FIRM 23
FEHRL Infrastructure Research Meeting
25 - 26 April 2023

InfraROB

Maintaining integrity, performance and safety of the road infrastructure, through autonomous robotized solutions and modularization

Dr Thierry GOGER - FEHRL

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 955337

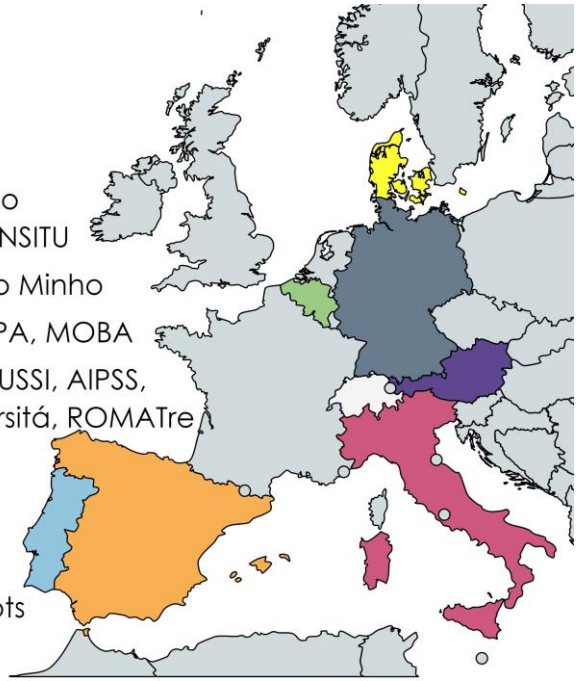
FEHRL

InfraROB. Project overview

- **Our resources**

https://cordis.europa.eu/project/id/955337/en

- **Our Consortium**



InfraROB. Project overview

- **Our objectives (Technological Areas)**

↓50% Fatal accidents*

↓20% Traffic disruptions*

↓20% Routine mainenance costs

↑20% network capacity

By focusing on the roadbed and, particularly, on ROADS PAVED WITH ASPHALT, InfraROB entails advancements across 5 strictly interrelated technological areas (TA)

TA5

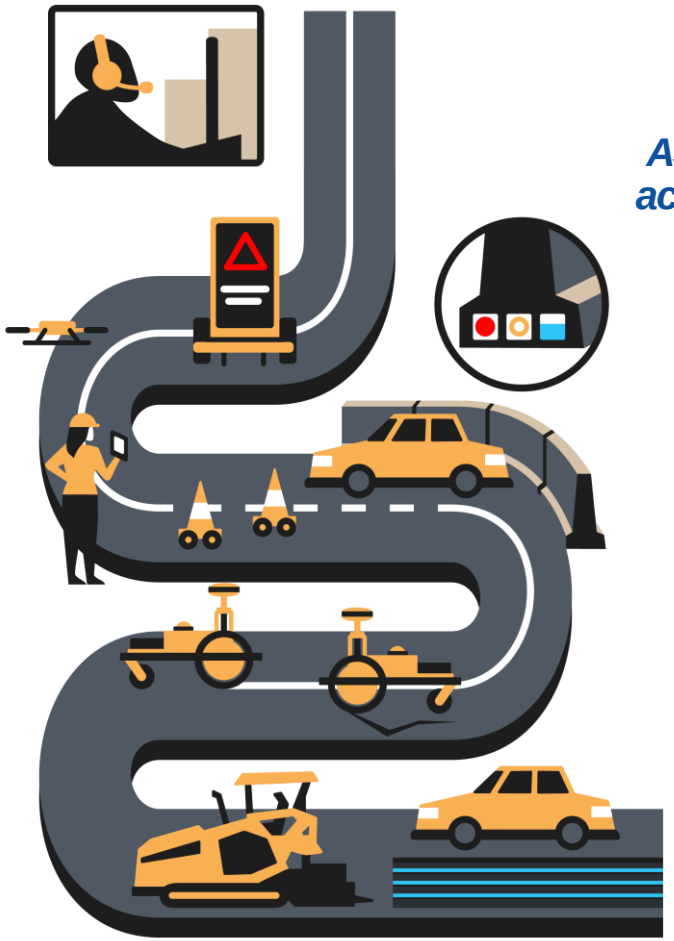
Upgrading of Management Systems to ensure safer operations and maintenance

TA4

Collaborative operation of safety cone robots and RPAS for work zone segmentation and signalling

TA2

Autonomous robotized machinery for the routine or periodic maintenance of the pavement



TA3

Modularization of road construction/upgrade through industrial prefabrication

TA1

Autonomous robotized machinery for construction, upgrade and large maintenance interventions

