

CITADELS

TESTBED DESCRIPTION



Cultivating Industry 5.0 Talents: Academia-industry collaboration and empowerment through accessible DEep technoLogieS

Project acronym:	CITADELS
Project topic:	HORIZON-WIDERA-2024-TALENTS-03-01
Project number:	101217281
Type of action:	HORIZON-CSA
Project starting date:	1 September 2025
Project duration:	48 months
Dissemination level	PU

1 RIB3D 3D Rebar Measurement and Analysis

TestBed title	RIB3D 3D Rebar Measurement and Analysis
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1.1 Short summary

The RIB3D TestBed is an advanced 3D metrology system designed for fully automated geometric measurement and analysis of reinforcing bars, ribbed steels, threaded fasteners, and complex surfaces. The system enables fast and accurate evaluation of geometric properties, delivering international standard-compliant reporting within minutes.

RIB3D integrates dedicated measurement hardware with advanced software for data processing, analysis, and reporting. It supports measurement of more than 30 parameters and enables automatic comparison with defined standards, generation of customized reports and storage of measurement data.

The system is designed to support Industry 4.0 applications, featuring compatibility with robotic systems, AI integration, carbon tracking, and real-time remote network reporting. In the context of Industry 5.0, the TestBed contributes to human-centered and data-driven manufacturing by improving decision-making processes, reducing manual inspection effort and enabling more efficient and reliable quality control in industrial environments.

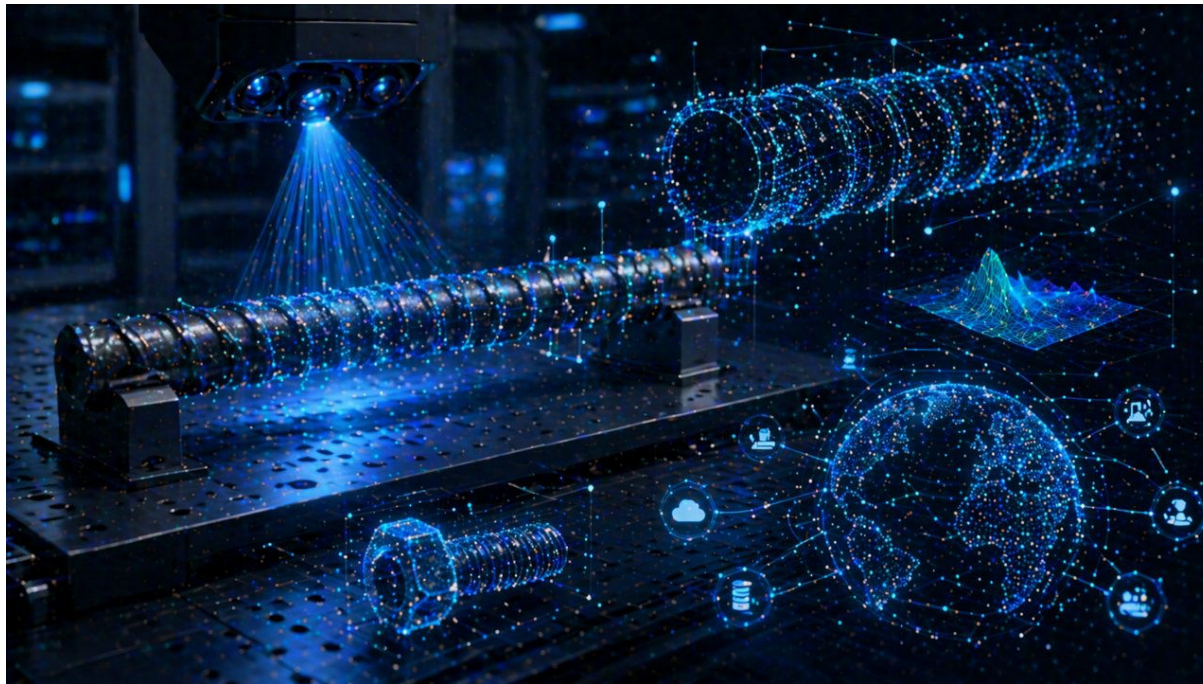
Principal Investigator Name	Creon Scientia d.o.o.
Position / institutional role	N/A
Email	For access, please contact Pomurje Technology Park at info@p-tech.si or marko@p-tech.si
Phone No.	+386 2 530 82 00
ORCID persistent identifier (PID)	N/A
TestBed Responsible Name (if different from PI)	N/A
Funding source(s) for TestBed's acquisition	Creon Scientia d.o.o.
Relevant Keywords	3D metrology, rebar measurement, quality control, AI integration, smart manufacturing, data analysis, automated measurement

