RAPTOR

Remote weAPon condition-based moniTORing System

Readiness You Can Measure

www.raptor-project.eu

RAPTOR EU Project

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Why RAPTOR?

Challenges

Success of a critical mission depends on the reliability, accuracy, and safety of every weapon. Yet current practices offer no technology to continuously monitor a rifle's condition, leaving hidden wear undetected, reducing performance, increasing maintenance costs, and compromising operator safety. In precision systems such as sniper rifles, even the smallest deviation can determine mission outcome, leaving commanders and soldiers with reduced confidence and greater operational risk.

RAPTOR Solution

RAPTOR addresses this technology gap by developing advanced technology to continuously assess the condition of rifles, giving operators and commanders real-time insight into weapon health. By detecting wear and potential issues before they impact performance, it enhances reliability, reduces maintenance costs, and improves operational safety. For precision systems such as sniper rifles, this awareness ensures accuracy is maintained, boosting confidence in every mission and minimising the risk of unexpected failures.

Consortium

iTTi

eBOS

EXUS AI LABS

AIMPLAS PLASTICS TECHNOLOGY CENTRE

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Subcontractors

FABRYKA BRONI

Zakłady Mechaniczne Tarnów

HELLENIC DEFENCE SYSTEMS S.A.

Key Facts of the Project

36 Months

5 Partners

3 Phases

3 Test Cases

Overall and Key Objectives

To deliver a proactive, low-cost system for the real-time predictive maintenance of firearms, ensuring mission readiness through printed sensor networks, secure IoMT communication, and AI-powered condition alerts. The solution is designed with embedded security and full compatibility with European Soldier Systems.

1. Design, develop, and validate robust, low-cost printed sensors.
2. Develop and test secure, application-specific IoMT electronics.
3. Develop defence-trusted AI algorithms, robust, safe, accountable, with human oversight.
4. Develop the complete system architecture and validate RAPTOR in realistic, operational environments.
5. Maximise project impact through broad dissemination, strategic exploitation, and alignment with NATO standards.