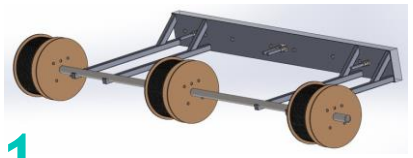
InfraROB. Results

- **Actual achievements**

01

AUTONOMOUS AND AUTONOMOUSLY-WORKING ROAD CONSTRUCTION TRAIN (PAVER, FEEDER, ROLLER)

30 %



01.1

DEVICE FOR THE AUTOMATED LAYDOWN OF FOS CABLES DURING THE PAVING PROCESS

-10%

02

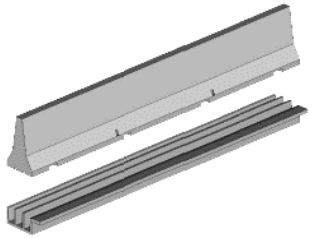
PROTOTYPE OF AUTONOMOUS ROBOTIZED HEAD TO REPAIR POTHOLES AND CRACKS (ASPHALT ROUTINE MAINTENANCE)

40 %

03

AUTONOMOUSLY-WORKING LINE MARKING ROBOT (COLD PAINT)

- 10 %



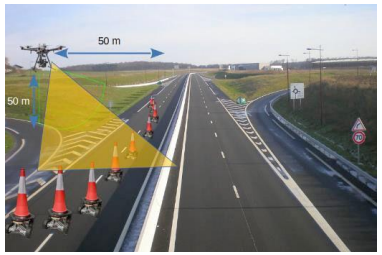
04

MULTI-FUNCTIONAL PRECAST CONCRETE ELEMENT (ROADISIDE ELEMENT)

30 %

InfraROB. Results

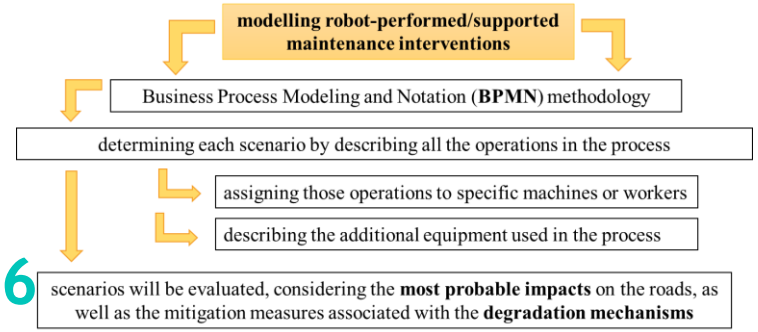
- **Actual achievements**



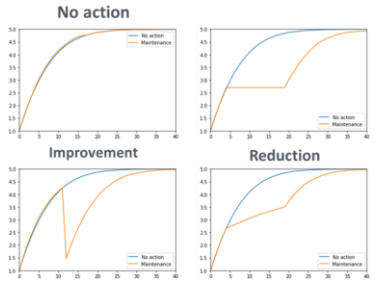
05

COLLABORATIVE OPERATION BETWEEN SAFETY CONE ROBOTS AND RPAS FOR ENHANCED WORK ZONE SEGMENTATION AND SIGNALLING

-▪ 20 %



06



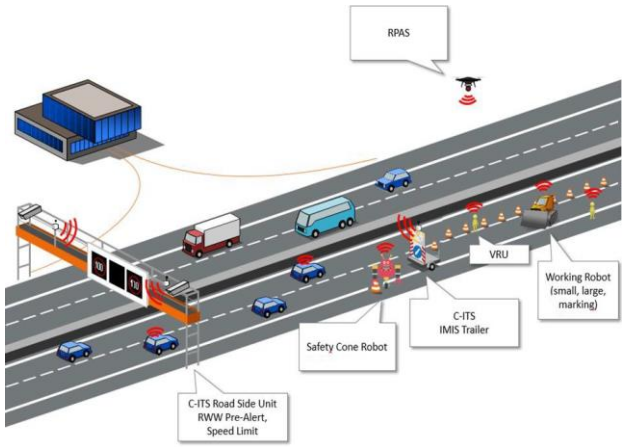
PMS UPGRADE (TAKING INTO ACCOUNT THE INTRODUCTION OF ROBOTICS)

-▪▪ 30 %

07

DIGITAL-TWIN BASED APPLICATION FOR PMS (PAVEMENT MANAGEMENT SYSTEM)