1.2 Hosting Institution

Name of Host Organization	Creon Scientia d.o.o.
Department or Lab	N/A
Name of Building	N/A
Physical Address	Dunajska Cesta 56, 1000 Ljubljana, Slovenia
Website Links	http://www.psaron.com/
Institutional contact name	For access through CITADELS project please contact Pomurje Technology Park
Institutional contact email	info@p-tech.si or marko@p-tech.si

1.3 Photos/videos


Main photo:







1.4 DeepTech Area and Application Domain

DeepTech Area	Check all that apply	Check ONE main area
Extended Reality	<input type="checkbox"/>	
Robotics	<input checked="" type="checkbox"/>	
Artificial Intelligence	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Human Machine Interfaces	<input type="checkbox"/>	
Biotechnology	<input type="checkbox"/>	
Other	<input type="checkbox"/>	

The main DeepTech area of this TestBed is Artificial Intelligence, as the system integrates advanced data processing and AI-based functionalities for automated analysis and evaluation of measurement data. The TestBed supports data-driven quality control through automated reporting and real-time data handling.

Application Domain	Check all that apply
Manufacturing 	<input checked="" type="checkbox"/>

Application Domain	Check all that apply
Healthcare 	<input type="checkbox"/>
Logistics 	<input type="checkbox"/>
Agriculture 	<input type="checkbox"/>
Maintenance & inspection 	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

1.5 Potential Stakeholders and Exploitation Scenarios

Non-academic stakeholders	
Industrial Partners	<input checked="" type="checkbox"/>
SMEs	<input checked="" type="checkbox"/>
Startups	<input checked="" type="checkbox"/>
Government Bodies	<input type="checkbox"/>
Professional Associations	<input checked="" type="checkbox"/>
Community	<input type="checkbox"/>
Others 1 (comma-separated)	
Academic stakeholders	
Undergraduate students	<input checked="" type="checkbox"/>
MSc students	<input checked="" type="checkbox"/>
PhD students	<input checked="" type="checkbox"/>
Researchers	<input checked="" type="checkbox"/>
Others 2 (comma-separated)	
Other types of stakeholders	
Others 3 (comma-separated)	

	Check all that apply	Short notes (optional)
Internal academic research only	<input type="checkbox"/>	
Collaborative research with external academic partners	<input checked="" type="checkbox"/>	
Contract research / Proof-of-Concept for industry	<input checked="" type="checkbox"/>	
Pilot / DeepTech Deployment in operational environment	<input checked="" type="checkbox"/>	
Training services (courses, workshops, certification)	<input checked="" type="checkbox"/>	
Service provision (testing, benchmarking, validation)	<input checked="" type="checkbox"/>	
Open access for walk-in users (e.g. open days / hackathons)	<input type="checkbox"/>	
Other (specify): _____	<input type="checkbox"/>	

1.6 Formal Access Conditions

Type of partner asking for access	Type of contractual relationship	Check all that apply
Academic partners	No contract (direct access)	<input type="checkbox"/>
	Direct contract between parties (e.g., research agreement)	<input checked="" type="checkbox"/>
	Indirect contract between parties (e.g., project framework)	<input checked="" type="checkbox"/>
	Other / Describe	<input type="checkbox"/>
Industrial	No contract (direct access)	<input type="checkbox"/>
	Direct contract between parties (e.g., research agreement)	<input checked="" type="checkbox"/>
	Indirect contract between parties (e.g., project framework)	<input checked="" type="checkbox"/>
	Other / Describe	<input type="checkbox"/>

