

Progetti Europa '27 per la Liguria

Ricerca e Sviluppo

Polo EASS

Energia, Ambiente, Sviluppo Sostenibile

Operazione di importanza strategica – Azione 1.1.1

WELDWAISE

Fabrizio Cardinali

Responsabile tecnico Scientifico Progetto WeldwAise

Capofila KNOWHDGE SRL

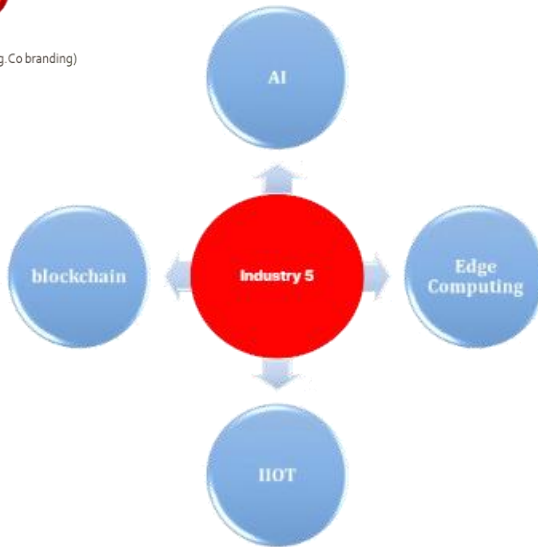
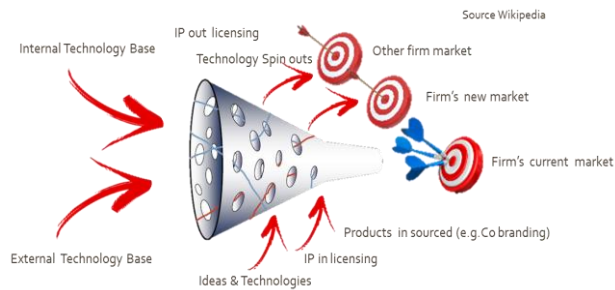
Partner ISTITUTO ITALIANO DELLA SALDATURA. MYWAI, INNOVINA, SWHARD, UNIGE (DIME)

31/03/2025

Prime Contractor

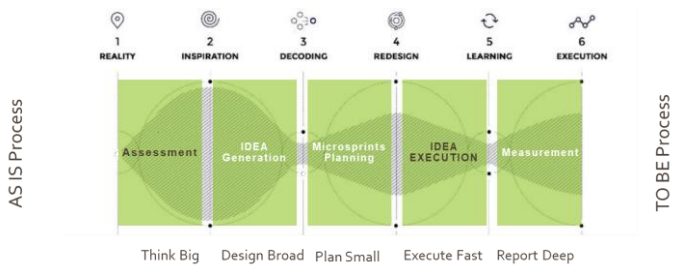
Open Innovation e Venture Building nell'Era Industry 5.0

knowhedge
your edge to know how



THE Mission

Helping EU Manufacturers towards Industry 5.0



Welding Market

Il Mercato, le Previsioni, le Necessità

•Mercato globale della saldatura:

- Dimensione del mercato: **\$20,23 miliardi** nel 2019
- Proiezione: **\$28,66 miliardi** entro il 2027
- CAGR: **4,6%** durante il periodo

•Previsioni della American Welding Society:

- Carenza di 291.000 saldatori nel 2020
- Previsione aumentata a circa 400.000 saldatori mancanti entro il 2024 a causa dell'impatto del Covid sulla forza lavoro, soprattutto in India e Cina

•Carenza di saldatori:

- Adozione di robot di saldatura in settori industriali specifici come l'industria automobilistica
- Mancanza di percorsi adeguati per miglioramento, formazione e integrazione di nuove risorse umane
- Specializzazione elevata richiesta per saldatura di grandi manufatti con giunti complessi

•PNRR :

- Necessità di **3.000 personale specializzato**, **23.000 lavoratori specializzati** e oltre **70.000 lavoratori generici** per accelerare la costruzione e realizzare le opere previste dal Piano.

Sources

[1] [Blueprint for sectoral cooperation on skills](#): Towards an EU strategy addressing the skills needs of the steel sector:

European vision on steel-related skills of today and tomorrow - Publications Office of the EU (europa.eu)

[2] [Welding Market Size, Share, Growth | Industry Trends \[2020-2027\]](#) (fortunebusinessinsights.com)

[4] [Il Messaggero](#) : Pnrr, pochi ingegneri, saldatori e operai: i tecnici che mancano per realizzare le grandi opere

[5] [Linkedin](#): The Big Crew Change: Will they ever learn?

