



"For a livable future
of our children"

A young child is running through a field of tall, golden-brown grass. The child is wearing a red and black plaid shirt and dark pants. They are holding a string attached to a kite that is flying in the sky. The background shows rolling hills under a bright, hazy sky, suggesting a warm, sunny day.

REDWAVE *mate*
**Smart intelligence for the recycling
industry**

Welcome to a new digital World



Vision

Wir liefern **profitable und intelligente Lösungen für die Abfallaufbereitung zur Schonung und Nutzung von Ressourcen**. Wir tragen dazu bei, dass unsere Kunden Vorreiter in der Recyclingindustrie sind und übernehmen Verantwortung für eine effiziente Kreislaufwirtschaft. Für eine lebenswerte Zukunft unserer Kinder!

Unsere Mission als innovativer Anbieter von intelligenten Sortierlösungen ist es, den Recyclingalltag unserer Kunden so effizient und einfach wie möglich zu gestalten durch modernste Technologien, Expertenwissen und partnerschaftliche Zusammenarbeit vor, während und nach der Projektrealisierung.



Mission

A large industrial sorting machine with a red and black frame and a blue conveyor belt. The word "TECHNOLOGY" is overlaid in large white letters.

TECHNOLOGY

> 500
projects / plants

> 1,000
sorting machines

4
subsidiaries

~ 96%
export

~ € 55
million turnover p.a.

~ 120
employees in A

1997
founding year

HEADQUARTERS: AUSTRIA | SUBSIDIARIES: ■ GERMANY ■ USA ■ CHINA ■ SINGAPORE



COMPANY
Anniversary
2022

20 YEARS

SORTING TECHNOLOGY |

SENSOR BASED SORTING MACHINES

25 YEARS

PLANT BUILDING |

RECYCLING | WASTE | MINING

250 YEARS

Company Group **EXPERIENCE**

BT-Group | BT-Wolfgang Binder | BT-Anlagenbau | BT-Watzke | AAT



- 1 HEADQUARTERS - Austria
REDWAVE
a division of BT-Wolfgang Binder GmbH
Gleisdorf, Austria
- 2 SUBSIDIARY - Germany
REDWAVE Waste GmbH
Minden, Germany
- 3 SUBSIDIARY - USA
REDWAVE Solutions US LLC
Atlanta - Georgia, USA
- 4 SUBSIDIARY - Singapore
REDWAVE Solutions pte. ltd
Singapore, Asia
- 5 SUBSIDIARY - China
**REDWAVE Environmental
Science & Technology Co. Ltd.**
Shanghai, China



REDWAVE **mate**



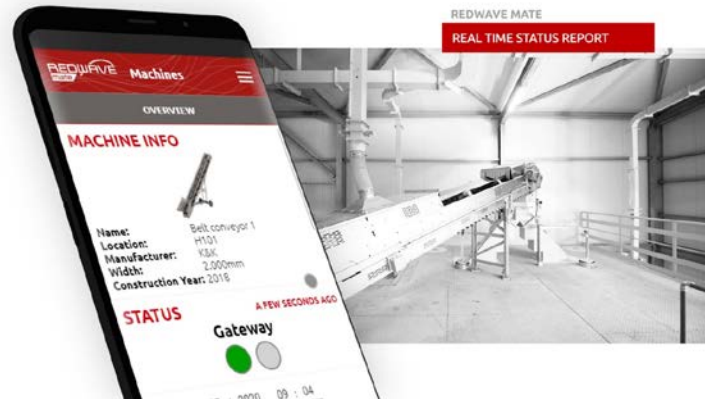
**ARTIFICIAL
INTELLIGENCE
FOR YOUR
SORTING PLANT**



mate

REDWAVE – *CX/2i/XRF/ROX* and *mate*, a perfect match between user and machinery equipment

