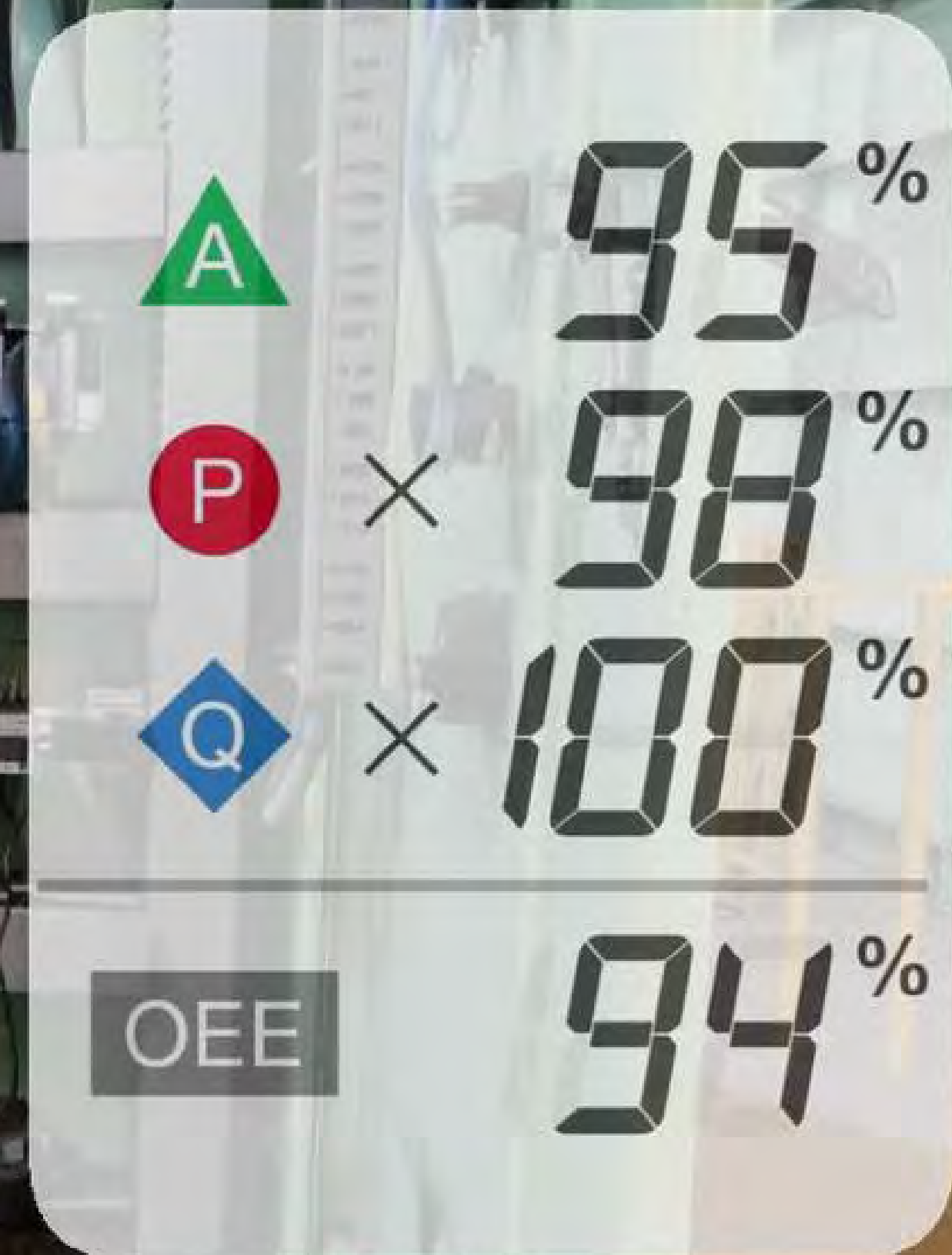


# PABRIK PINTAR

Increase factory productivity and efficiency by OEE and critical process parameters



# News and Event



## Pameran IoT: IndonesianIsMe Summit 2019

IndonesianIsMe Summit 2019 yang digelar selama dua hari (13-14 Agustus 2019) dan berlokasi di Jakarta Convention Center (JCC). mencakup 5 sesi forum diskusi yang mempertemukan stakeholder industri teknologi.

Dalam pameran ini, ada 35 booth produk dalam negeri yang berbasis pada teknologi dalam satu pameran. Mencakup produk manufaktur, Internet of Thing (IoT), Artificial Intelligence (AI), hingga Kendaraan Berbasis Listrik (KBL).

Tujuan acara ini adalah ingin mempertemukan antara pemerintah sebagai regulator, pengusaha sebagai inovator, dan masyarakat lewat forum diskusi.

video: <https://www.instagram.com/stories/highlights/17851379281521948/>



video: <https://www.instagram.com/stories/highlights/17980613764278236/>



## Pameran Palm Oil Mill: SNPI 2022



## Seminar IoT:

## IoT Conference Mitratel 2019



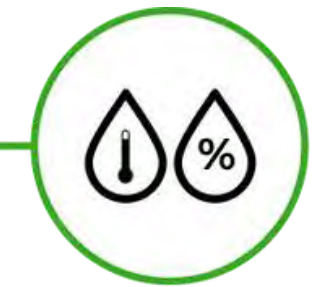
# PabrikPintar Solution

Digitalisasi pabrik memiliki manfaat peningkatan produktivitas, pemenuhan target produksi, dan efisiensi biaya produksi. PabrikPintar menggunakan *IoT gateway dan sensornodes* untuk mengambil data dari sensor, PLC, OPC server, ataupun sumber data lain di pabrik.