Type of prerequisites	Description of prerequisites	Check all that apply
Agreements	Confidentiality agreement for proprietary algorithms	<input type="checkbox"/>
	Data sharing agreement for datasets generated	<input checked="" type="checkbox"/>
	IP agreements	<input checked="" type="checkbox"/>
	Other / Describe	<input type="checkbox"/>
Insurance	Users must have appropriate liability coverage through their home institution	<input checked="" type="checkbox"/>
	Other / Describe	<input type="checkbox"/>

1.7 Training and Safety

Mandatory technical training	N/A
Recommended technical training	Basic technical literacy and understanding of measurement processes and industrial quality control systems.

Mandatory safety requirements	Use of standard personal protective equipment (PPE) in accordance with general laboratory and industrial safety procedures.
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1.8 Technical description

The RIB3D system is available in multiple configurations, with specifications varying across three product series. Therefore, technical parameters may differ between TestBed implementations. For detailed specifications, refer to the official RIB3D brochure.

Hardware	<ul style="list-style-type: none"> • 3D measurement unit: Automated system for 3D geometric measurement of reinforcing bars, ribbed steels, threaded fasteners, and complex surfaces.
	<ul style="list-style-type: none"> • Optical measurement system: Integrated sensing and imaging components for capturing high-resolution geometric data.
	<ul style="list-style-type: none"> • Sample handling and positioning system: Mechanism for positioning and stabilizing measured components during inspection.
	<ul style="list-style-type: none"> • Industrial computer and control unit: Integrated computing system for measurement control, data processing, and analysis.
	<ul style="list-style-type: none"> • Networking interface: Hardware interface enabling real-time data transfer and remote reporting.
Software needed to run the TestBed	<ul style="list-style-type: none"> • Integrated measurement software: Software for automated 3D measurement, data processing, analysis, and standard-compliant reporting.
	<ul style="list-style-type: none"> • Data management and reporting system: System for storage of raw data, systematic archiving of measurements, and generation of customizable reports.
	<ul style="list-style-type: none"> • Connectivity and AI functions: Support for real-time data exchange, remote reporting, and AI-based data analysis.
Standards that apply	<ul style="list-style-type: none"> • N/A

1.9 Existing Software Assets (i.e. in GitHub)

Link:	Short description:
N/A	N/A

1.10 TestBed documentation

Type	Short description:	Name and source (link):
Documentation	RIB3D product webpage	RIB3D – PSARON official website, http://www.rib3d.com/
Documentation	RIB3D brochure	RIB3D – Brochure, http://www.rib3d.com/docs/RIB3D_Brochure.pdf

1.11 Application cases

Application case:	Short description:	Photo of the Application case
3D measurement of reinforcing bars and steel components	Use of the system for automated 3D geometric measurement of reinforcing bars, ribbed steels, threaded fasteners, and complex surfaces.	N/A
Standard-compliant measurement and reporting	Generation of measurement results and reports in accordance with international standards for geometric inspection.	N/A
Automated measurement in industrial environments	Deployment of the system for automated measurement processes in industrial environments, supporting faster inspection compared to manual methods.	N/A

Possible TRL application range	TRL4	<input type="checkbox"/>
	TRL5	<input type="checkbox"/>
	TRL6	<input type="checkbox"/>
	TRL7	<input type="checkbox"/>
	TRL8	<input checked="" type="checkbox"/>

1.12 Funding source

Funding source acknowledgements
The creation of this TestBed was supported by Creon Scientia d.o.o., Dunajska Cesta 56, 1000 Ljubljana, Slovenia.

1.13 Ethical and societal aspects

Ethical and societal aspect:	Short description:
Improved quality control and product reliability	The TestBed supports precise and objective measurement of geometric properties of steel components, reducing human error and improving reliability and consistency in quality control processes.
Improved efficiency and reduced manual workload	The system automates geometric measurement processes, reducing the need for manual inspection and enabling faster and more efficient workflows in industrial environments.
Data handling and responsible use of industrial data	Data handling is performed in accordance with applicable data protection and confidentiality requirements.