REDWAVE *mate*



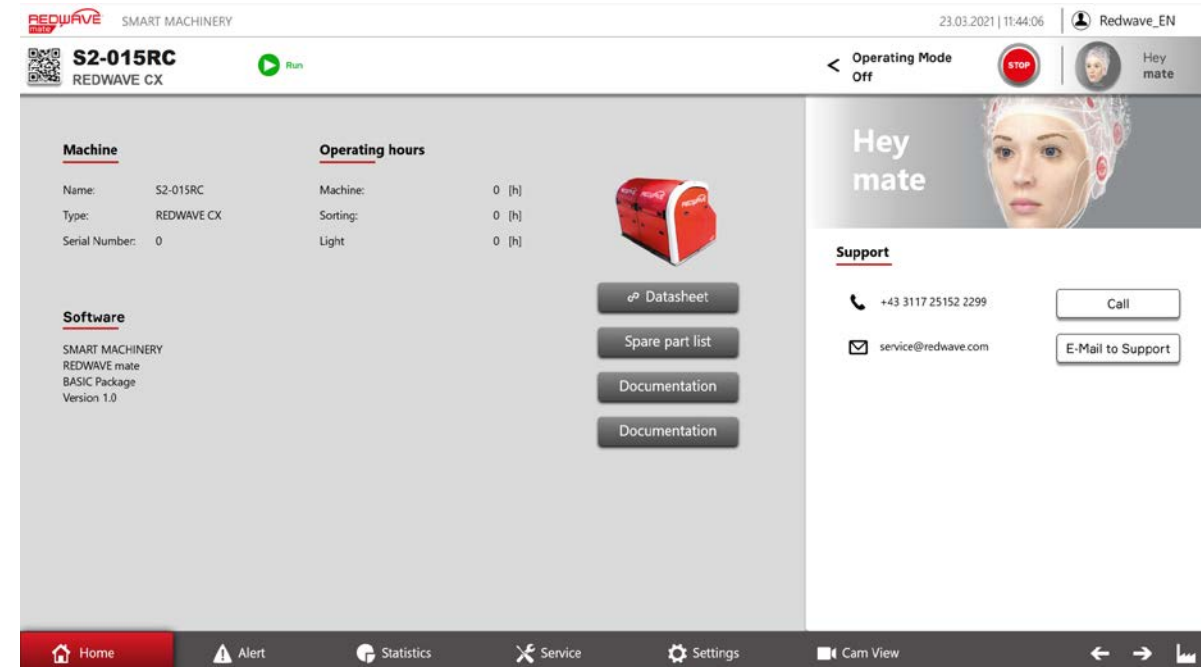
REDWAVE
CX/XRF/ROX

REDWAVE *2i*

REDWAVE *mate* – who is *mate*

REDWAVE *mate* smart machinery

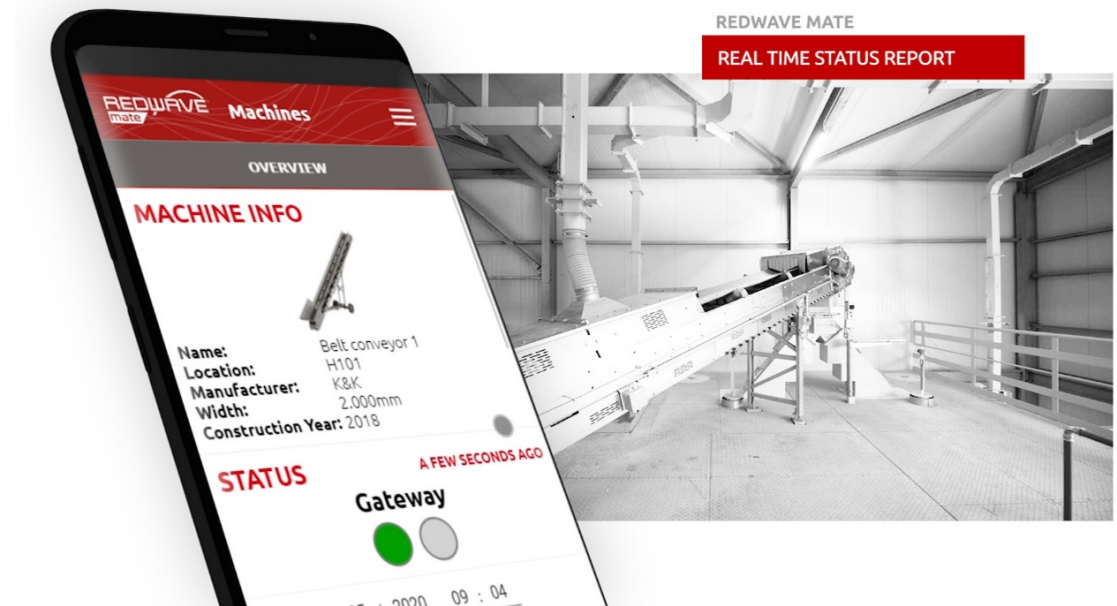
- Future user interface (HMI new) of the REDWAVE
 - Sorting machines
 - Analyser
- Browser compatible, HTML5
- Possible user interface 3rd party machines (data interface necessary)
- Data transfer to the Smart Plant via OPC UA
- Data transfer to the cloud via IoT (SQL DB)
- Document management (checklist, guidelines, service,)



