

WHAT IS OEE?

Overall Equipment Effectiveness (OEE) is a key performance metric used to measure how efficiently a machine or production system operates. It combines **Availability, Performance, and Quality** to evaluate actual output versus maximum possible output. A higher OEE indicates better productivity with minimal downtime, speed loss, and defects.

Availability

A

Availability is the ratio of actual run time to planned production time. It captures all unplanned stops, breakdowns, and machine idle conditions.

Formula:

$\text{Availability} = (\text{Run Time} / \text{Planned Production Time}) \times 100$

$\text{Run Time} = \text{Shift Time} - \text{Downtime}$

Performance

P

Performance measures how close a machine operates to its ideal cycle speed during actual running time. It highlights losses due to slow cycles, minor stops, or reduced operating speed.

Formula:

$\text{Performance} = (\text{Ideal Cycle Time} \times \text{Total Production}) / \text{Run Time} \times 100$

Quality

Q

Quality measures the ratio of good parts produced to the total parts started. It highlights losses due to defects, rejects, and rework.

Formula:

$\text{Quality} = (\text{Good Parts} / \text{Total Parts Produced}) \times 100$

OEE

OEE (Overall Equipment Effectiveness) measures overall manufacturing efficiency by combining Availability, Performance, and Quality.

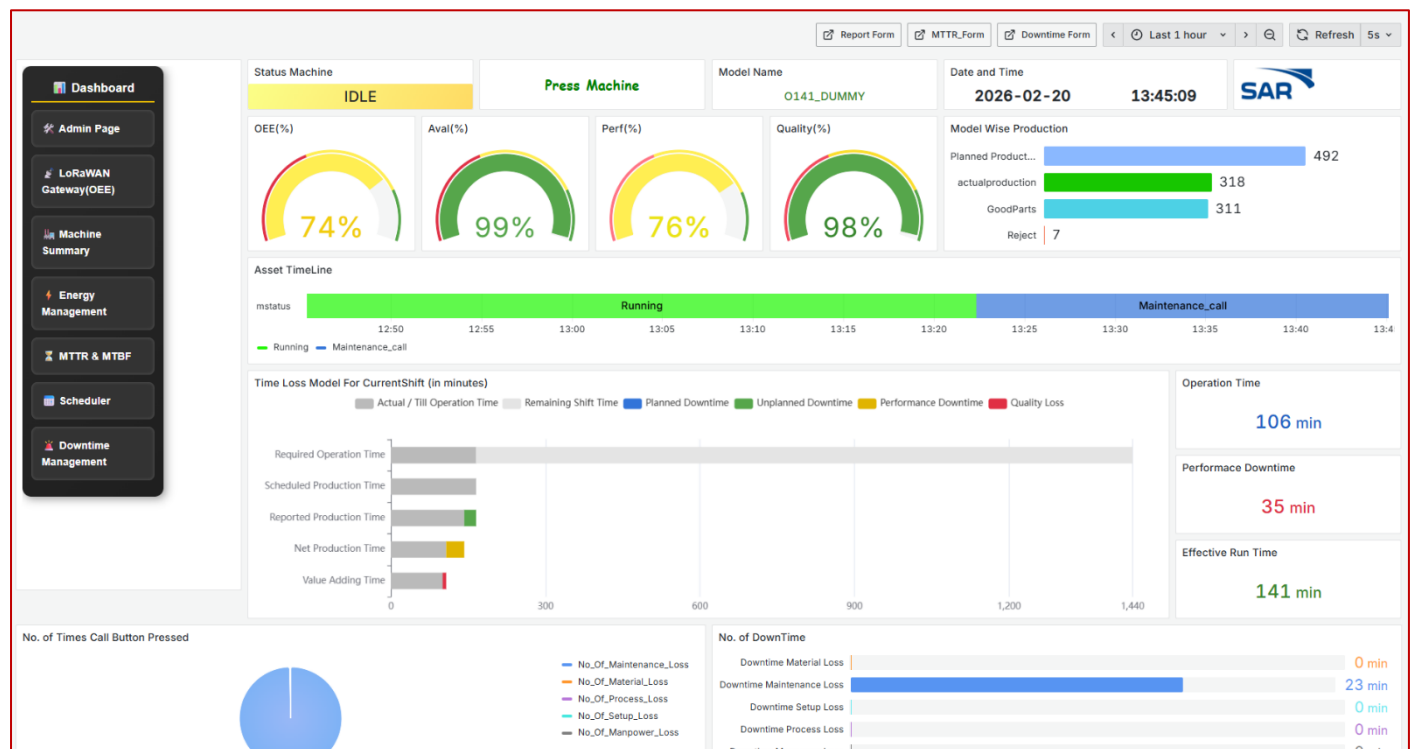
Formula:

$\text{OEE} = \text{Availability} (\%) \times \text{Performance} (\%) \times \text{Quality} (\%)$

PROBLEM & SOLUTION

The Challenge — and How SAR Solves It.