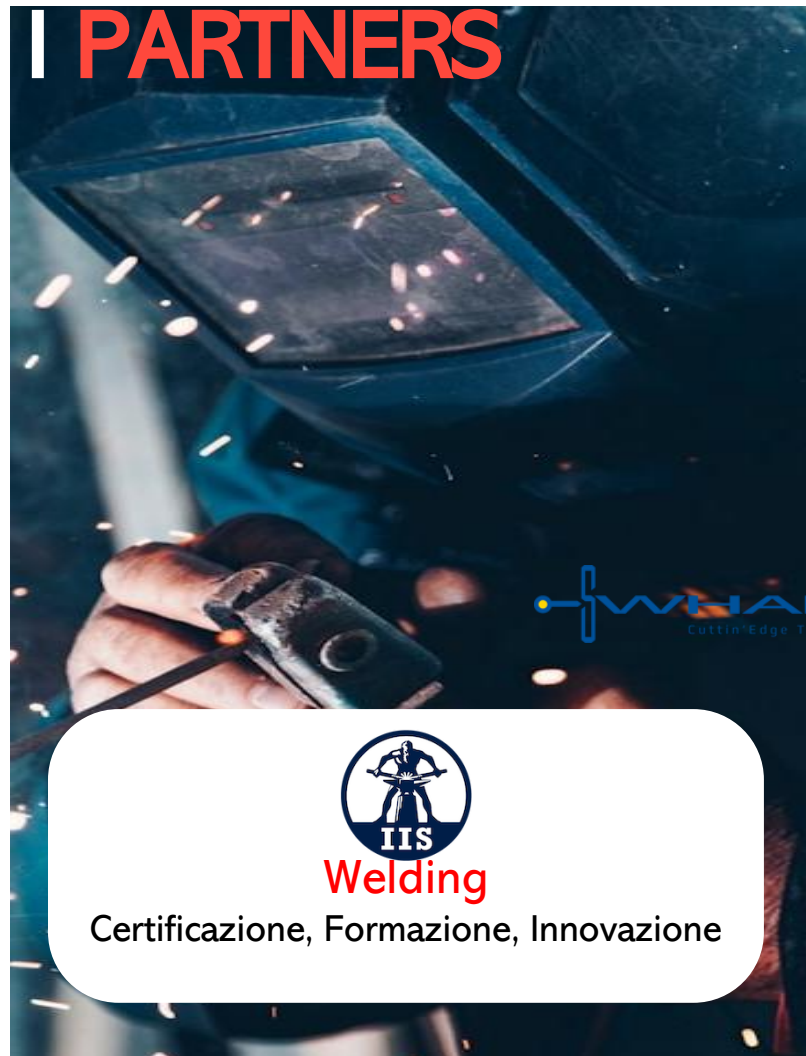


I Partners

Welding Intelligence, AI, IoT, XR , VR



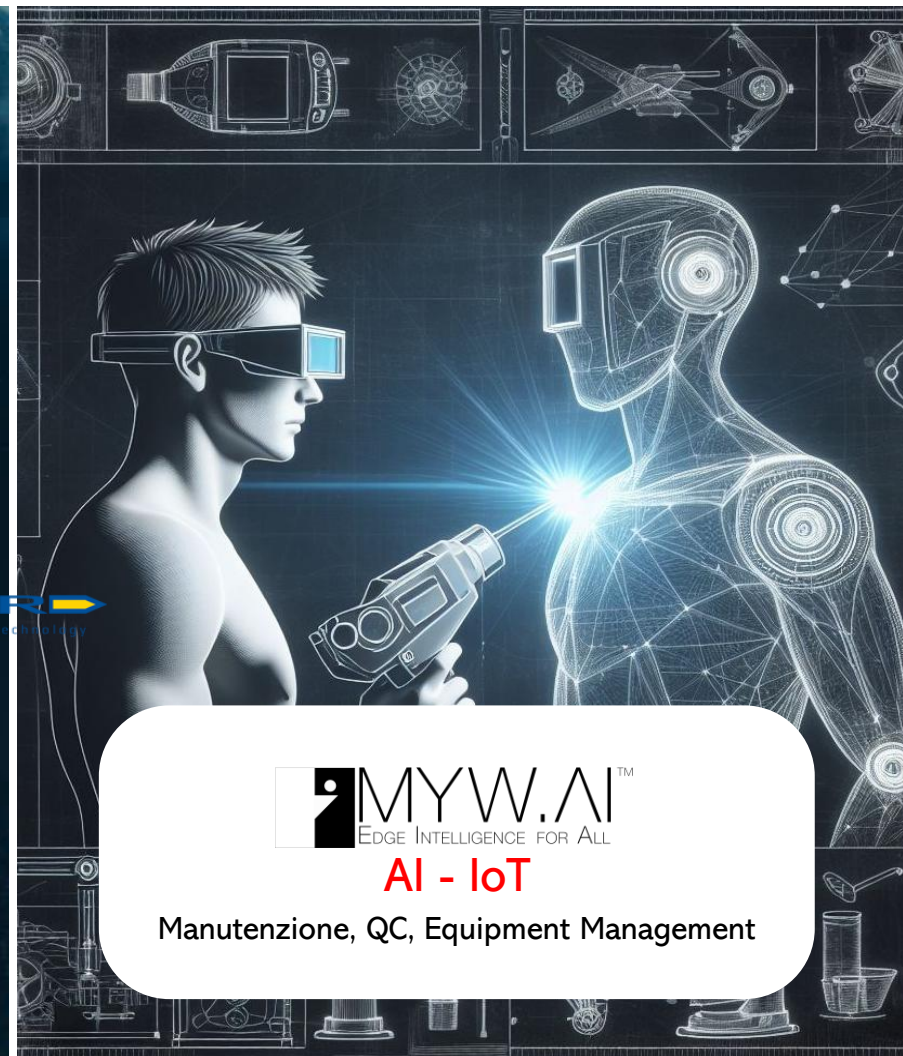
PARTNERS





IIS
Welding

Certificazione, Formazione, Innovazione





MYW.AI
EDGE INTELLIGENCE FOR ALL
AI - IoT

Manutenzione, QC, Equipment Management





DIME

HW-VR
IMU, Wearable

Innovina
INTERACTIVE

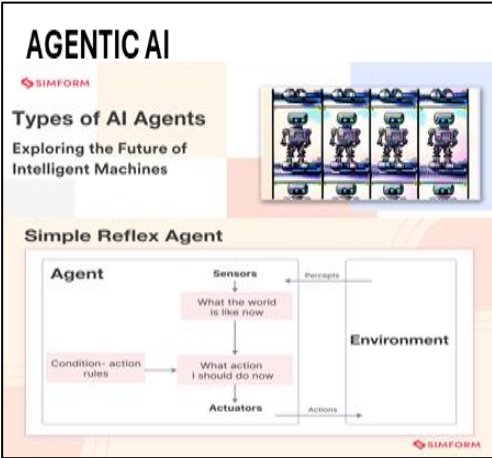
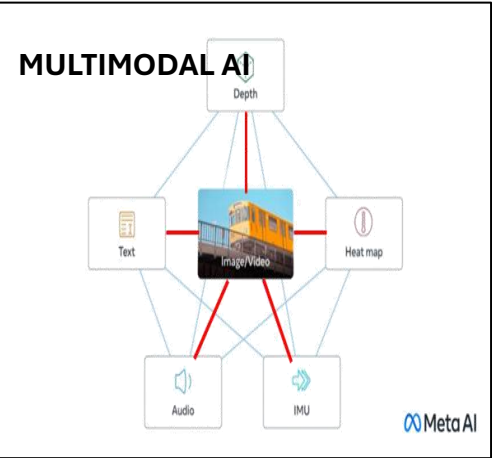
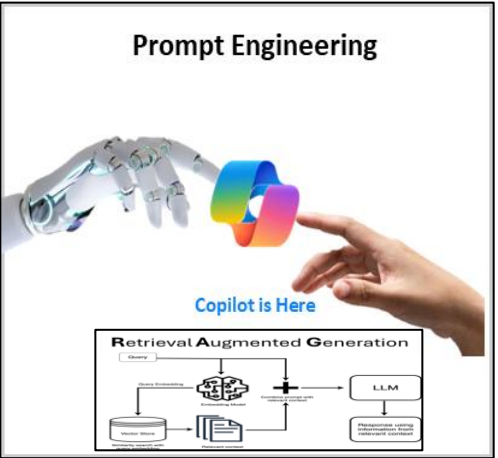
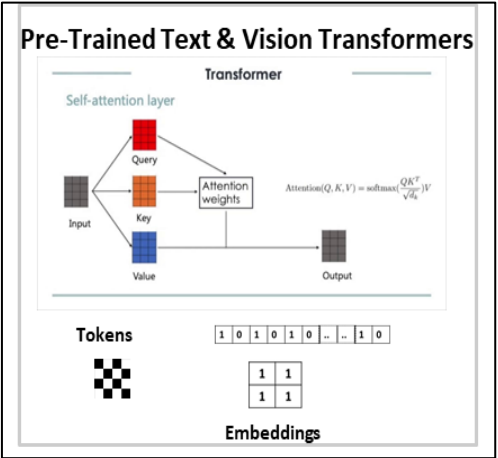
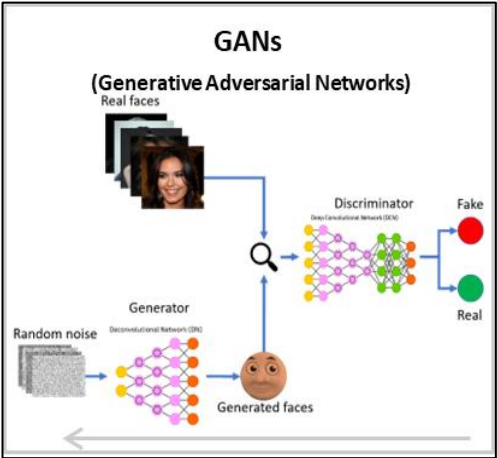
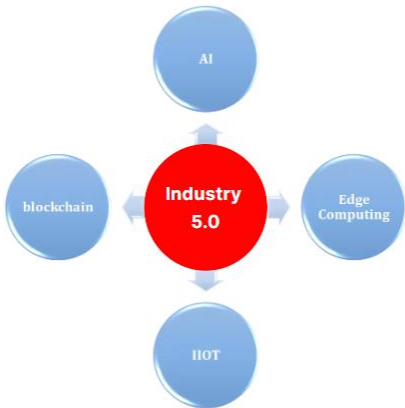
La Nuova Machine Economy