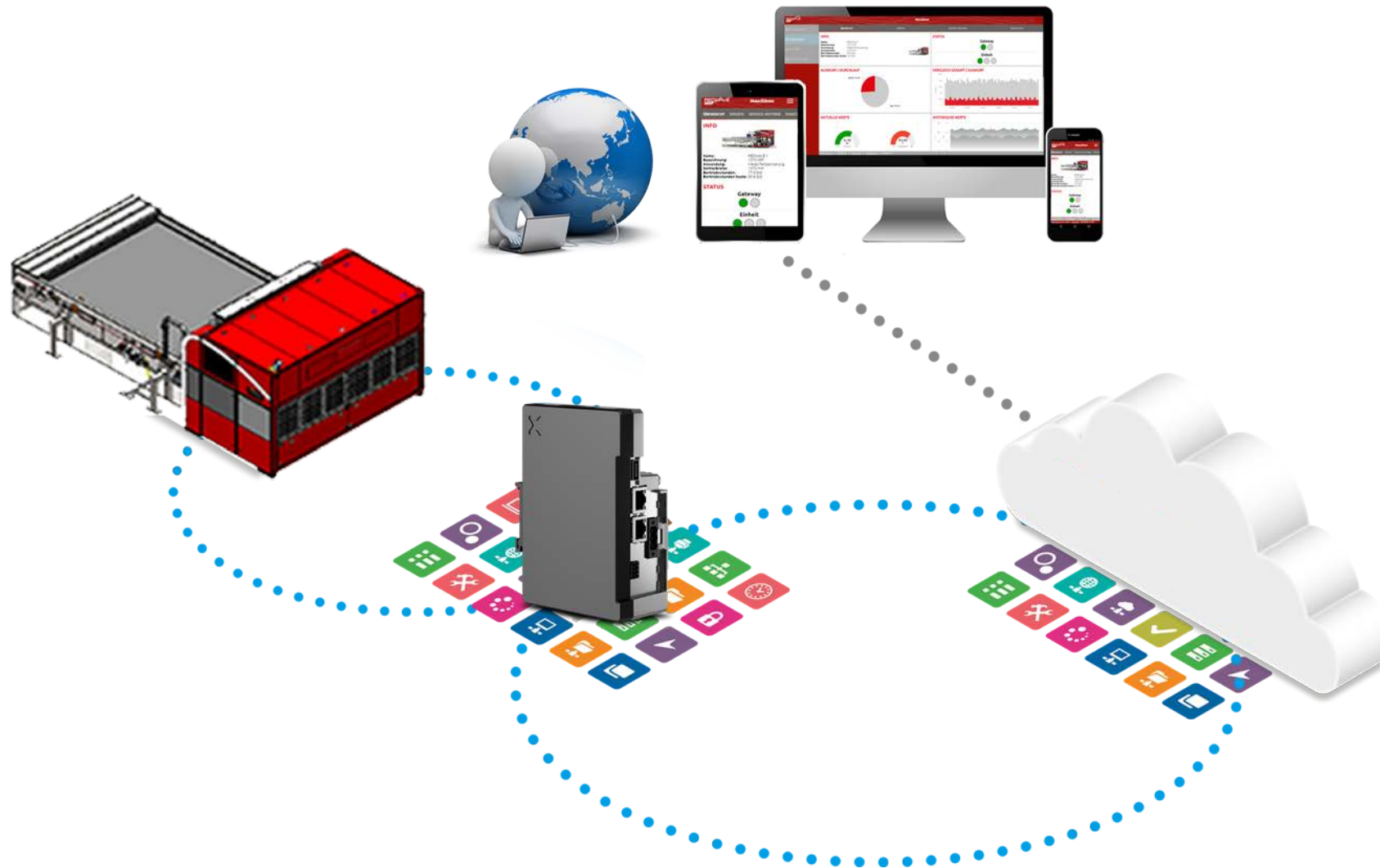
REDWAVE *mate* – who is *mate*

REDWAVE *mate* smart machinery

- Cloud-based dashboard monitoring (web app for mobile devices and PCs)
- Works with
 - REDWAVE CX/2i/ROX/XRF
 - REDWAVE Analyser
 - 3rd party machines
 - Other compatible equipment
- Cloud-based shop floor data collection/storage
- Selected alarms/messages, trends, reports, KPIs
- Backup storage of settings (bidirectional)



