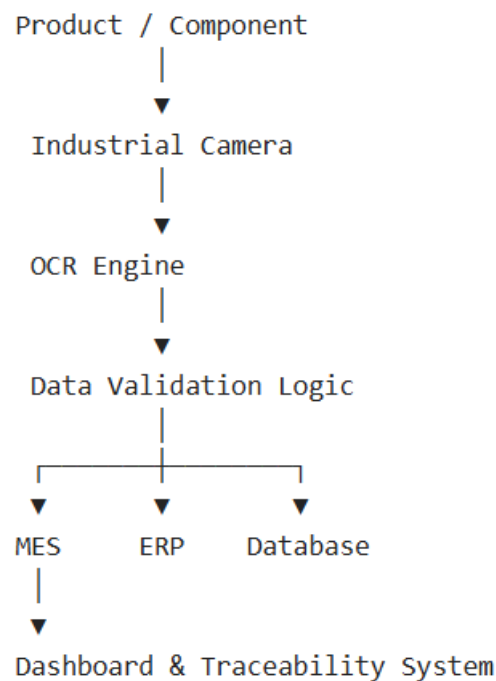
Captured information is immediately converted into machine-readable digital data and transmitted to the manufacturing database, MES, ERP, or production monitoring system.



Solution Architecture

AGen OCR Reading Solution captures product information automatically and converts it into digital records for real-time verification, traceability, and process monitoring. Industrial cameras installed along the production line capture serial numbers, batch codes, part IDs, expiry dates, or product markings. The OCR engine then extracts and converts the text into machine-readable data for validation and integration with business systems.

The captured data is automatically verified against production orders, quality requirements, or inventory records before being transmitted to MES, ERP, WMS, or traceability databases. This enables manufacturers to eliminate manual data entry, improve data accuracy, and gain real-time visibility into production and logistics operations while supporting product traceability and quality compliance.



Key Features

Automated Text Recognition

Reads printed and engraved characters automatically.

Supports labels, laser marking, and direct part marking.

Real-Time Data Capture

Captures data instantly during production.

Eliminates manual recording processes.

Part Verification

Confirms correct parts at each production station.

Prevents assembly mistakes.

Traceability Management

Creates complete genealogy records.

Enables backward and forward traceability.

Integration Capability

MES

ERP

Production Monitoring Systems

Quality Management Systems

Warehouse Management Systems

These capabilities align with industrial OCR applications for traceability, process verification, and quality control.

Business Benefits

Operational Benefits

Reduce Human Error

Eliminates manual typing mistakes.

Improves production data accuracy.

Increasing Production Throughput

Faster verification process.

Reduced operator workload.

Improve Product Traceability

Real-time product records.

Faster root-cause analysis.

Regulatory Compliance

Supports ISO, automotive, electronics, food, and pharmaceutical traceability requirements.

Better Decision Making

Real-time production information available for management review.

The OCR solution improves efficiency, accuracy, visibility, and compliance while reducing manual intervention.



Use Cases

Use Case 1: Automotive Components

Current Process

Operator manually records engine part serial numbers.

Proposed Process

OCR camera captures serial numbers automatically and validates against production orders.

Benefits

Zero manual entry

Improved traceability

Faster production reporting

Use Case 2: Electronics Manufacturing

Current Process

PCB labels are checked manually.

Proposed Process

OCR verifies product labels against MES work orders.

Benefits

Preventing wrong-board assembly

Improve quality inspection

Use Case 3: Food & Beverage

Current Process

Operators inspect expiry dates visually.

Proposed Process

OCR validates expiry dates and batch codes automatically.

Benefits

Improved compliance

Reduced packaging defects

Proposed Hardware & Software

Hardware (Depend on the customer requirement)

Industrial Smart Cameras

Industrial Lighting

Processing Computer (Android)

Industrial Network Switch

Operator Display Terminal

Software

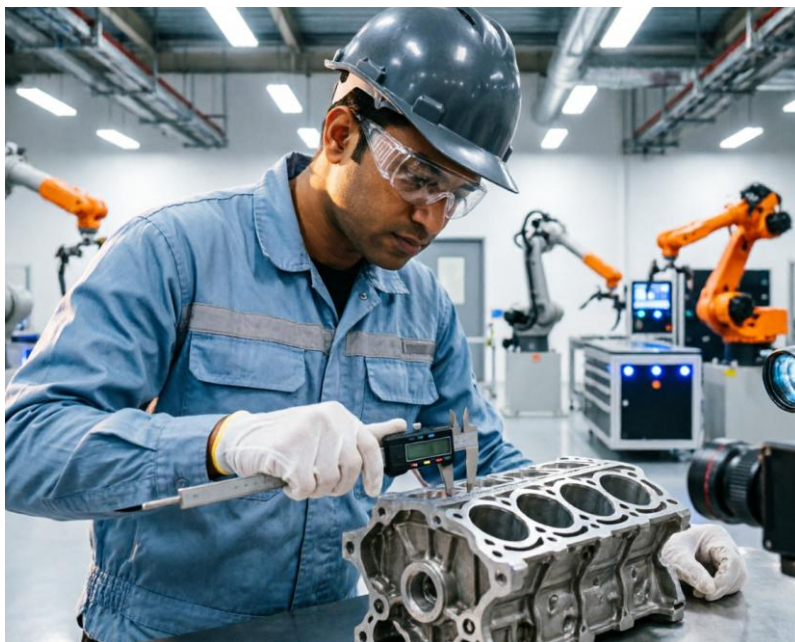
AGen OCR Recognition Engine

AGen Production Monitoring Dashboard

AGen Traceability Database

AGen Integration Middleware

AGen Reporting Module



Implementation Scope

Phase	Activity
Phase 1	Site Survey & Requirement Study
Phase 2	System Design
Phase 3	Hardware Installation
Phase 4	OCR Configuration & Training
Phase 5	MES/ERP Integration
Phase 6	User Acceptance Testing
Phase 7	Go-Live
Phase 8	Support & Maintenance



Expected ROI

Tangible Benefits

80-95% reduction in manual data entry

Improved traceability accuracy

Reduced production errors

Reduced quality incidents

Faster audit preparation

Increased production efficiency

Intangible Benefits

Improved customer confidence

Better operational visibility

Support Industry 4.0 initiatives

Enhanced digital transformation roadmap



Conclusion

The proposed AGen OCR Reading Solution provides a reliable and scalable platform for automating product identification, traceability, and quality verification across the manufacturing process. By converting product markings into real-time digital data, the organization can significantly reduce manual effort, improve accuracy, strengthen compliance, and gain better visibility into production operations. AGen solution serves as a key enabler for Industry 4.0 and smart factory initiatives.