Macchinari Connessi, Intelligenti e con Equipment (Data) as a Service



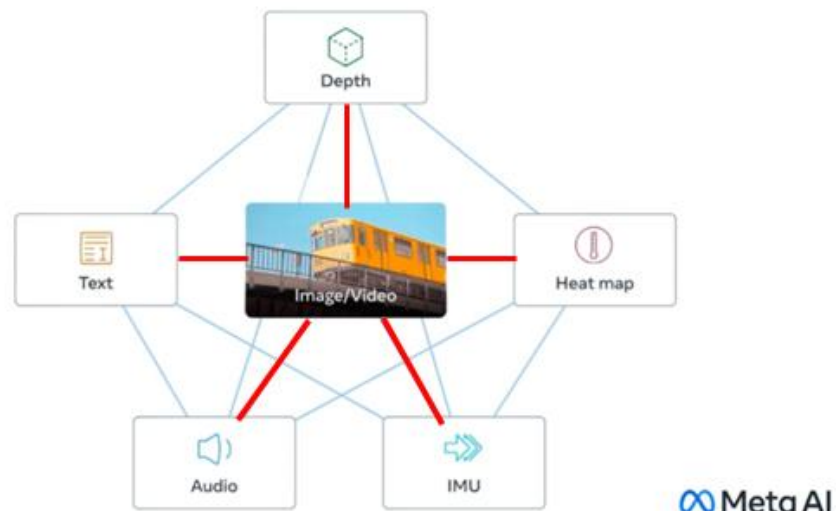
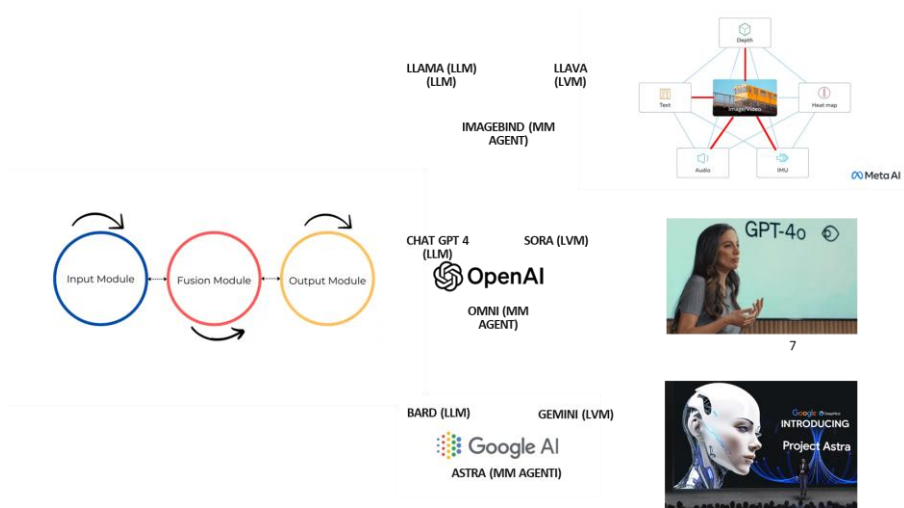
INDUSTRY 5.0

DRIVING EUROPEAN MANUFACTURERS TOWARDS THE NEW MACHINE ECONOMY LEADERSHIP



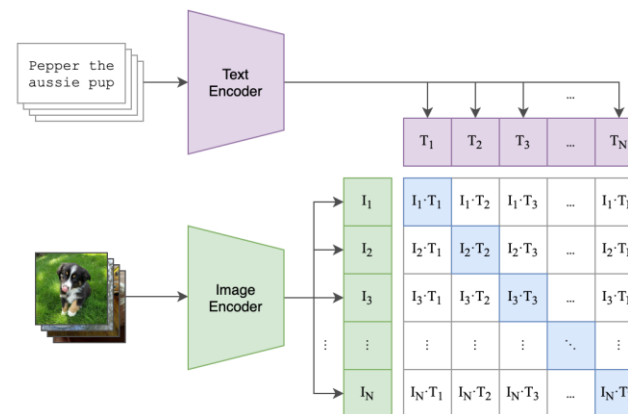
Il Futuro dell'AI

Multimodale, Agentica, Spaziale

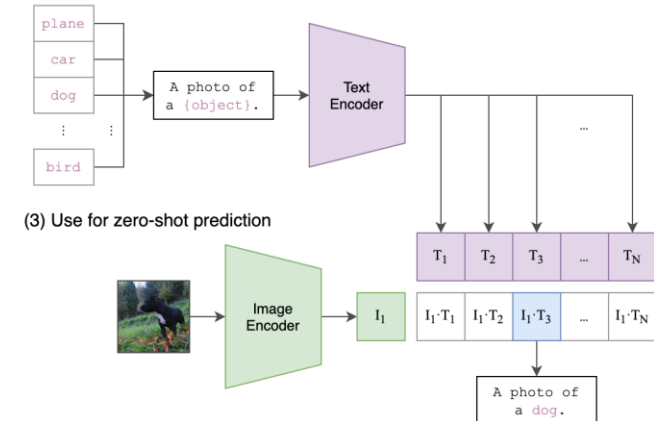


CLIP, Contrastive Language-Image Pretraining

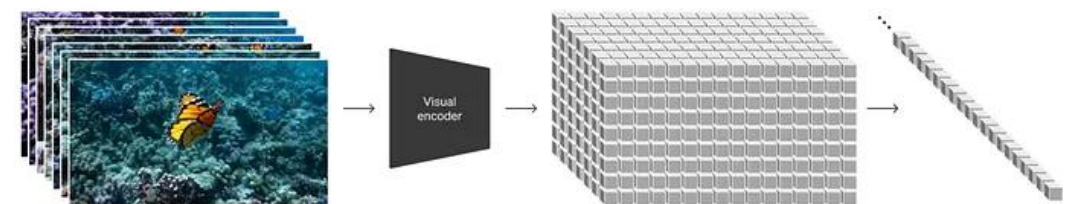
(1) Contrastive pre-training



(2) Create dataset classifier from label text



(3) Use for zero-shot prediction



Welding Assistant using Large Concepts Models for Training, Education & Reporting