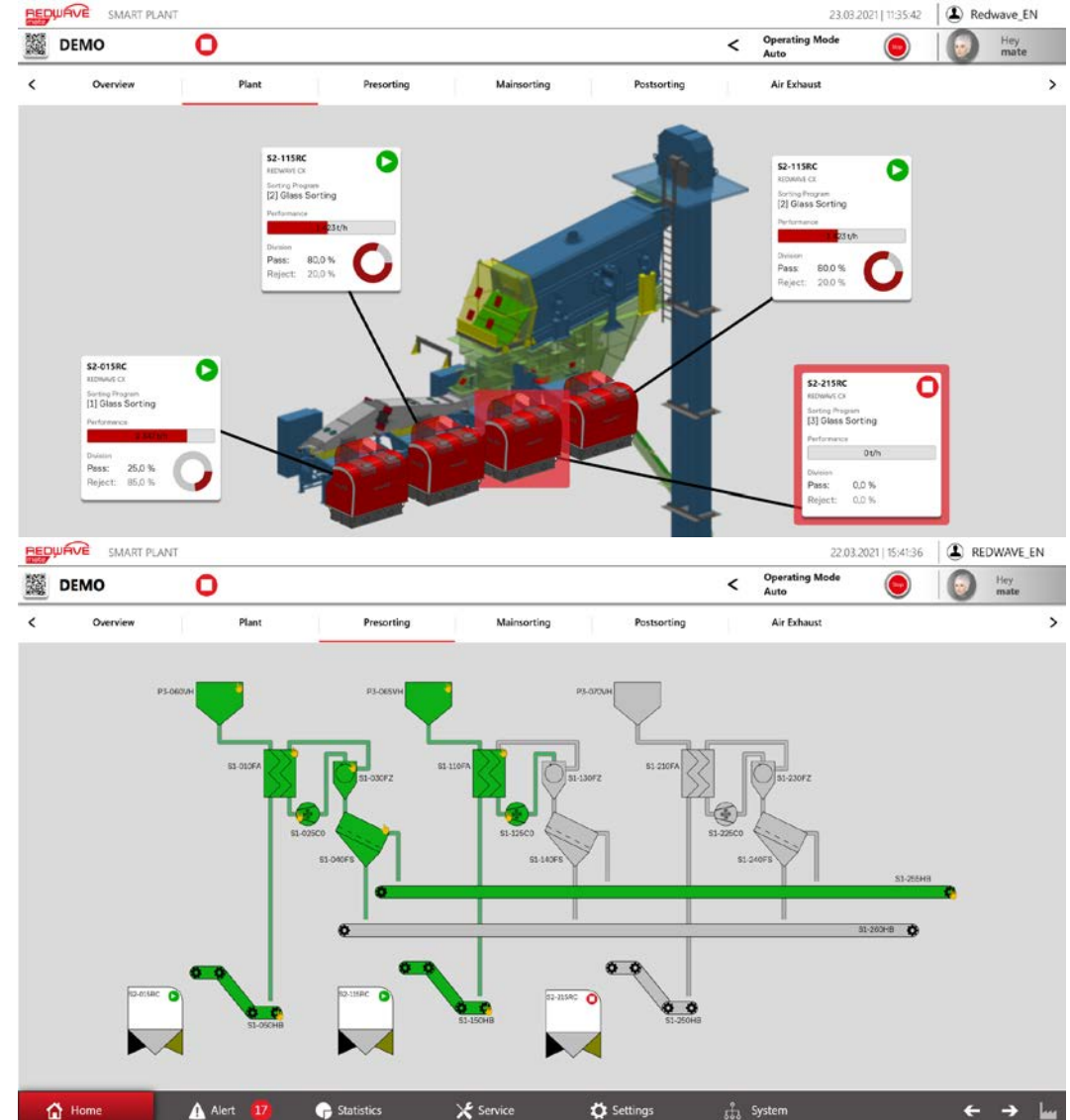
REDWAVE – IoT controller & Predix Cloud



REDWAVE *mate* – who is *mate*

REDWAVE *mate* smart plant

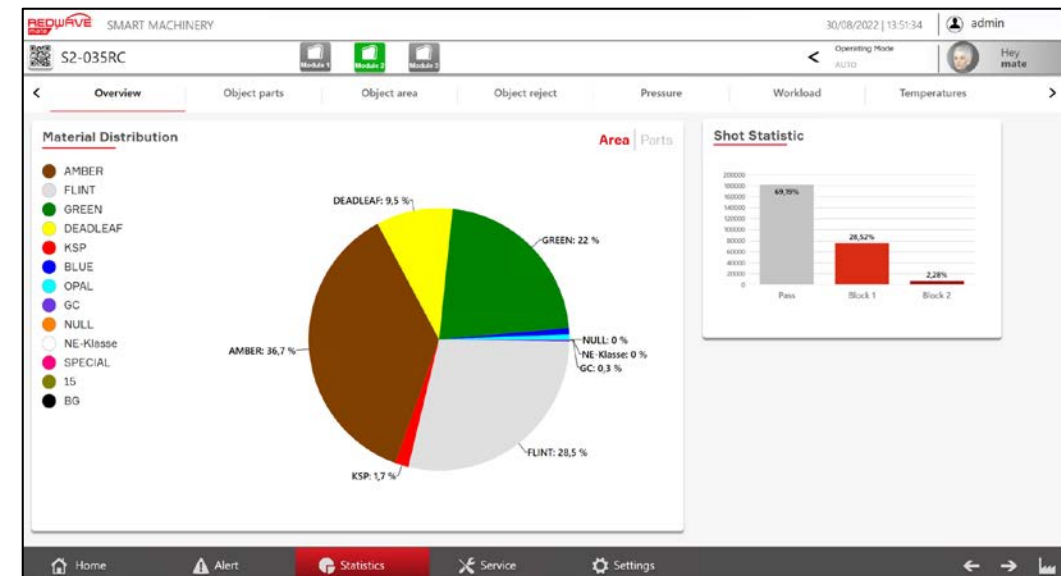
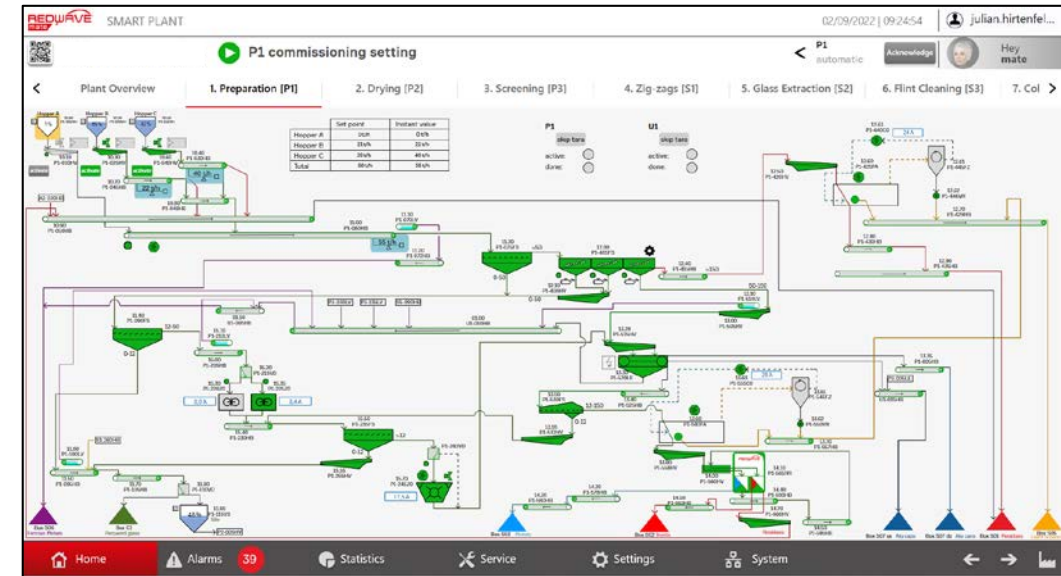
- User interface of the process control system
- PDA production data acquisition/storage (MS SQL DB)
- Alarm/messages, trend, reports, KPIs,...
- Plant control PLCs
- Data transfer from Smart Machinery (OPC UA)
- Integration of smart machinery into the process control system