## Production Management

- Product quantity check
- Connection to other system



## Environmental Management

- Work site data management
- Production condition. environmental data linkage analysis



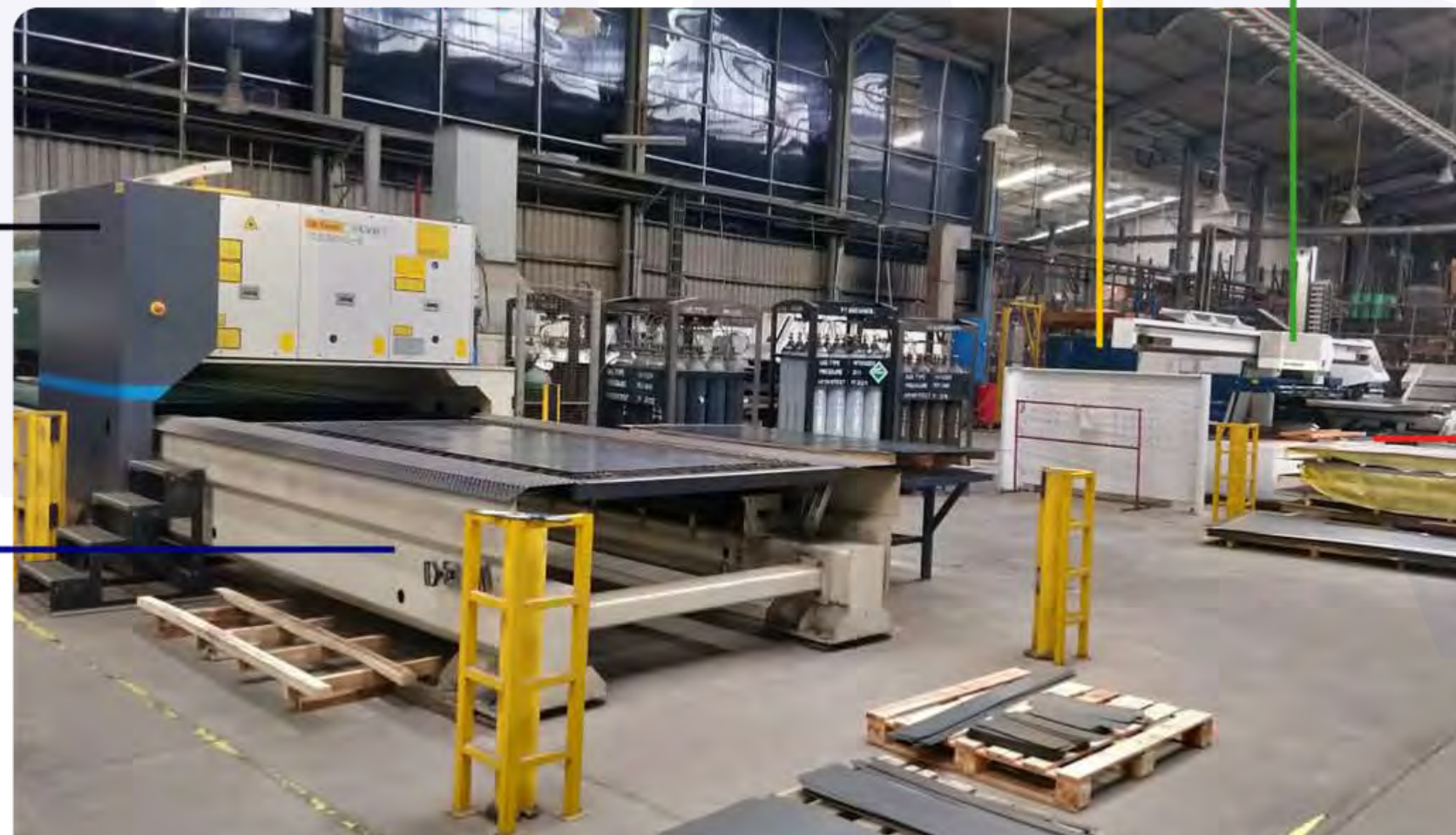
## Quality Management

- Product status check
- Quality change cause visualization
- Risk alarm



## Facility Management

- Operation status data collection/ analysis
- Problem forecast
- Lifecycle management

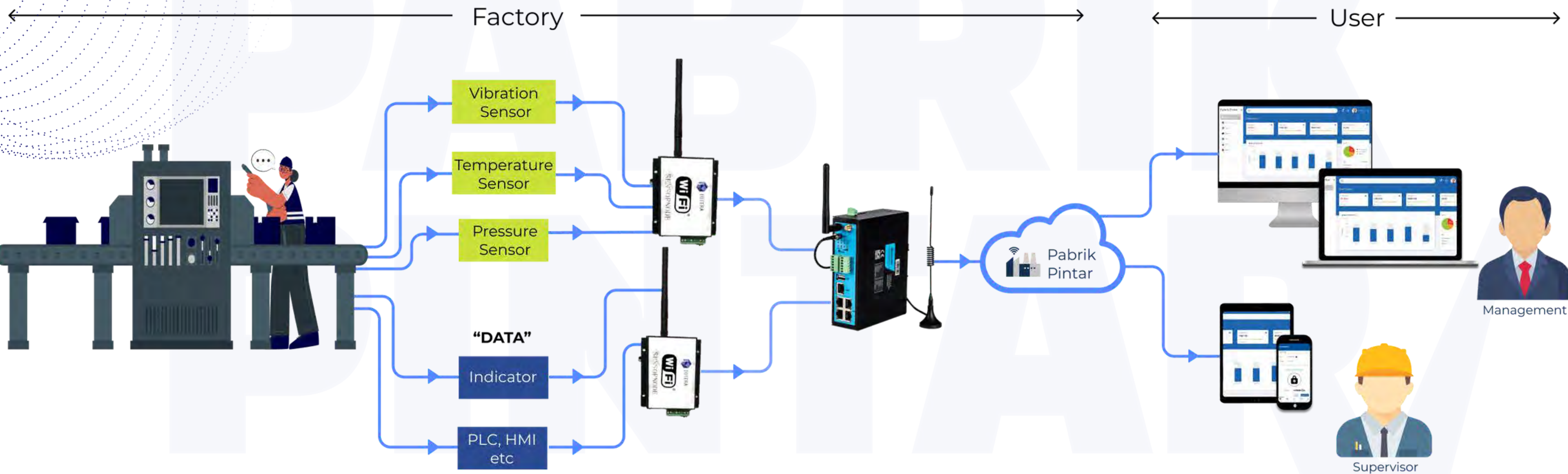


## Energy Management

Electricity consumption amount for each facility, line, and the whole factory

# Sistem Diagram

*Pengambilan data dari existing device mudah dilakukan*



Seluruh data terintegrasi dan digunakan untuk menampilkan parameter proses produksi, mengukur OEE secara real-time. Manajemen dan tim operasional pabrik dapat fokus melaksanakan kebijakan dengan tepat untuk mengoptimalkan kualitas dan kuantitas produksi.



