



CTC SMART TECH / PLANT OPERATIONS

From equipment signals to maintenance action.

A design case study based on the Industrial IoT and CPSSmart profile: monitoring measurement points, verifying alerts, assigning maintenance and closing the loop.



01 / PROBLEM & FLOW

Every step has an input. Every decision has a basis.

Collect

Log timestamp, equipment, measurement point and signal quality.

Assign

Create an inspection request for the right technician.

Verify

Operations receives the alert and checks data reliability.



02 / EVIDENCE SCOPE

From existing sources to proposed design.

IoT/CPSmart capability documentation exists; the dashboards, assistant and apps in this kit are design prototypes not connected to real equipment.

Source

CTC Smart Tech Industrial IoT & CPSmart capability profile

Scope

No real sensor connection, no machine-operation instructions, no PLC/SCADA writes.



UI / PROPOSED PROTOTYPE

Plant Operations workspace

CTC SMART TECH

Case study / CTC Smart Tech

Plant Operations
Role-based business workspace.

System overview

Operator

Maintenance technician

Plant manager

Business assistant

PROPOSED PROTOTYPE
Synthetic data, no real customer or employee information.
Not connected to production systems.

CTC Plant Operations

PROTOTYPE

SOURCED WORK PEOPLE DECIDE

From equipment signals to maintenance action.

Industrial IoT - Plant Operations

03

Illustrative measurement points

01

Alert to verify

00

Equipment control commands

Work queue

synthetic data

Equipment	Measurement point	Sample signal	Status
DEMO-PUMP-01	Temperature	78 °C / sample threshold 75 °C	Awaiting confirmation
DEMO-MOTOR-02	Connection state	Illustrative data ready	Monitoring
DEMO-METER-03	Power	Metering cycle to reconcile	Monitoring

Open sample record

Flow by role

1 Operator

Review alerts and measurement-point quality.

2 Maintenance technician

Receive the assigned work order.

3 Plant manager

Track handling status and owners.

Decisions have an owner

No real sensor connection, no machine-operation instructions, no PLC/SCADA writes.

Sources & versions

SENSOR-DEMO v1
Simulated point: 78 °C with an illustrative 75 °C threshold. Not a recommended threshold for real equipment.

WORK-DEMO v1
Sample work order; on-site verification follows the plant-approved maintenance procedure.

POLICY-DEMO-OT
The prototype only tracks state; no PLC/SCADA connection and no control commands.

Prototype session log

Prototype dashboard with simulated records; states and process follow the solution design.

CTC SMART TECH / SOLUTION BRIEF / 2026

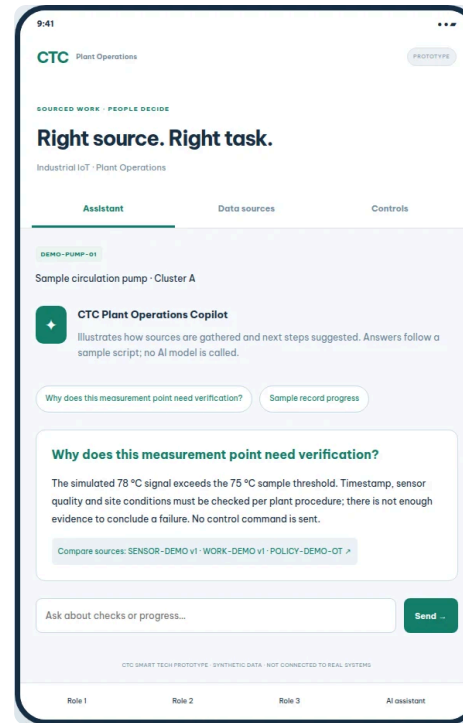
04 / 18



UI / PROPOSED PROTOTYPE

Plant Operations assistant

CTC SMART TECH



Why does this measurement point need verification? Sourced simulated scenario; no LLM call.



BUSINESS FLOW

Work handed over through one record.

01

Awaiting confirmation

03

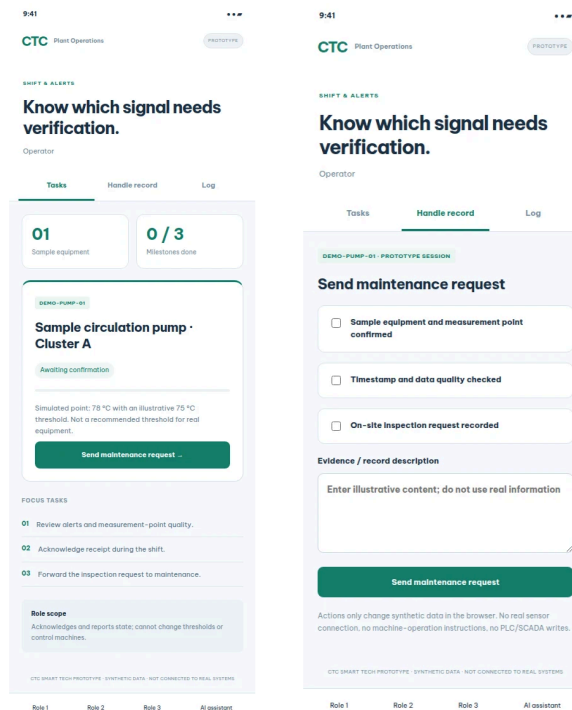
Awaiting close approval

02

Awaiting maintenance

04

Sample alert closed



Proposed prototype · synthetic data · not connected to real systems



WORK / SHIFT & ALERTS

Focus on the work that needs handling.