REDWAVE *mate* – smart plant

REDWAVE *mate* smart plant

- automation of the sorting plant
- visualization (on Premise)
- machine data and statistics (RW Machinery)
- smart plant standard reports
- user management
- sorting recipe management



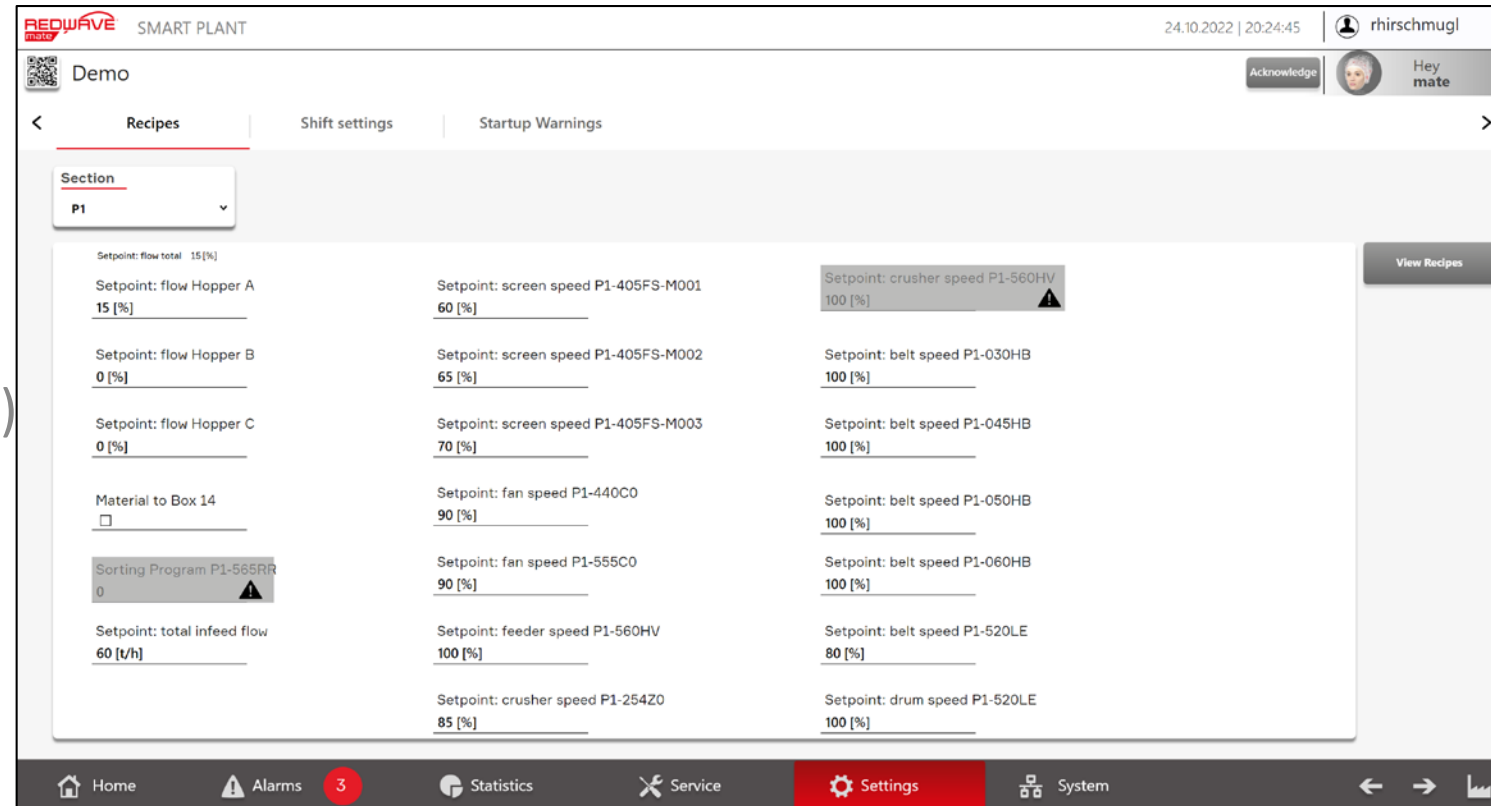
REDWAVE *mate* – Interfaces

Included interfaces:

- OPC UA (Client, Server)
- S7 Tcp (PUT/GET access)
- Modbus TCP
- Modbus RTU (Gateway necessary)

Interfaces to be calculated:

- ERP / MES
- 3rd party



REDWAVE SMART PLANT

24.10.2022 | 20:24:45 | rhirschmugl

Demo

Recipes | Shift settings | Startup Warnings

Section P1

Setpoint: flow total 15 [%]	Setpoint: screen speed P1-405FS-M001 60 [%]	Setpoint: crusher speed P1-560HV 100 [%]
Setpoint: flow Hopper A 15 [%]	Setpoint: screen speed P1-405FS-M002 65 [%]	Setpoint: belt speed P1-030HB 100 [%]
Setpoint: flow Hopper B 0 [%]	Setpoint: screen speed P1-405FS-M003 70 [%]	Setpoint: belt speed P1-045HB 100 [%]
Setpoint: flow Hopper C 0 [%]	Setpoint: fan speed P1-440C0 90 [%]	Setpoint: belt speed P1-050HB 100 [%]
Material to Box 14 ☐	Setpoint: fan speed P1-555C0 90 [%]	Setpoint: belt speed P1-060HB 100 [%]
Sorting Program P1-565RR 0	Setpoint: feeder speed P1-560HV 100 [%]	Setpoint: belt speed P1-520LE 80 [%]
Setpoint: total infeed flow 60 [t/h]	Setpoint: crusher speed P1-254Z0 85 [%]	Setpoint: drum speed P1-520LE 100 [%]

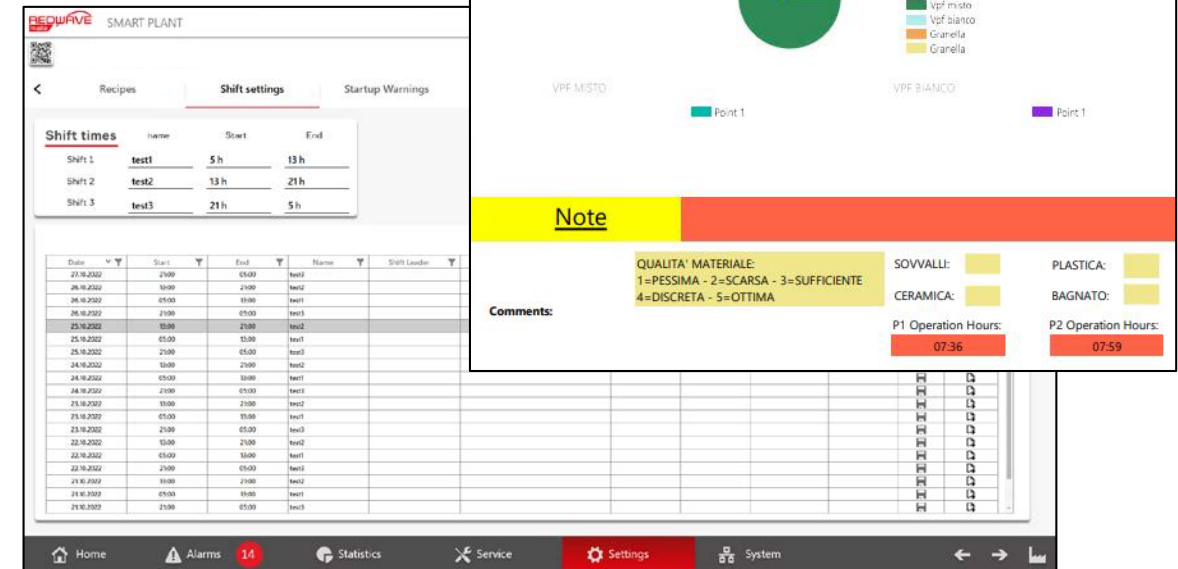
View Recipes

Home | Alarms 3 | Statistics | Service | Settings | System

REDWAVE *mate* – customized Reports

Customized Reports

- Requirements engineering together with customer
- User interface for additional data