# Produk

Seluruh perangkat telah teruji Industrial Grade, dalam kondisi ekstrim (suhu > 50C, kontaminan debu pekat, dan vibrasi tinggi)



## INDUSTRIAL IOT SENSOR

- Telah 10+ tahun berpengalaman dengan industrial electricity, tank level, thermocouple, pressure, dan berbagai sensor lainnya
- Mudah dipasang pada semua jenis mesin produksi
- Omron, Schneider Electric, EndressHauser, MettlerToledo, Mitra di Indonesia

## IOTERA SENSORNODE

- Mengumpulkan data dari mesin dan sensor via RS485/232, analog (0-10V, 4-20mA), digital I/O
- Communication network: 4G, WiFi, ETH, LoRaWAN, etc
- Sudah termasuk battery backup dan local data backup
- Dibuat di Indonesia dengan International industrial standards

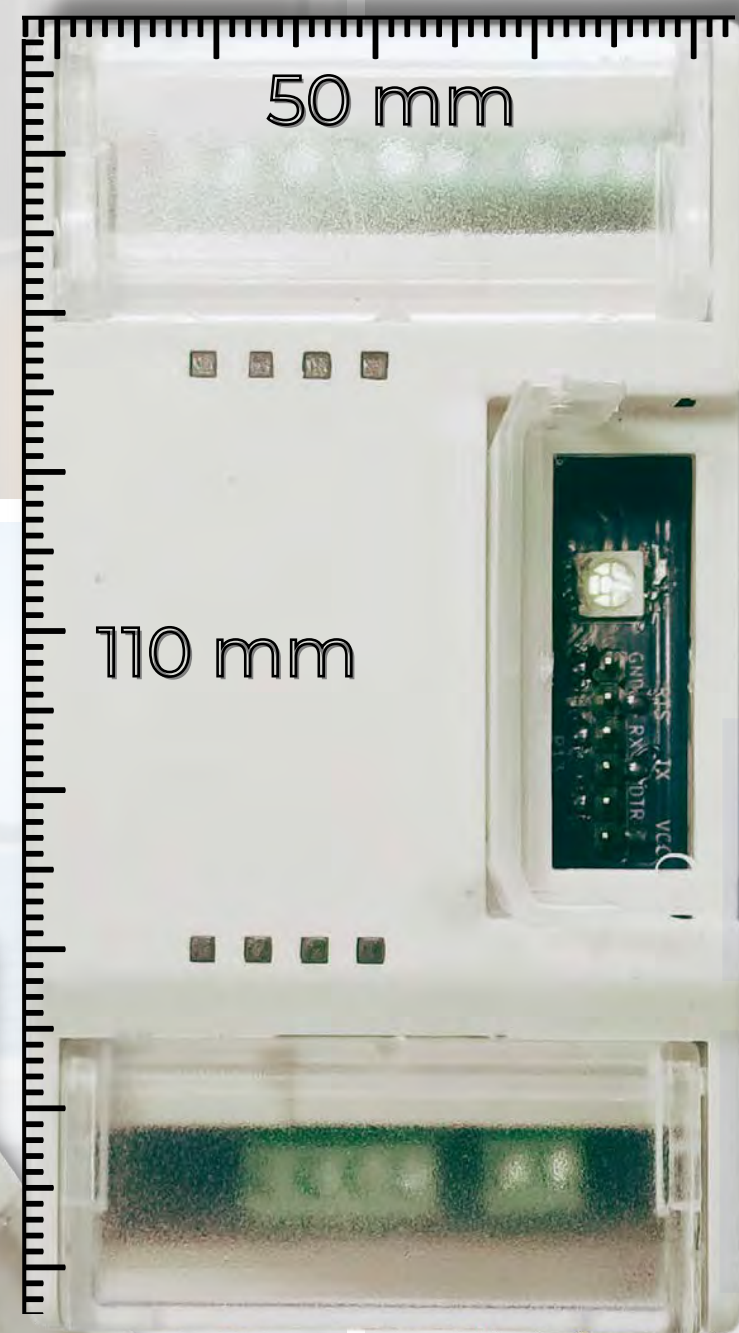
## IOTERA GATEWAY

- Mengambil data secara real-time dengan aman ( ke OPC server, existing PLC, and RS-485/232)
- Mendukung akses jarak jauh dan local data backup
- Communication network: 4G, Wifi, ETH, LoRaWAN, etc
- Dikembangkan di Indonesia dengan International industrial standards



# Iotera Sensornode

Berbasis ESP32 dan didesain untuk kondisi high temperature, outdoor dengan tingkat polusi debu. Iotera Sensornode terbukti tahan bertahun-tahun 24/7 mengambil data sensor di lapangan minyak, pabrik alat berat, hingga kapal ikan di tengah laut Indonesia.