Problems	SAR OEE Solution
• No real-time visibility into machine downtime	• Live dashboard with classified downtime data
• Manual data collection — slow & error-prone	• Automated IoT data capture via LoRaWAN
• Unplanned breakdowns halt production lines	• Instant SMS/email alerts on threshold breach
• No OEE score or production trending data	• Real-time OEE, MTTR & MTBF analytics
• Reactive maintenance raises repair costs	• Predictive insights to prevent breakdowns



Live OEE Dashboard — Real-time machine monitoring | SAR Platform

KEY FEATURES

KEY FEATURES Smarter Monitoring. Faster Decisions.

Real-Time OEE Dashboard

Monitor **Availability**, **Performance**, and **Quality** KPIs in real time with auto-refreshing visual displays.

Enables quick identification of losses, downtime, and performance gaps for faster decision-making.

Asset Timeline Visualization

Visualizes machine states such as **Running**, **Idle**, and **Maintenance** along a continuous time-axis for each shift.

Provides clear insights into operational patterns, downtime distribution, and shift-wise performance analysis.

Downtime Classification

Automatically categorizes downtime into **Material, Maintenance, Process, Setup, and Manpower** losses.

Enables detailed analysis of loss patterns to support targeted improvements and efficient decision-making.

Customized Alarm Thresholds

Set machine-specific alert limits to monitor critical parameters effectively.

Receive instant notifications via **email** when defined thresholds are exceeded, enabling quick response and issue resolution.

Model-Wise Production Tracking

Track **Planned, Actual, Good Parts, and Rejects** for each production model in real time.

Provides clear visibility into model-wise performance, enabling better planning, quality control, and production optimization.

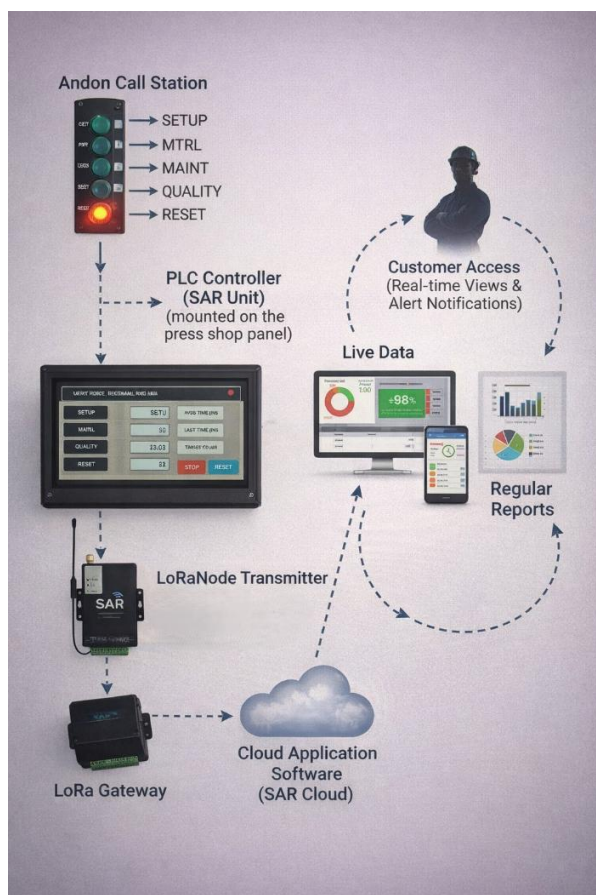
MTTR & MTBF Analytics

Calculate **MTTR** and **MTBF** to measure equipment reliability and maintenance efficiency.

Supports predictive maintenance by identifying failure patterns and reducing downtime.

HOW IT WORKS

End-to-End OEE Monitoring Architecture



1. Sensors & PLCs

IoT sensors and PLCs capture machine state, counts & cycle times continuously.

2. LoRaWAN Gateway

Wireless LoRaWAN transmits data to cloud — zero cabling needed.

3. Cloud Processing

OEE computed real-time; downtime classified; alarms evaluated instantly.

4. Live Dashboard

Web dashboard shows KPIs, timelines and shift reports from anywhere.

5. Alerts & Actions

Automated SMS/email alerts notify teams the moment a threshold is crossed.

OEE METRICS

What the Dashboard Tracks in Real-Time

Metric	Description	Benchmark
OEE (%)	Combined effectiveness score	> 85% World Class
Availability (%)	Actual run time / Planned production time	> 90%
Performance (%)	Actual speed / Ideal designed speed	> 95%
Quality (%)	Good parts / Total parts produced	> 99%
MTTR (min)	Mean Time to Repair after failure	Minimize
MTBF (hrs)	Mean Time Between Failures	Maximize
Downtime Loss	Material / Maintenance / Process / Setup	Track & Reduce

Why Choose SAR OEE Monitoring?

- 1.Reduce unplanned downtime up to 30%.
- 2.Boost production throughput & efficiency.
- 3.Wireless LoRaWAN — easy to deploy.
- 4.Cloud-based — access reports anywhere.
- 5.Custom alarms & instant notifications.
- 6.Actionable MTTR & MTBF insights.

Ready to Maximize Your OEE?

Visit: www.sar-btpc.com