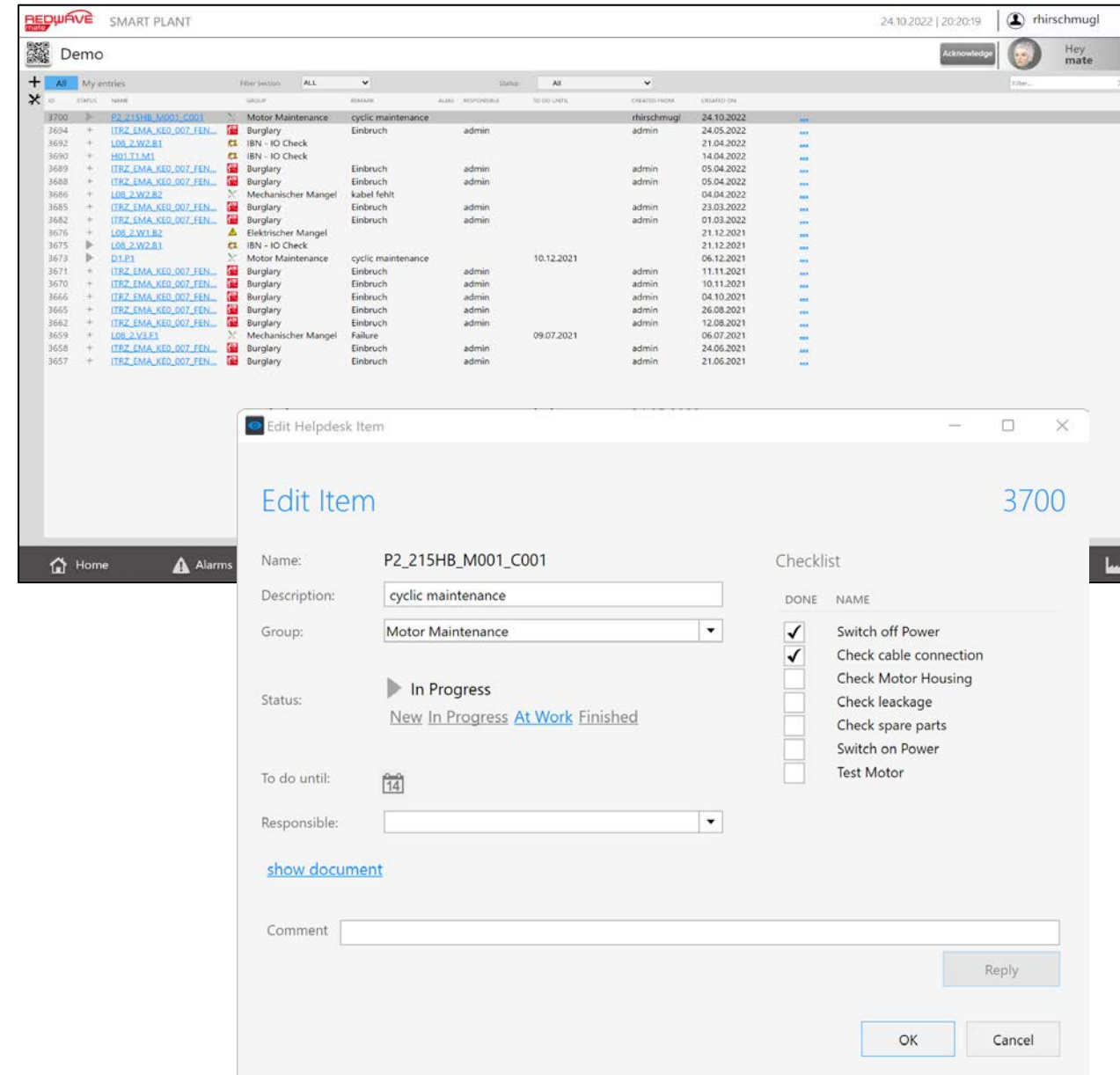
REDWAVE *mate* – Interactivity

- QR-Code label for drives
- QR-Code used for local control
- Tablet for mobile visualization (via WLAN)



REDWAVE *mate* – Ticketing and Maintenance

- Ticketing for maintenance
- automatic generation of tickets via operation hours
- Maintenance instructions integrated into visualization
- Data sheets for all equipments and machines integrated



The screenshot displays the REDWAVE SMART PLANT interface. The top bar shows the date and time (24.10.2022 | 20:20:19) and the user profile (rhirschmugl). The main area is titled 'Demo' and shows a list of tickets. The 'Edit Helpdesk Item' dialog box is open, showing details for ticket 3700.

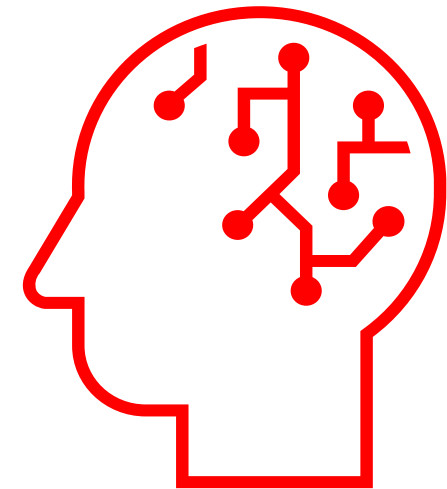
ID	STATUS	NAME	GROUP	REMARK	ALARM	RESPONSIBLE	TO DO UNTIL	CREATED FROM	CREATED ON
3700	P	P2_215HB_M001_C001	Motor Maintenance	cyclic maintenance		rhirschmugl	24.10.2022		
3694	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	24.05.2022		
3692	+	L08_2.W2.B1	IBN - IO Check	IBN - IO Check		admin	21.04.2022		
3690	+	H01.T1.M1	IBN - IO Check	IBN - IO Check		admin	14.04.2022		
3689	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	05.04.2022		
3688	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	05.04.2022		
3686	+	L08_2.W2.B2	Mechanischer Mangel	kabel fehlt		admin	04.04.2022		
3685	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	23.03.2022		
3682	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	01.03.2022		
3676	+	L08_2.W1.B2	Elektrischer Mangel			admin	21.12.2021		
3675	+	L08_2.W2.B1	IBN - IO Check	IBN - IO Check		admin	21.12.2021		
3673	+	D1.P1	Motor Maintenance	cyclic maintenance		admin	10.12.2021		
3671	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	11.11.2021		
3670	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	10.11.2021		
3666	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	04.10.2021		
3665	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	26.08.2021		
3662	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	12.08.2021		
3659	+	L08_2.V3.E1	Mechanischer Mangel	Failure		admin	09.07.2021		
3658	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	24.05.2021		
3657	+	ITB2_EMA_KED_007_FEN...	Burglary	Einbruch		admin	21.05.2021		