Item	Fitur
Software / Firmware	<ul style="list-style-type: none"><li>• WiFi uplink ke IoT server / BLE untuk set up SSID &amp; password</li><li>• Automatic data backup up to 30 hari</li><li>• Configurable via IoT server: aktivasi IO, koneksi ke sensor RS485 / PLC, dst</li><li>• Remote log capture untuk troubleshooting</li></ul>
CPU & Connectivity	<ul style="list-style-type: none"><li>• ESP32 WROOM 32U dengan Iotera Software / Firmware</li><li>• IEEE 802.11 b/g/n WiFi 4 @ 2.4 GHz up to 150 Mbps; station mode only</li><li>• Bluetooth 4.2 LE</li></ul>
Power	<ul style="list-style-type: none"><li>• Input 5V DC (perlu power supply terpisah; disarankan merk Mean Well)</li><li>• Battery backup 2x 18650 total 3000 mAh (up to 7 days backup time)</li></ul>
Interfaces & Dimension	<ul style="list-style-type: none"><li>• 2x Isolated analog input (0-10V / 0-20mA)</li><li>• 3x Isolated digital Input (open collector / level 5-30V / dry contact)</li><li>• 1x Relay output (max 5A @220V AC) - perlu contactor ke beban</li><li>• RS485 / RS232 - Configurable via IoT Server</li><li>• 110x65x50mm</li></ul>



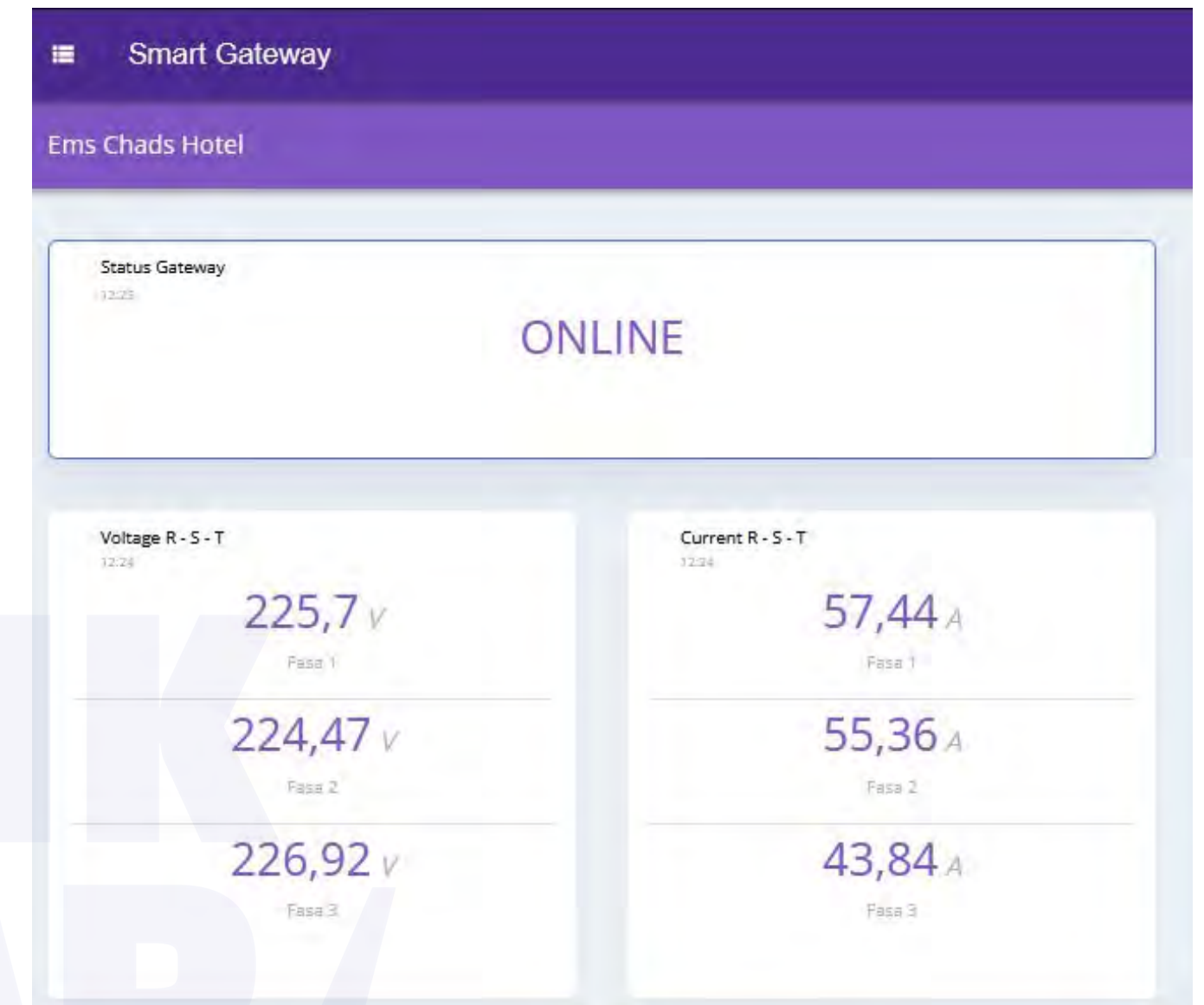
# Configurable SensorNode & Gateway

Seluruh perangkat IoT kami bisa diconfigure via IoT server. Tidak perlu teknisi datang ke site untuk upgrade program. Troubleshooting awal pun dapat dilakukan secara remote. tidak langsung mengunjungi site.

Cis V2 Esp32u  
dea6680e-0e07-4239-acee-6a9f5f626436

sensor	configtype	param	datatype	subparam	value	last updated	action
MODBUS_1	config	@calibration	object	Turbidity : text Temperature : text Ph : text	Turbidity : 500-(((value)/4095)*10)/5*500 Temperature : (((value) / 4095) * 10) / 3.1*125 Ph : (((value) / 4095) * 10) / 3.1*10	17:43:44, 20 Feb '23	...
MODBUS_1	command	@request	boolean	-	-	-	...
MODBUS_1	config	@sampling	number	-	60	10:28:08, 24 Feb '23	...
MODBUS_1	config	@sampling	object	Turbidity : number Temperature : number Ph : number	Turbidity : 244.57 Temperature : 27.57 Ph : 7.16	08:05:50, 03 Mar '23	...