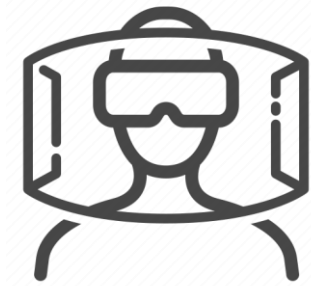
ASK WALTER



Saldatore neo inserito

HEY WALTER,
*Mostrami la corrente e dimmi
quando scende sotto soglia*

HEY WALTER,
*Fammi vedere e sentire come
verrebbe una saldatura con
questi parametri macchina*



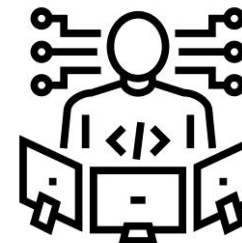
Saldatore in Formazione



Certificatore Esperto



HEY WALTER,
*recuperami audio, movimenti,
immagini e dati macchina di
questa saldatura e aiutami a
certificarla*



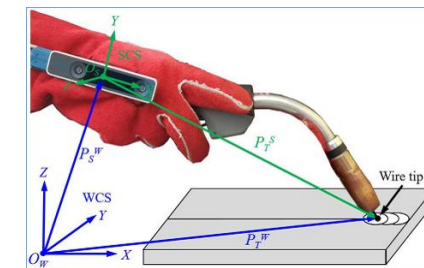
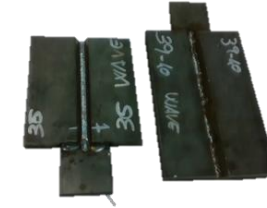
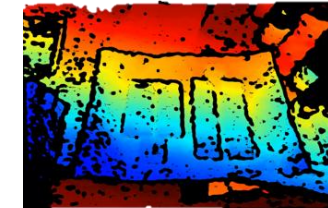
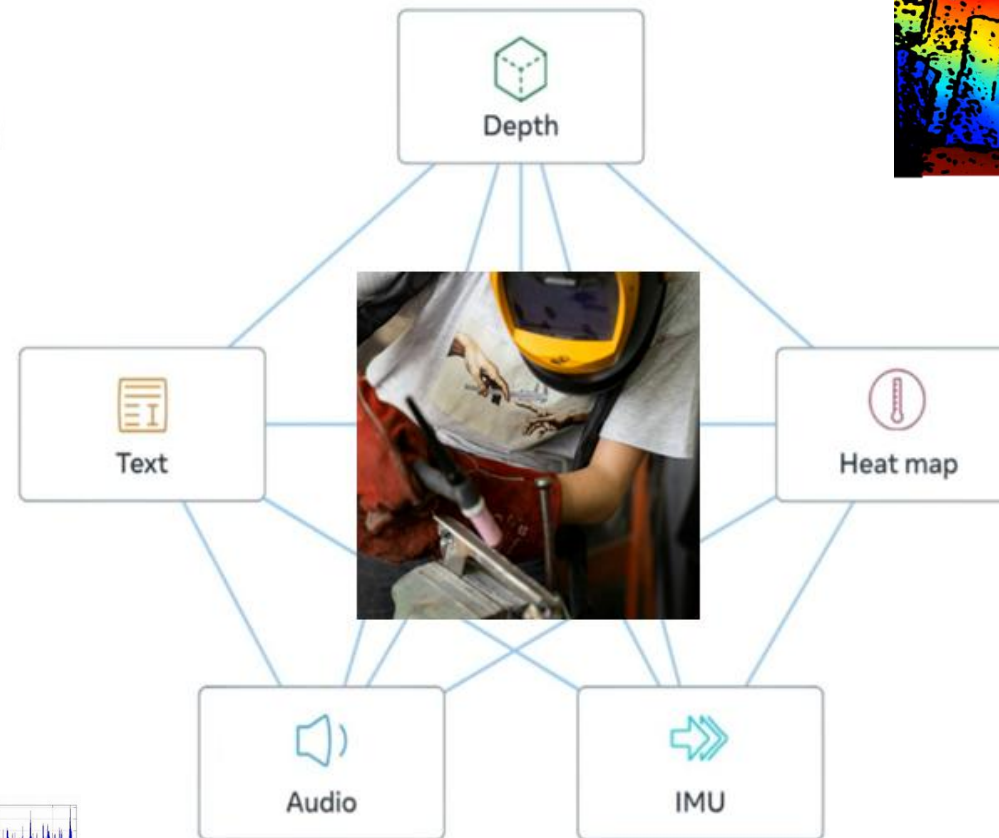
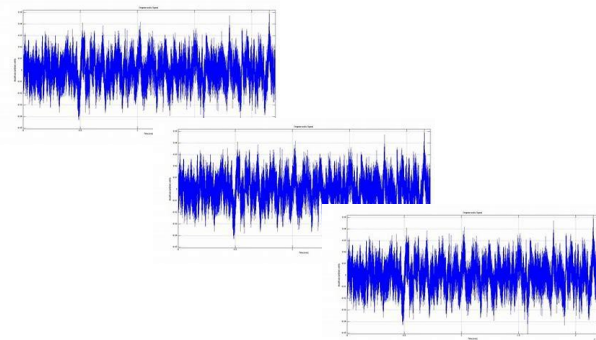
La Stazione di Acquisizione WeldwAise

Fusione di Dati Macchina con Movimento, Acustica e Visione saldatura

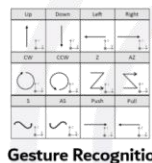
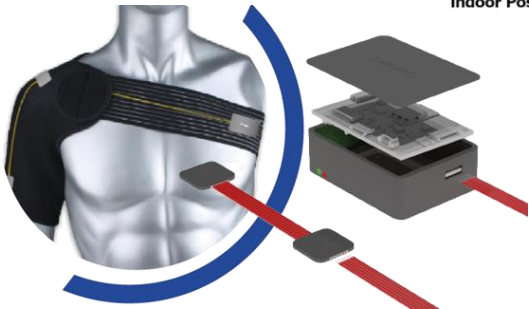
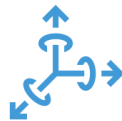
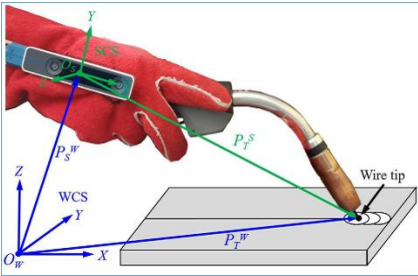


This weld surface cracks with bubbles....