-▪ 20 %



08

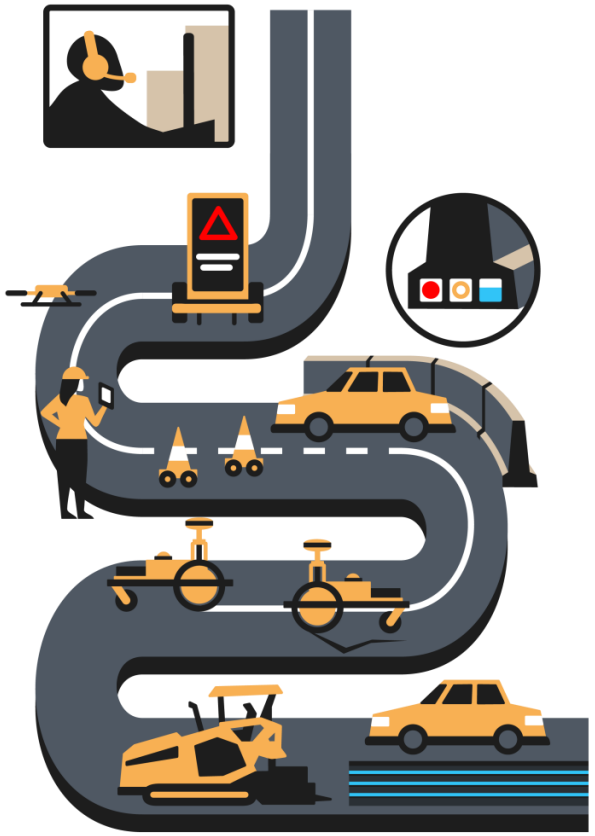
TMS UPGRADE (TAKING INTO ACCOUNT THE INTRODUCTION OF ROBOTICS) (TRAFFIC MANAGEMENT SYSTEM)

-▪ 20 %

InfraROB. Results

PATENT	IPR PROTECTION	PRODUCT AND SERVICE TO THE MARKET	PRODUCT TO THE MARKET	SERVICE TO THE MARKET
Autonomous paver sensors-control system (pending)	Asphalt mixture to repair of small potholes and cracks by the additive producer	Autonomous line marking robot & support	Multi-functional precast concrete element	Digital twin-based add-on application
		RPxS system for monitoring work zones		
		Upgrade of existing PMS solutions		
		FOS solution for pavement damage detection		

InfraROB. Expected impact



Upgrade of management systems for decision-making **taking into account the introduction of robotics**

Autonomous robotized solution for work zone segmentation and signalling (**drone based**)

Autonomous robotized interventions and modular solutions

↓**50%** Fatal accidents*

↓**20%** Traffic disruptions*

↓**20%** Routine mainenance costs

↑**20%** **network capacity**

SMART, GREEN, INTEGRATED TRANSPORT

VISION ZERO (EU Road Safety Policy Framework 2021-2030)

DIGITAL EUROPE (skills, business opportunities, infrastructure solutions)

InfraROB. Expected impact

- **Communication, dissemination, exploitation**

infrarobproject.com

infrarob@uvigo.es

company/infrarob

infra_rob

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740

VISITS TO THE PROJECT WEBSITE

330

FOLLOWERS IN THE SOCIAL MEDIA

FIRM 21
FEHRL Infrastructure Research Meeting
7 - 8 December 2021

2022 ISPRS NICE FRANCE

mFUND
Das Startkapital für die Mobilität 4.0

CECE Digitalisation Task-Force
CECE Product Group

Ordine degli Ingegneri della Provincia di Roma

ROMA

#ConnectingEurope Days
LYON 28-30 JUNE 2022

EuroCarto 2022
VIENNA, 19 - 21 SEPTEMBER 2022

Ciclo di seminari
"Strade, opere pubbliche e mobilità sicura e sostenibile per il buon governo del territorio"
5° Seminario
Sicurezza e sostenibilità
4 luglio 2022

>10

WORKSHOPS and OTHER ACTIVITIES/EVENTS

CECE PODCAST

CONSTRUCTION europe

FIRM
FEHRL INFRASTRUCTURE RESEARCH MAGAZINE

Atlántico FARO DE VIGO

5

PRESS RELEASES/PUBLICATIONS

MDPI

International Journal of PAVEMENT RESEARCH AND TECHNOLOGY

TRANSPORTATION RESEARCH

TRA
TRANSPORT RESEARCH ARENA
LISBON 2022
14 - 17 NOVEMBER

XXVII[TH] WORLD ROAD CONGRESS
PRAGUE 2023

>5

SCIENTIFIC PAPERS SUBMITTED

Cross projects cooperation

OMI RON

Heron

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infrarobproject.com

company/infrarob

infrarob@uvigo.es

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RTR CONFERENCE

Universidad de Vigo

TinyMobileRobots

AIPSS

RINA

Technology Arts Sciences TH Köln

CECE COMMITTEE FOR EUROPEAN CONSTRUCTION EQUIPMENT

Universidade do Minho

FEHRL

ASFINAG

MOBA MOBILE AUTOMATION

inSITU

TesiSystem

TPA

TECHNISCHE UNIVERSITÄT DARMSTADT