REMOTE CONFIGURE



```
INFO :: _main_ :: [2023-01-25 02:28:30.456574][MQTT][DATA] Published OK
INFO :: _main_ :: [2023-01-25 02:32:01.653414][IOT] Start IOTERA DEVICE
INFO :: mqtt.mqtt :: [MQTT] Connect to broker failed, retrying ...
INFO :: mqtt.mqtt :: [MQTT] [Errno -2] Name or service not known
INFO :: mqtt.mqtt :: [MQTT] Connect to broker failed, retrying ...
INFO :: mqtt.mqtt :: [MQTT] [Errno -2] Name or service not known
INFO :: mqtt.mqtt :: [MQTT] Connect to broker failed, retrying ...
INFO :: mqtt.mqtt :: [MQTT] [Errno -2] Name or service not known
INFO :: mqtt.mqtt :: [MQTT] Connect to broker failed, retrying ...
INFO :: mqtt.mqtt :: [MQTT] [Errno -2] Name or service not known
INFO :: mqtt.mqtt :: [MQTT] Connect to broker failed, retrying ...
INFO :: mqtt.mqtt :: [MQTT] [Errno -2] Name or service not known
INFO :: mqtt.mqtt :: [MQTT] Connect to broker success
INFO :: _main_ :: [2023-01-25 02:32:33.386007][MQTT] Starting...
INFO :: mqtt.mqtt :: [MQTT] setting app_dev_id success
INFO :: _main_ :: [2023-01-25 02:32:33.408472][MQTT] Connected OK
INFO :: _main_ :: [2023-01-25 02:32:34.424036][BAKCUPDB] Empty BackupDB
INFO :: _main_ :: [2023-01-25 02:32:38.859357][DEVICE_INFO] create device info successful!
INFO :: _main_ :: [2023-01-25 02:32:41.525968][MQTT] Payload : {'result': 0, 'id': '005224600c3c', 'application_id': '1000000242', 'device_id': '9d3cf64e-b098-4864-b068-4446d93ac055'}
INFO :: _main_ :: [2023-01-25 02:32:41.528429][MQTT] Topic : id_query_result
WARNING :: _main_ :: [2023-01-25 02:33:43.937233][MQTT] Stopping Thread
WARNING :: _main_ :: [2023-01-25 02:33:43.940736][MQTT] Disconnecting reason 16
WARNING :: _main_ :: [2023-01-25 02:33:43.943426][MQTT] Stopping Thread
WARNING :: _main_ :: [2023-01-25 02:33:43.947452][MQTT] Disconnecting reason 16
INFO :: _main_ :: [2023-01-25 02:33:59.468926][MQTT] Starting...
INFO :: _main_ :: [2023-01-25 02:33:59.474440][MQTT] Connected OK
INFO :: _main_ :: [2023-01-25 02:34:00.493033][BAKCUPDB] Empty BackupDB
INFO :: _main_ :: [2023-01-25 02:34:30.981227][MQTT][DATA] Published OK
INFO :: _main_ :: [2023-01-25 02:34:31.820121][MQTT] Payload : {'id': '9f0ba7e9-997b-4539-a8aa-337367e2685c', 'type': 'PORT_FORWARDING', 'enable': False}
INFO :: _main_ :: [2023-01-25 02:34:31.823471][MQTT] Topic : remote_connection
INFO :: cmd.remote_connection :: [REMOTE] remote PORT FORWARDING disable
INFO :: _main_ :: [2023-01-25 02:34:43.960749][MQTT] Payload : {'local_port': 55522, 'password': 'aagcphjbrvxdgn1', 'local_host': 'localhost', 'use_rname': '55811', 'port': 55522, 'enable': True, 'remote_port': 55811, 'id': '446fcd8e-7184-4f27-af67-b99a8f6ef0b9', 'timeout': 10000, 'type': 'PORT_FORWARDING', 'host': 'remote.iotera.io'}
INFO :: _main_ :: [2023-01-25 02:34:43.964664][MQTT] Topic : remote_connection
```

REMOTE TROUBLESHOOT



# Aplikasi

Dengan platform analitik kami, data yang dihasilkan dari sensor akan lebih mudah dimengerti



Integrated Dashboard



Real-time Remote Monitoring



Alert and Notification



API integrated



# Use case - furniture

## Applied Sensors

- machine temperature
- machine status
- conveyor speed
- product counter
- product weight

