AI and Robotics for quality and risk management processes in Harsh conditions

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Benefits in HARSH condition for mines:

**Pro-Active Maintenance**

Pro-active maintenance by real time remote inspection (via Drones, and Mobile robots) in complex industrial harsh conditions in mines to improve risk management

**Quality Assurance**

Fault recognition & analysis for quality assurance through image analysis

**Boosting overall production efficiency**

Utilization of drones & mobile robots via 5G, IoT, AI, & image analysis technologies for substantial time saving, boosting operational efficiency, cost effectiveness & safety.
Organisation Profile

Our Expertise

R&D institute with expertise in:
- Production technology
- Digitalization
- Chemistry and Bio-economy
- Entrepreneurship and well-being
- Creating new knowledge, skills and technologies for businesses and industries
- To provide work-based learning environment

Three main Pillars

(1) Project Activities
(2) R&D and production development services for business
(3) Training Services

Research, development and innovation staff
105

Projects
96

International Projects
22

Goal

• Creating new knowledge, skills and technologies for businesses and industries
• To provide work-based learning environment
Proposal

Introduction

**Vision:**
- The overall goal of this project is to develop advanced technologies to enable monitoring and improve quality of processes to further ensure better productivity, safety and quality for humans operating in complex harsh industrial conditions.

**Motivation:**
- Safety for workers in industrial harsh conditions is a major concern (Example: Human health, & accidents).
- Major challenges like GPS denied environment, & Lack of wireless network for drones & mobile robots in harsh conditions.
- Quality enhancement challenges during inspection in harsh conditions.
Requirements and current updates

Current updates

Celtic Label received in 2021
- We received the Celtic label successfully. But, all countries were not successful with funding. However we can still continue with the label to apply for a PCR.

Aim for Project change request (PCR)
- We will apply for a PCR with a updated consortium early this year to ensure funding from individual national funders and successful kick-off of the project.

Our requirements: We are considering if we still need one sub-consortium country

Sub-Consortium country with best funding possibilities
- Sub-consortiums which have the best funding possibilities in their country.

Research groups with a strong network
- Research groups who can bring with them suitable SME’s/Companies.

Seeking Sub-consortium in-line to AIROHARSH
- Sub-Consortiums should have focus in line with our use-cases and technologies.
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Presentation can be found here