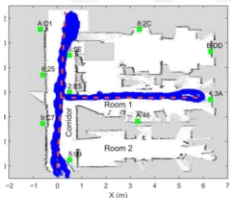
The weld shows shows porosity of severe level



Il Casco e la Torcia di lavoro WeldwAise



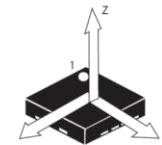
Gesture Recognition



Indoor Positioning



Anomaly Detection for Predictive Maintenance



Gyroscope & Accelerometer Applications



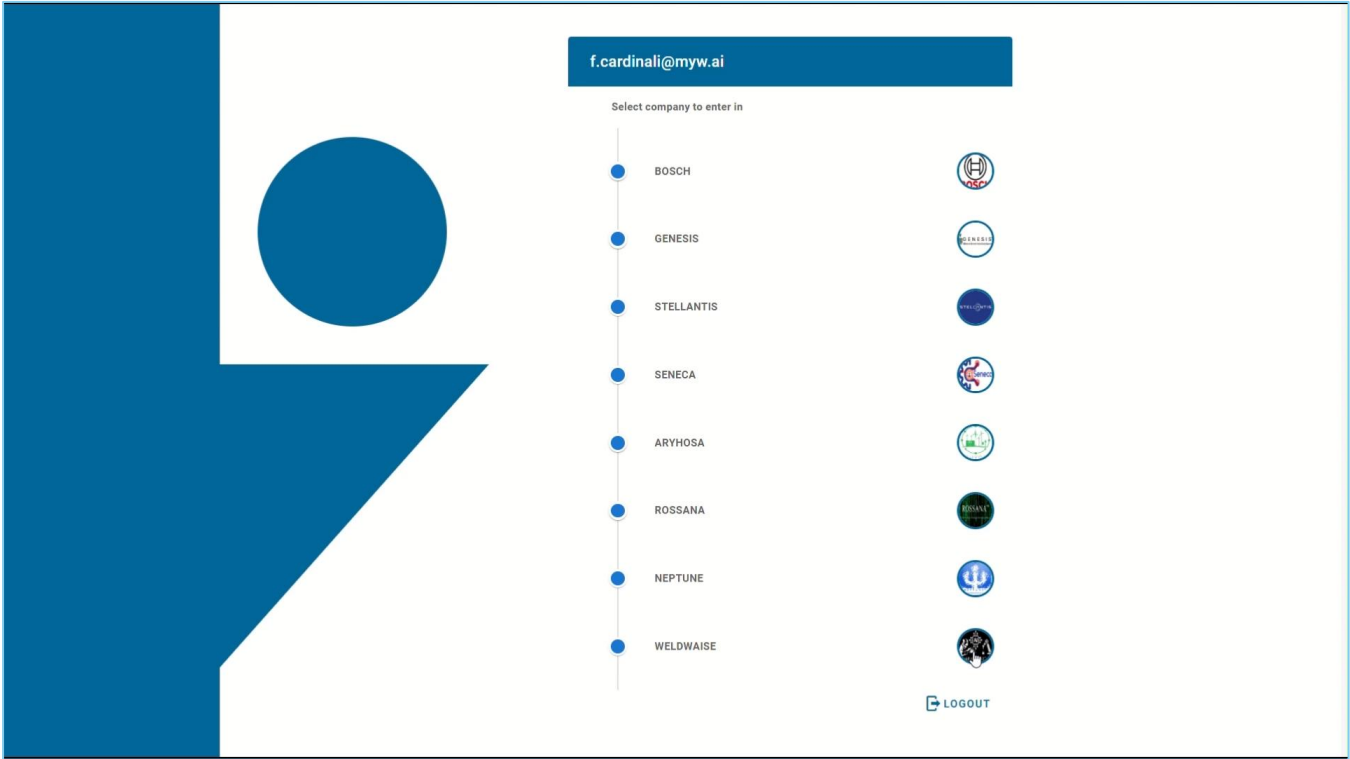
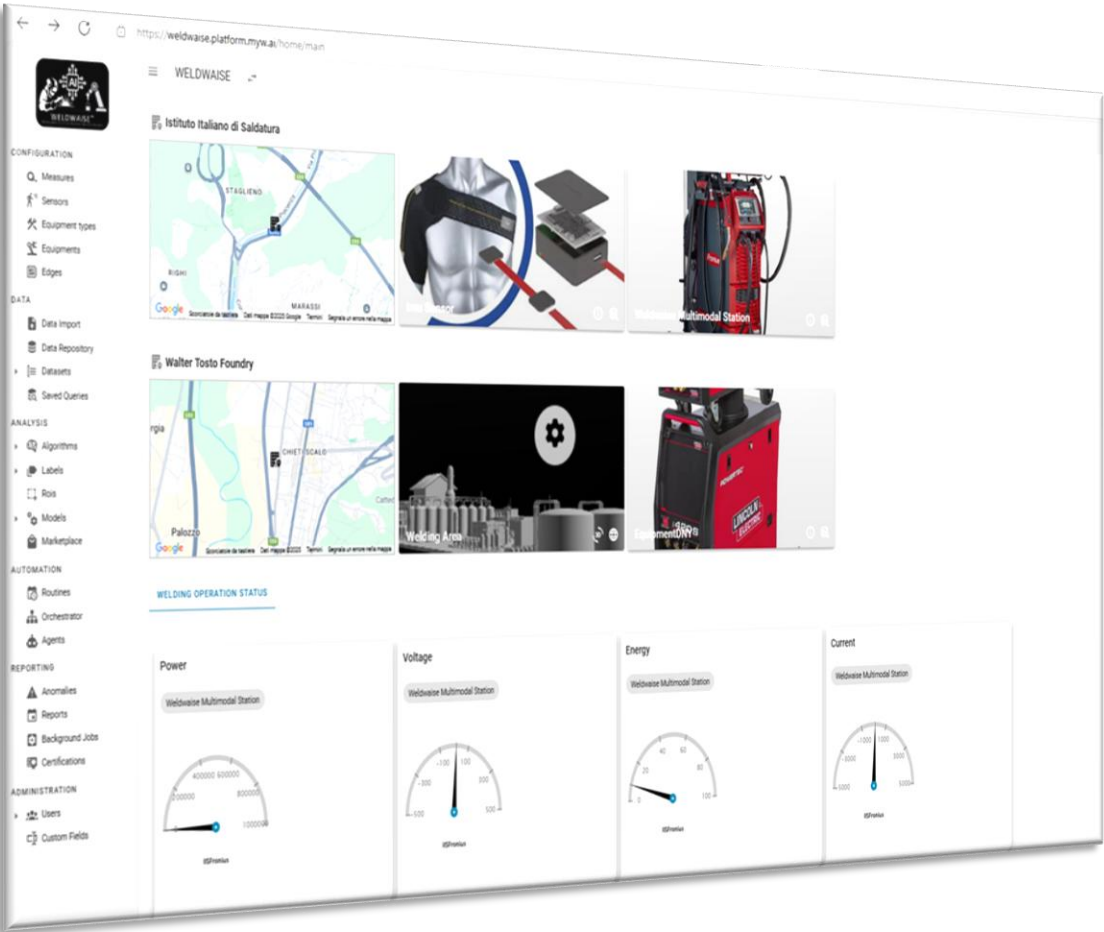
Steps Counter