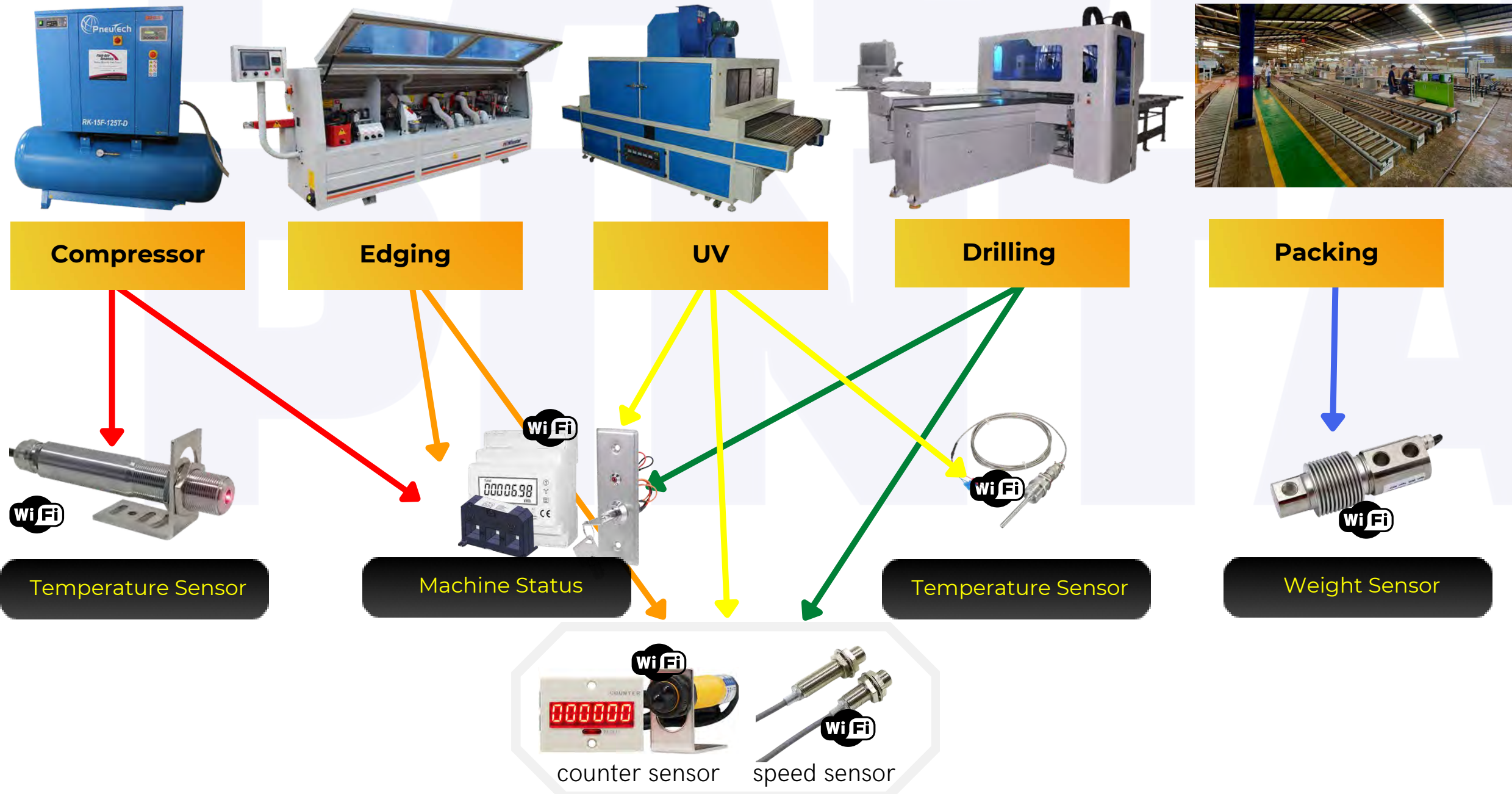
## Customer Needs

Monitor machine status and parameter with automatic data logging

## Effects

Maximize use of the machine with best productivity rate > increase productivity up to 150% and decrease downtime

## Platform Data



The dashboard displays the following data points:

- Map: Shows the location of the machine on a map.
- Status: Online
- Latitude Degree: -6,47°
- Battery: 3,98
- IP: 0
- Longitude Degree: 108,44°
- Heading Degree: 140,63°
- Last report: Failed
- WiFi: In Trip

# Use case - shoes

## Applied Sensors

- counter
- power meter
- motion vibration
- temp + humid

## Customer Needs

Monitor machine parameter and product counter with automatic data logging

## Effects

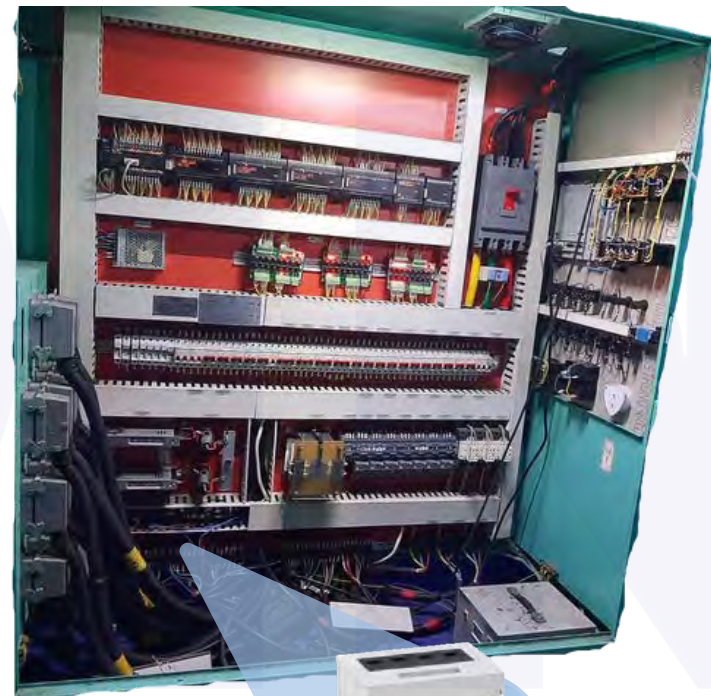
Boost efficiency machine, reduce 90% quality loss.

## Platform Data

Counter Machine

Control Panel

Production Machine



Counter Sensor

Power Meter

Motion Vibration Sensor

Temp + Humid Sensor

**Pabrik Jakarta**

26 Counter  
1 Status, in production

5 Alerts this month  
3% decrease from last month

95% SLA maintained  
5% increase from last month

Laporan Bulanan

Semua laporan

Bulan	Status	Download
Maret 2021	99.5% completeness	
February 2021	82.5% completeness	
January 2021	90.2% completeness	
December 2020	88.9% completeness	
November 2020	92.1% completeness	

Ticket System

Tampilkan Ticket sejak 2 January 2021

Nomor Ticket	Status	Aksi
BOPP#6-F/03/001	Need confirmation	Approve
BOPE#2-R/03/001	Need confirmation	Approve
BOPET#1-F/02/005	Parts procurement	Limit
BOPP#4-F/02/003	On-site maintenance	Limit
BOPP#5-R/01/002	Finished	