01

Review alerts and measurement-point quality.

03

Forward the inspection request to maintenance.

02

Acknowledge receipt during the shift.



APP / FIELD WORK

Maintenance technician

CTC SMART TECH

9:41

CTC Plant Operations

PROTOTYPE

FIELD WORK

Inspections with a checklist and a result.

Maintenance technician

TasksHandle recordLog

01

Sample equipment

0 / 3

Milestones done

DEMO-PUMP-01

Sample circulation pump · Cluster A

Awaiting confirmation

Simulated point: 78 °C with an illustrative 75 °C threshold. Not a recommended threshold for real equipment.

Submit maintenance result

FOCUS TASKS

01

Receive the assigned work order.

02

Confirm the inspection per the on-site procedure.

03

Record the result and hand over for manager review.

Role scope

Assigned work only. Cannot close alerts before approval.

CTC SMART TECH PROTOTYPE · SYNTHETIC DATA · NOT CONNECTED TO REAL SYSTEMS

Role 1Role 2Role 3AI assistant

9:41

CTC Plant Operations

PROTOTYPE

FIELD WORK

Inspections with a checklist and a result.

Maintenance technician

TasksHandle recordLog

DEMO-PUMP-01 · PROTOTYPE SESSION

Submit maintenance result

Evidence / record submitted

No input yet from Operator.

On-site verification result

Record the sample inspection result and the basis for closing the alert

☐ Sources and basis checked before sending

Submit maintenance result

Actions only change synthetic data in the browser. No real sensor connection, no machine-operation instructions, no PLC/SCADA writes.

CTC SMART TECH PROTOTYPE · SYNTHETIC DATA · NOT CONNECTED TO REAL SYSTEMS

Role 1Role 2Role 3AI assistant

Proposed prototype · synthetic data · not connected to real systems



WORK / FIELD WORK

Focus on the work that needs handling.

01

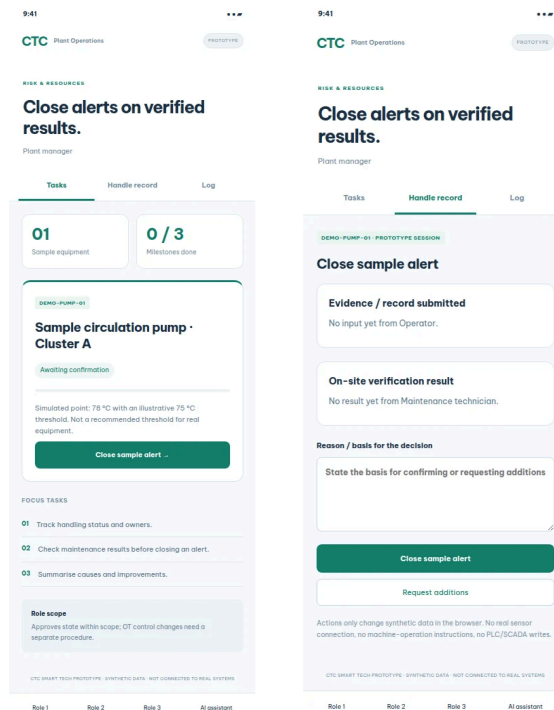
Receive the assigned work order.

03

Record the result and hand over for manager review.

02

Confirm the inspection per the on-site procedure.



Proposed prototype · synthetic data · not connected to real systems



WORK / RISK & RESOURCES

Focus on the work that needs handling.

01

Track handling status and owners.

03

Summarise causes and improvements.

02

Check maintenance results before closing an alert.



PROPOSED ARCHITECTURE

Role-based apps. Shared business data.

Experience

Admin workspace, mobile apps and assistant access the same record code.

Data

Versioned sources, source-system integration and sync.

Platform

Permissioned APIs, business services and change logs.



SOURCES & ASSISTANT

Compare sources before concluding.

SENSOR-DEMO v1

Simulated point: 78 °C with an illustrative 75 °C threshold. Not a recommended threshold for real equipment.

POLICY-DEMO-OT

The prototype only tracks state; no PLC/SCADA connection and no control commands.

WORK-DEMO v1

Sample work order; on-site verification follows the plant-approved maintenance procedure.



RIGHTS & ACCOUNTABILITY

Approval tied to the accountable person.

Operator

Acknowledges and reports state; cannot change thresholds or control machines.

Plant manager

Approves state within scope; OT control changes need a separate procedure.

Maintenance technician

Assigned work only. Cannot close alerts before approval.



PILOT ROADMAP

Try in a small scope. Measure before scaling.

01

Survey measurement points, protocols and the OT/IT boundary.

03

Run trial alerts; cross-check with operations/maintenance.

02

Connect read-only; check timestamps, missing data and buffering.

04

Accept the confirm-handle-close loop and recovery capability.



ACCEPTANCE

Prove it with scenarios and data.

01

Alerts store source, time and measurement-point quality.

03

Delayed / disconnected data shows the correct state.

02

No closing without an inspection result.

04

The monitoring flow never generates control commands.



NEXT STEP

Define the priority problem together.

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Case study

solutions.smarttechctc.io/case-study/iot-operations/

Pilot

Fix scope, data sources, owners and acceptance criteria.