Precise Ball Data

La Piattaforma WeldwAise

Welding Intelligence & Equipment Management System

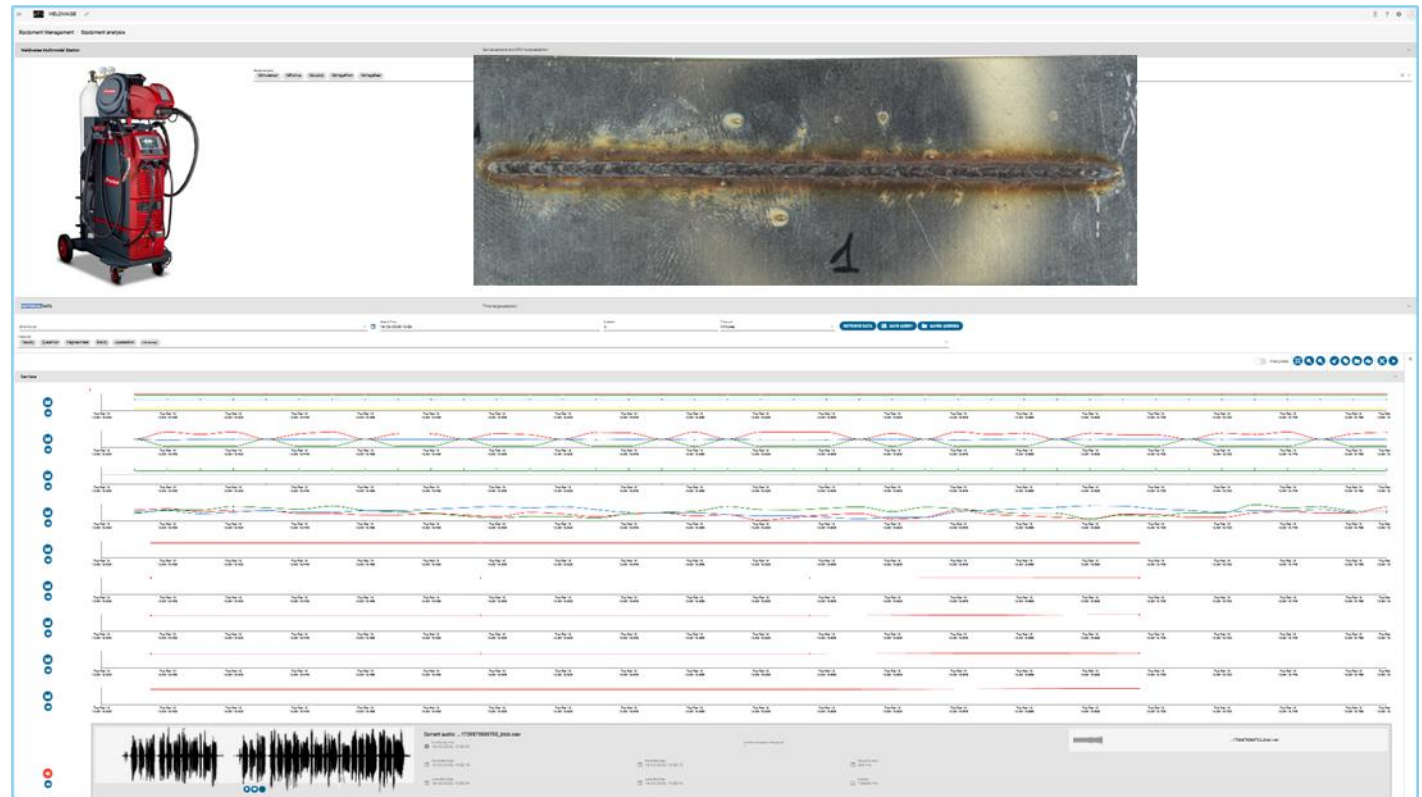


Powered by:



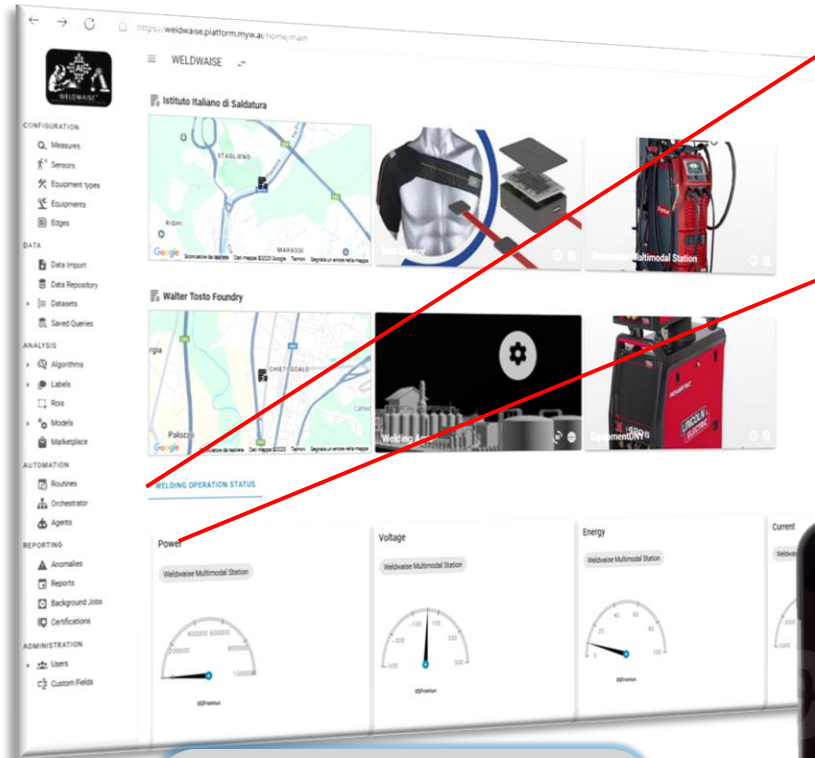
Le Acquisizioni WeldwAise

Acquisizione di Dati Macchina, Movimento saldatore, Acustica e Visione saldatura



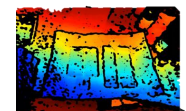
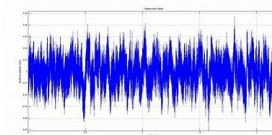
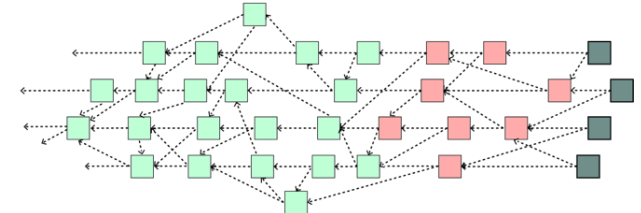
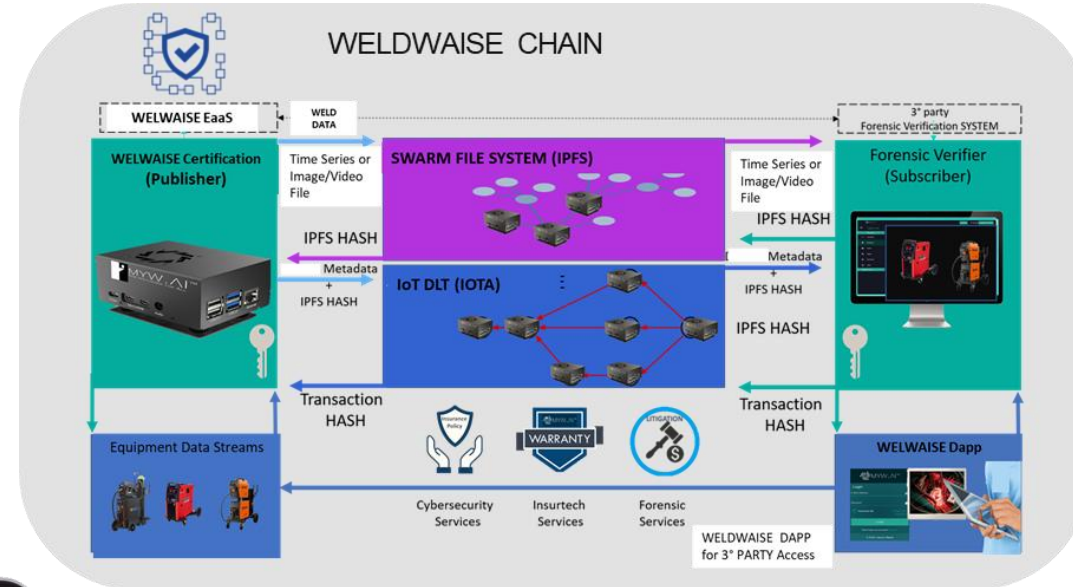
Scenario 1

Il Certificatore WeldwAise



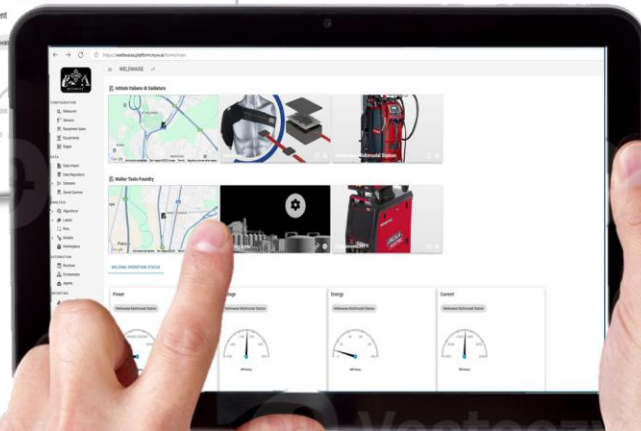
REPORTING

- Anomalies
- Reports
- Background Jobs
- Certifications



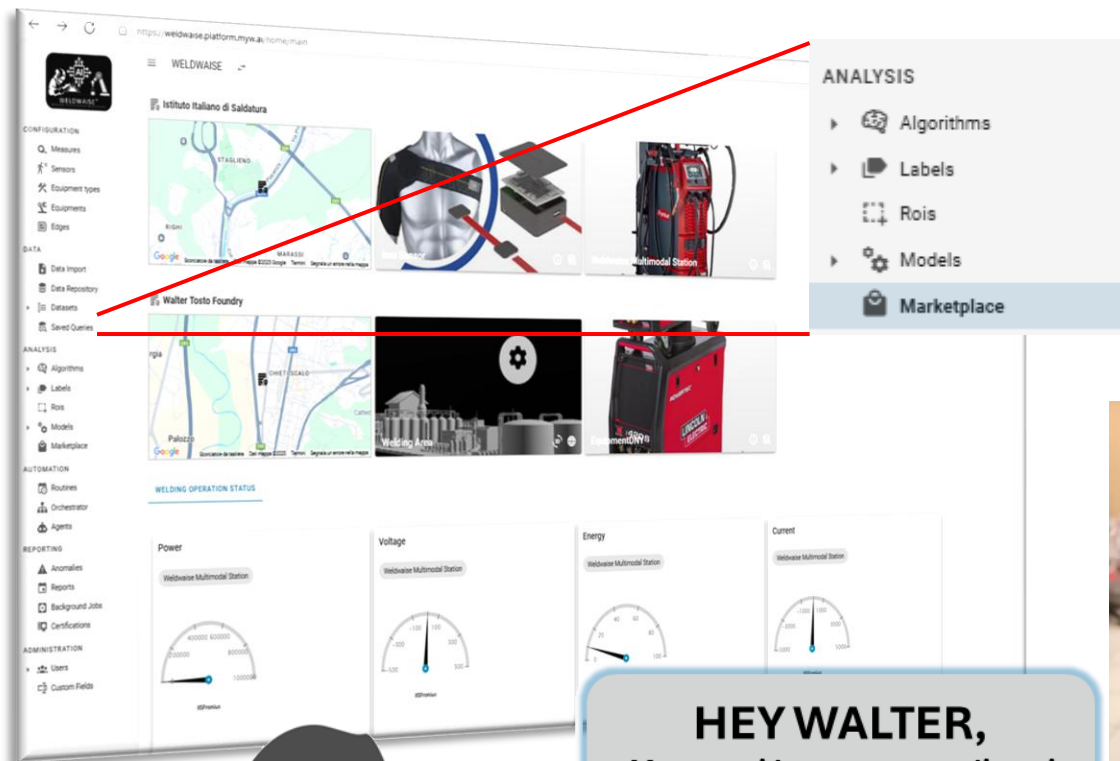
HEY WALTER,
*recuperami audio,
movimenti, immagini e dati
macchina di questa saldatura
e aiutami a certificare*