Penggunaan / Produktivitas Mesin

Sootblower Online: Maint: Offline: 21

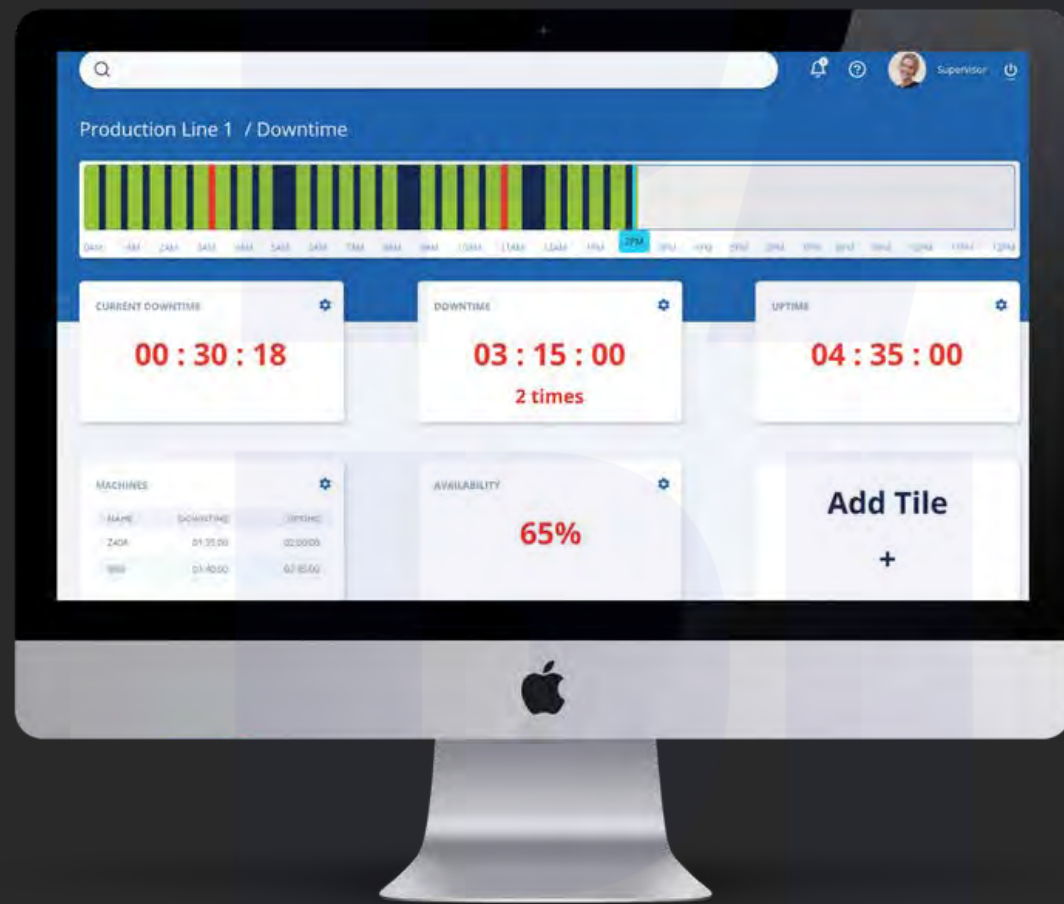
All machines 60% 100% 15%

Offline 60%





# Process Parameter Monitoring



pabrikpintar.com | 2022



## Process Monitoring

Integrasi sensor existing, upgrade sensor analog, atau integrasi data dari PLC / OPC server.

Kini data tekanan, suhu, konsumsi listrik, kandungan kimia di sepanjang proses produksi dapat dimonitor otomatis.

Tim Anda fokus memahami data dan mengambil kebijakan, jika sibuk mencatat bacaan dari sensor konvensional.



# Use case - pharmacy

## Applied Sensors

- Water flow
- Ozone
- Hardness
- Pressure
- Conductivity
- Level caustic
- Tank level

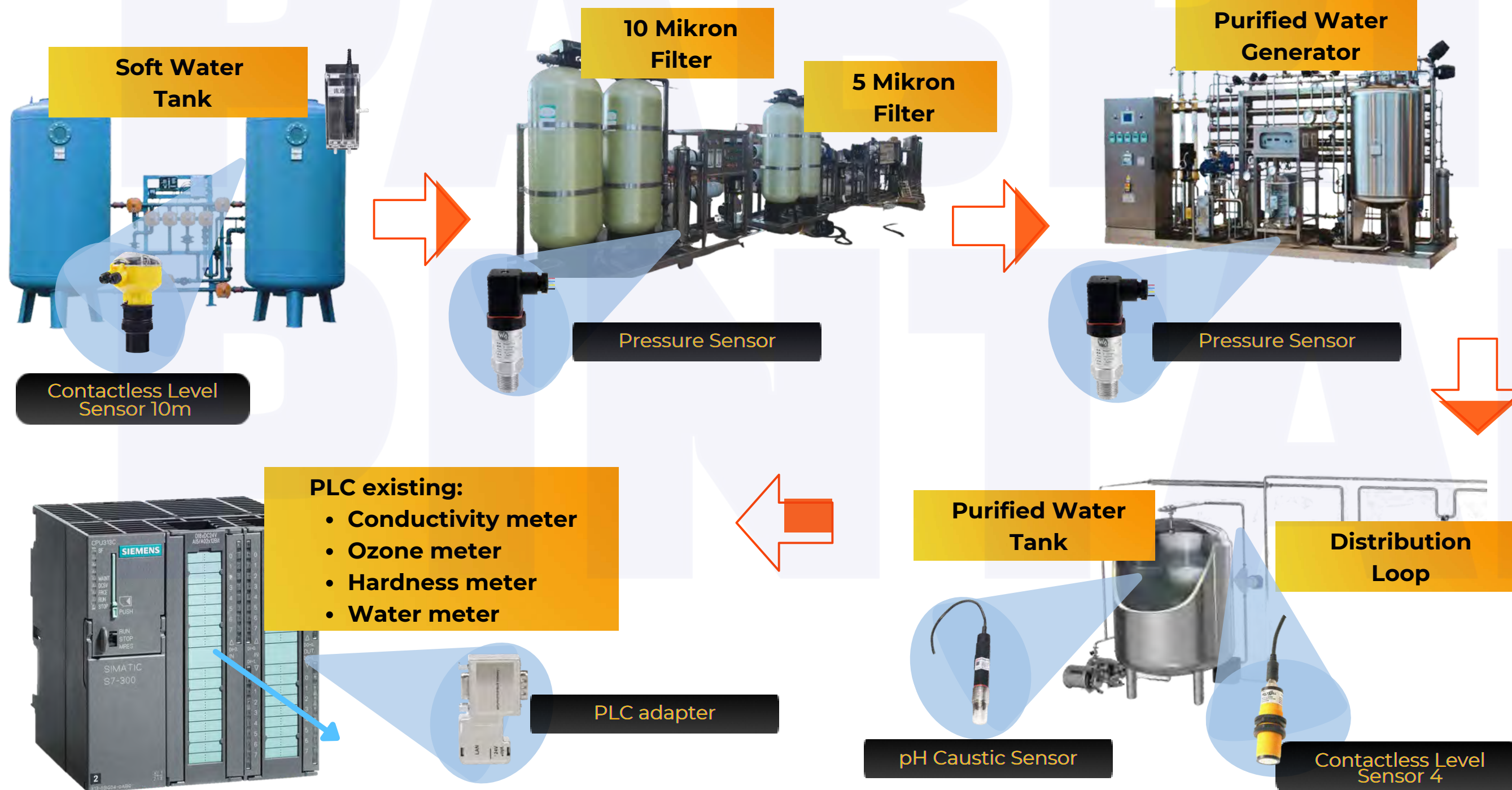
## Customer Needs

- Monitor purified water processing with realtime alert when issue found and auto data logging

## Effects

- Production process always monitored on standard procedure > optimize production quality & and digitize data log

## Platform Data



# Use case - metal cast

## Applied Sensors

- Temperature
- RST CT
- Air flow

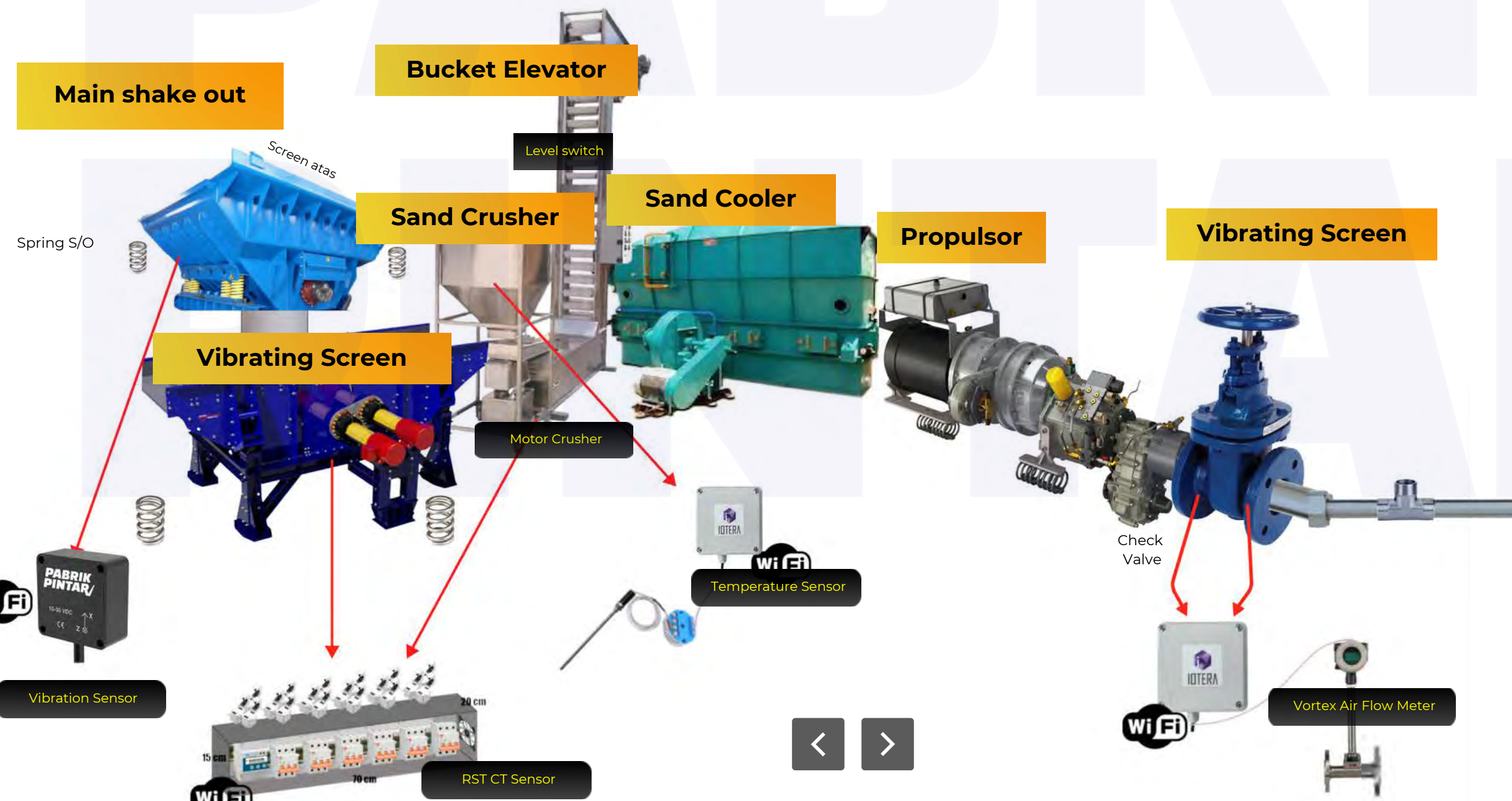
## Customer Needs

Notification when anomaly, give maintenance time suggestion

## Effects

Uptime increased and best maintenance procedure > optimization productivity process with lower energy consumption

## Platform Data



### Electrical Status

R	S	T
27 A	8.1 A	22 A
206 v	219 v	198 v

### Power Status

221.5 kWh

R	S	T
196.9 kWh	199.8 kWh	206 kWh

### Alert

**CRITICAL 3** **MAJOR 1** **MINOR**

- ⚠ The Power Usage of Vibration Conveyor Timur is above the threshold
- ⚠ The Voltage of Sand Crusher Barat is above the threshold
- ⚠ The Status of Vibration Conveyor Barat is off



# Work with us



## WEBSITE

[pabrikpintar.com](http://pabrikpintar.com)



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