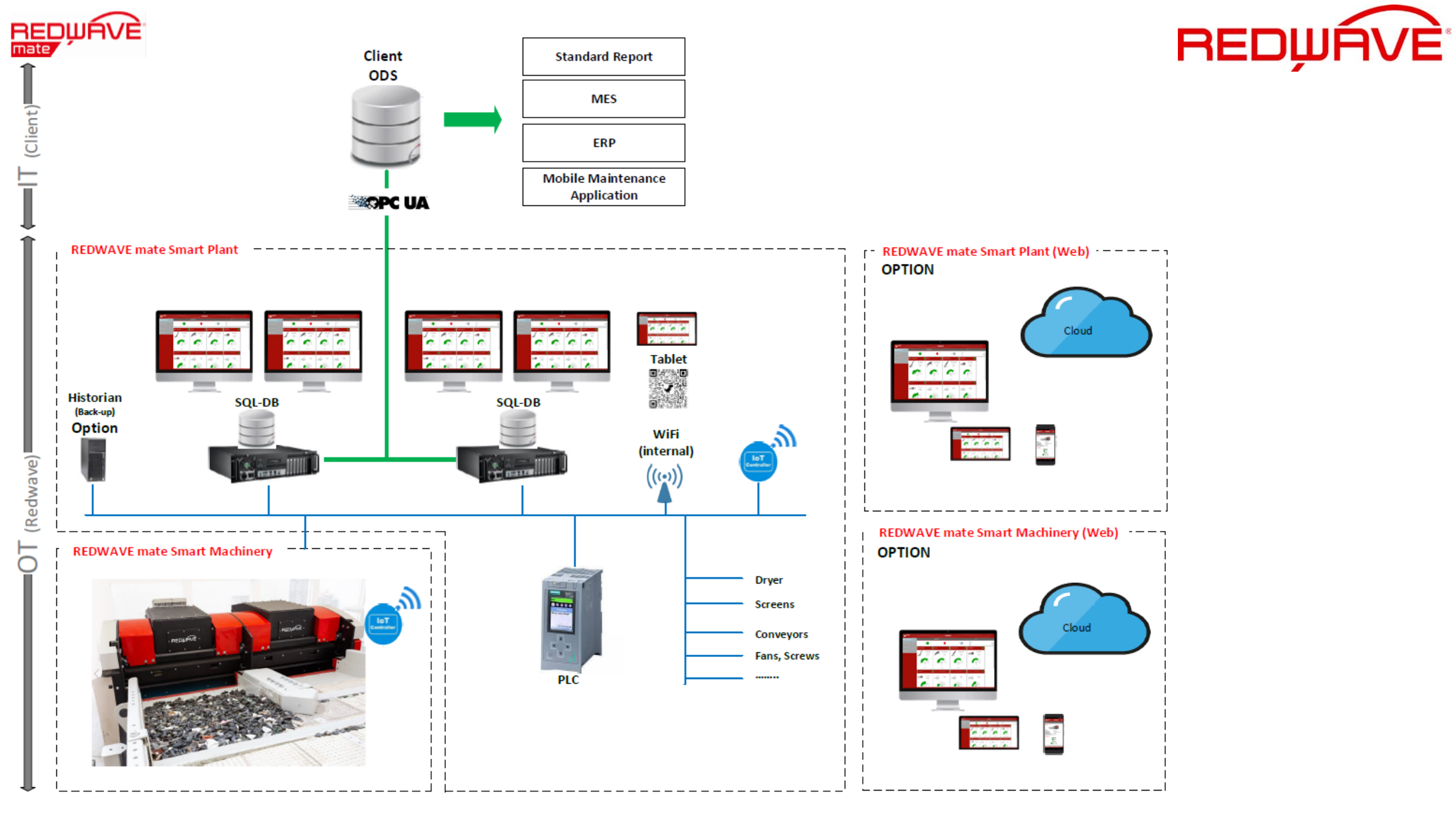
The 'Edit Helpdesk Item' dialog box shows the following details for ticket 3700:

- Name:** P2_215HB_M001_C001
- Description:** cyclic maintenance
- Group:** Motor Maintenance
- Status:** In Progress (New, In Progress, At Work, Finished)
- To do until:** 14
- Responsible:** (empty field)
- Checklist:**
 - ☒ Switch off Power
 - ☒ Check cable connection
 - ☐ Check Motor Housing
 - ☐ Check leakage
 - ☐ Check spare parts
 - ☐ Switch on Power
 - ☐ Test Motor
- Comment:** (empty field)

REDWAVE *mate* – AI

- Models and algorithms for the specific material to be sorted
- AI developed by experts for the plant
- AI driven recommendations for plant setup
- Automated setup of REDWAVE sorting equipment according to infeed





REDWAVE *mate* – Benefits

- Detailed view on material composition prior and after sorting.
- Live-view on machine/plant performance
- KPIs for the whole plant
- Service and maintenance benefits
- Automated plant setup according to material composition
- Helps to reduce energy consumption by optimizing the sorting process
- Plants getting comparable and benchmarkable for the first time

Energy Globe Austria Award





**YOUR EXPERT IN
RECYCLING & WASTE TREATMENT SOLUTIONS**

www.redwave.com