Certificatore Esperto



Scenario 2

Il Saldatore WeldAIsE



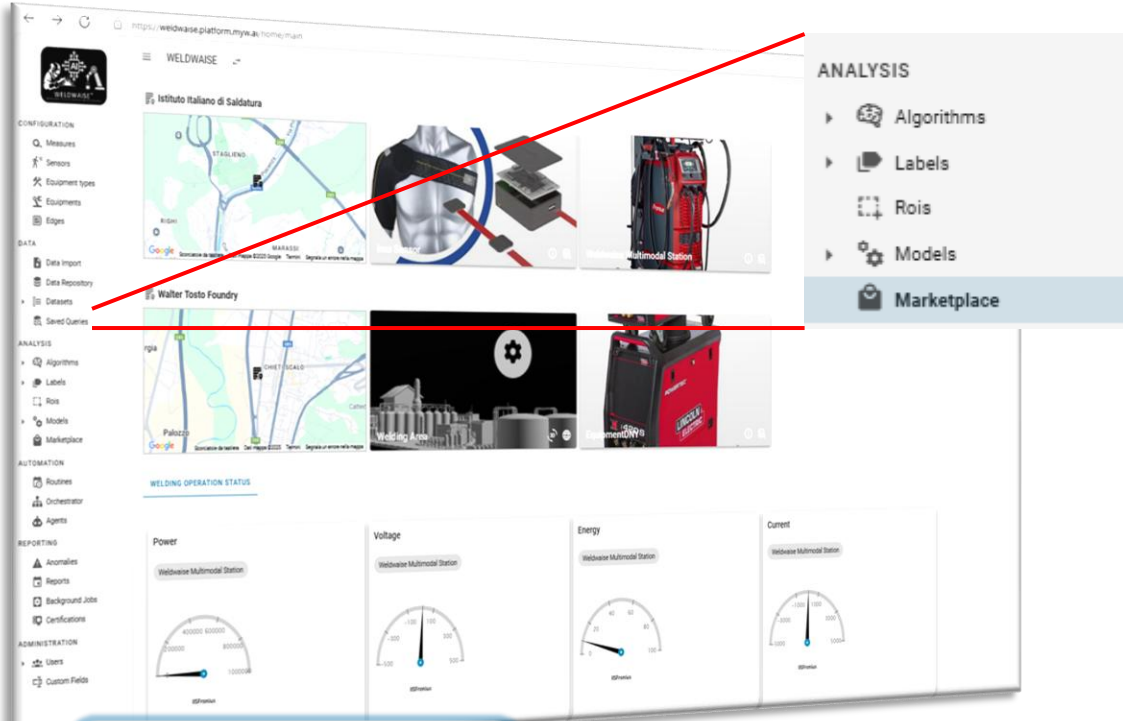
Saldatore neo inserito

HEY WALTER,
*Mostrami la corrente e dimmi
quando scende sotto soglia*



Scenario 3

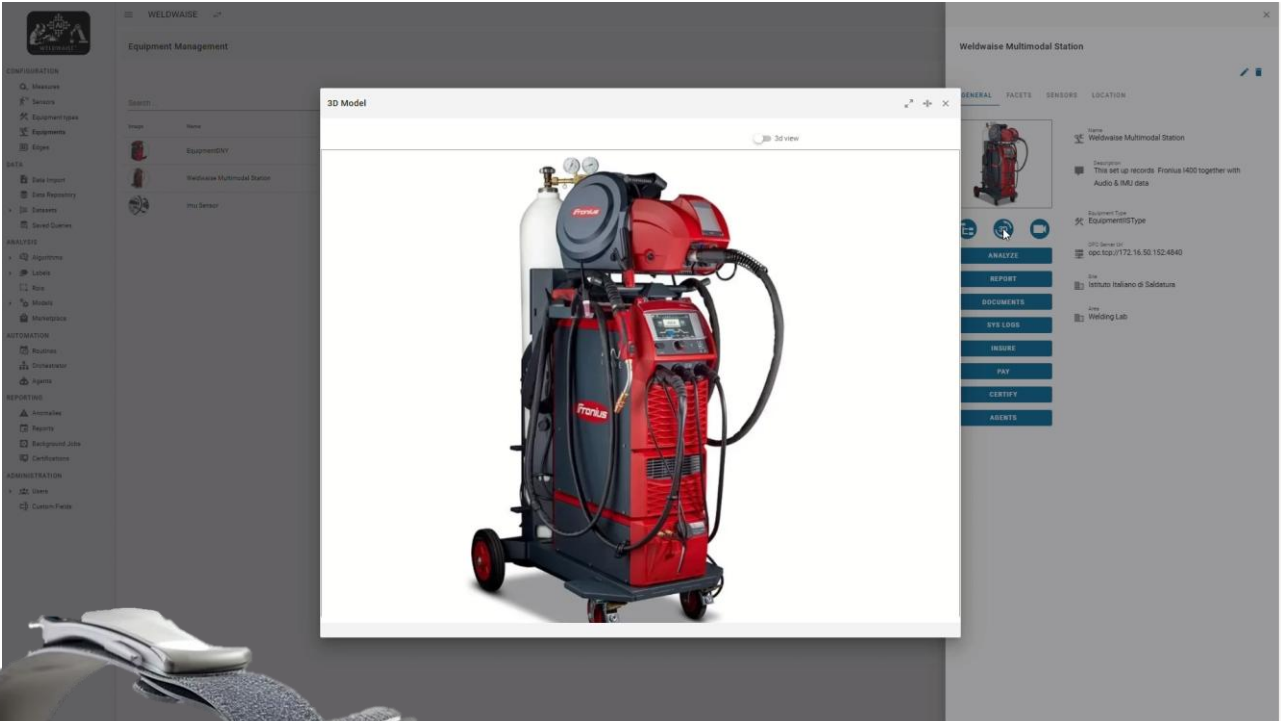
Il Neo Assunto WeldwAise



HEY WALTER,
Fammi vedere e sentire come
verrebbe una saldatura con
questi parametri macchina

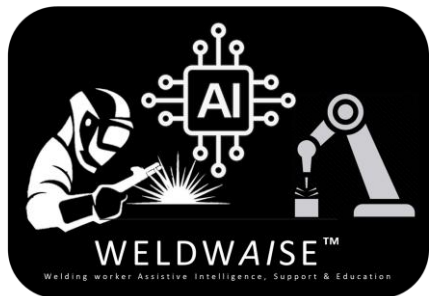


Saldatore in Formazione



Powered by:





Grazie per l'attenzione

E-mail

f.cardinali@knowhedge.com

Coordinatore:

knowhedge
your edge to know how

Partners:

