Cyber Physical System based Proactive Collaborative Maintenance

D8.4 – Production of 3 videos

Work Package	WP 8 - Dissemination of knowledge and exploitation
Version	1.1
Contractual Date of Delivery	31/10/2018
Actual Date of Delivery	03/07/2018
Dissemination Level	Confidential, only for members of the consortium (including the Commission Services)
Responsible	Michele Albano (ISEP)
Contributors	All partners
Reviewers	Michele Albano (ISEP) Urko Zurutuza (MGEP)

The MANTIS consortium consists of:

Num.	Short Name	Legal Name	Role	Country
1	MGEP	Mondragon Goi Eskola Politeknikoa J.M.A. S.Coop.	CO	ES
2	MONDRAGON	Mondragon Corporacion Cooperativa S.Coop.	BEN	ES
3	IKERLAN	Ikerlan S.Coop.	BEN	ES
4	TEKNIKER	Fundacion Tekniker	BEN	ES
5	FARR	Fagor Arrasate S.Coop.	BEN	ES
5.1	KONIKER	Koniker S.Coop.	TP	ES
6	GOIZPER	Goizper S.Coop.	BEN	ES
7	ACCIONA	Acciona Construcción S.A.	BEN	ES
8	MSI	Mondragon Sistemas De Informacion S.Coop.	BEN	ES
9	VTT	Teknologian Tutkimuskeskus VTT Oy	BEN	FI
10	LUAS	Lapin Ammattikorkeakoulu Oy	BEN	FI
11	NOME	Nome Oy	BEN	FI
12	FORTUM	Fortum Power And Heat Oy	BEN	FI
14	WAPICE	Wapice Oy	BEN	FI
15	AAU	Aalborg Universitet	BEN	DK
16	DANFOSS	Danfoss A/S	BEN	DK
19	VESTAS	Vestas Wind Systems A/S	BEN	DK
20	SIRRIS	Sirris Het Collectief Centrum Van De Technologische Industrie	BEN	BE
21	ILIAS	Ilias Solutions Nv	BEN	BE
22	ATLAS	Atlas Copco Airpower Nv	BEN	BE
23	3E	3e Nv	BEN	BE
24	PCL	Philips Consumer Lifestyle B.V.	BEN	NL
25	PHC	Philips Medical Systems Nederland B.V.	BEN	NL
26	PHILIPS	Philips Electronics Nederland B.V.	BEN	NL
27	S&T	Science and Technology B.V.	BEN	NL
28	TU/E	Technische Universiteit Eindhoven	BEN	NL
29	RUG	Rijksuniversiteit Groningen	BEN	NL
30	UNINOVA	UNINOVA - Instituto de Desenvolvimento de Novas Tecnologias	BEN	PT
31	ISEP	Instituto Superior de Engenharia do Porto	BEN	PT
32	INESC	Instituto de Engenharia de Sistemas e Computadores do Porto	BEN	PT
33	ADIRA	ADIRA - Metal Forming Solutions S.A.	BEN	PT
34	ASTS	Ansaldo STS S.p.A.	BEN	IT
35	CINI	Consorzio Interuniversitario Nazionale per l'Informatica	BEN	IT
36	AIT	Austrial Institute of Technology GmbH	BEN	AT
37	HBM	Hottinger Baldwni Messtechnik GmbH	BEN	AT
38	INNOTEC	Innovative Technology and Science Limited	BEN	UK
39	AITIA	AITIA International Inc.	BEN	HU
40	BME	Budaperst University of Technology and Economics	BEN	HU
41	JSI	Josef Stefan Institute	BEN	SI
42	XLAB	XLAB d.o.o.	BEN	SI
43	FHG	Fraunhofer Institute for Experimental Software Engineering IESE	BEN	DE
44	M2X	M2Xpert GmbH & Co KG	BEN	DE
45	STILL	STILL GMBH	BEN	DE
46	BOSCH	Robert Bosch GMbH	BEN	DE
47	LIEBHERR	Liebherr-Hydraulikbagger GmbH	BEN	DE
48	SATA	Sataservice Oy	BEN	FI
49	XTEL	Xtel Aps	BEN	DK
50	NEOGRID	Neogrid Wireless Aps	BEN	DK

Document Revisions & Quality Assurance

Revisions:

Version	Date	By	Overview
1.0	2/07/2018	Michele Albano (ISEP)	First version
1.1	3/07/2018	Michele Albano (ISEP), Luis Lino Ferreira (ISEP)	Final version

Abstract

The MANTIS project has ambitious goals in terms of dissemination. Reaching the public at large can be facilitated by means of multimedia material. Thus, the MANTIS project had on its KPIs the production of videos.

This deliverable reports on the production of one video in particular, which was worked on by most of the partners in the consortium. Thus, this document acts as a support to the video, which is the main result to be considered.

This document also offer pointers to the other videos related to the MANTIS project, produced by partners of the MANTIS consortium.

Table of Contents

1 Introduction

The MANTIS project reached many technical goals, and surpassed most of the Key Performance Indicators (KPIs) it gave itself. As stated on its Description of Actions (DoA) documents, the MANTIS project has the ambition to reach a large number of communities. This goal can be supported by multimedia material. In this context, the MANTIS project has decided, from its inception, to produce videos to explain its results to different kinds of public, spanning from researchers in the academia, to engineers in the industry, to the general public.

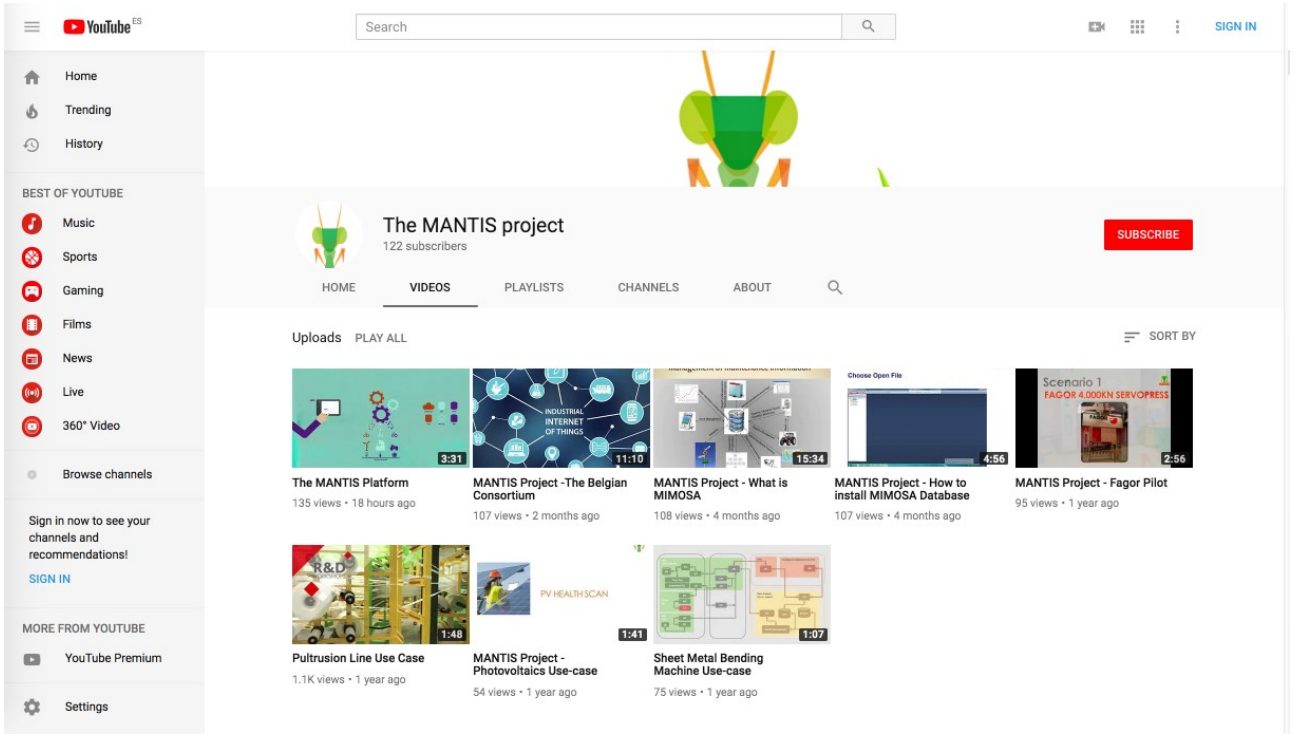
The DoA considers the production of 3 videos. Different groups of partners have produced videos, at some points specific partners also produced video material for dissemination, and the target KPI of 3 videos was easily surpassed. The consortium decided to embark in the effort of creating a video of the MANTIS project at large, and in this context WP8 was active in writing a script, defining the audio visual content, and making use of a professional video company to produce the best video possible.

This document has two objectives:

- Provide a pointer to the MANTIS Youtube channel, which hosts a number of videos from the MANTIS project
- Describe the video of the MANTIS project at large.

2 MANTIS YouTube channel

The MANTIS project has got its own YouTube channel, to host videos produced by different partners or groups of partners, based on the work done in the context of the MANTIS project. The YouTube channel is located at URL: https://www.youtube.com/c/MANTISproject



3 The MANTIS video

This section provides information regarding the video that was produced, and worked on, by the full MANTIS consortium.

The script of the video was written by Michele Albano (ISEP), and reviewed by many partners of the MANTIS consortium.

The music track in the video was written and played by Erkki Jantunen (VTT) and Urko Zurutuza (MGEP).

A company based in Portugal and called *Ideias com Pernas* took care of creating an animation to lay down the motivation behind the MANTIS project, of the voice track, and of putting together all the material into the final video. More information on the company can be found on:

http://ideiascompernas.com/portfolio/projecto/165/showreel-2017

The video' s title is " The MANTIS platform" , and it can be found on:

https://www.youtube.com/watch?v=sHiVEi1BZ0o

3.1 MANTIS Video Storyboard

The script that was produced to drive the animation and sound tracks is the following:

Ref	Image	Description	Script version	Duration	Time
1		Delete the logos Put MANTIS' s meaning etc	Project MANTIS	5	5
2		Project partners logos	This is the story of the creation of a platform for collaborative and proactive maintenance. It has deserved a huge European effort, carried out by 45 institutions and companies all over Europe. The professionals have joined their strengths.	15	20
3	Financed by EU 100 Meuros 7 countries with map	Project numbers	The project was funded by EU and the ECSEL agency, and it led to the creation of the MANTIS platform for maintenance.	10	30
4		MANTIS Motivation: An animation showing a map of Europe, with a machine stopping in Germany, a clock starts ticking and counting the hours and the Euros lost, and a man getting on a plane in Porto with spare parts and going to the machine and repair it. We show the final downtime.	Imagine your company builds machines for manufacturing, and you sold a machine to an abroad company. They are profiting from it, but one day the machine has a mechanical problem. They have to wait for your personnel to go there, diagnose the problem, and for spare parts to be sent on site. And the downtime caused economical damage.	20	50
5		What MANTIS does. SHOULD WE PUT THIS: . Business Models: proactive maintenance is novel topic, and there is the need to analyse how it can be monetized / produce added value / etc	MANTIS can save your time and money. We profile machines in their normal states. We profile machines having problems. We can then profile YOUR new machine, and tell when it is going to have a fault, and what needs to be done to minimize downtime and cost of maintenance.	15	1:05

6	Same image	What MANTIS is. How it is done: close to the machines: Sensors. Edge local = preprocessing and secure communication to the cloud.	Is it magic? In a sense. Data on the machines are collected using Cyber Physical Systems and sent to the cloud. Machine learning algorithms – well – learn the behaviour of the machines, to predict their future conditions. Advanced visualization makes your maintenance engineers and technicians understand what the algorithms say. And what about these ingredients we use?	20	1:25
7		CPS	Ah, edge computing! We put intelligent Cyber Physical Systems into your factory to collect data on machines and their environment, and then we preprocess the data and send it to the cloud using an intelligent gateway.	15	1:40
8	Same image	How it is done: intelligence in the cloud: Data Analysis Big Data Machine Learning	And now the cloud. There, we crunch the numbers to find patterns in both normal and ab normal functioning of the machines. The idea is to find the problem before it starts.	10	1:50
9	HMI video	How it is done: HMI	And then we reach to the engineers, blending online and historical data, and using adaptable views to distil information when too much data would be confusing with traditional visualization techniques.	10	2:00
10	Belgian clip	5 seconds on internet of things, then the photovoltaic plant	The MANTIS platform is in use in many pilots and among them, Photovoltaic plants. The amount of data from plants can be confusing for owners and operators, and it is where MANTIS lends us its brainpower to go through the plants and help them with a detailed fault detection analysis	15	2:15

11	Ansaldo clip	Train tracks!	Everybody loves trains, and so does MANTIS The sensorization of the tracks allows us to protect the trains, and especially the passengers in them!	15	2:30
12	Acciona clip	The pultrusion machine, then 3 figures (gallert, lighthouse, Madrid bridge)	" Pultrusion" . Composite glass fibers, basalt, carbon, natural fibers are impregnated with resin and passed through a heating line. They become resistant enough for galleries, lighthouses and bridges. And MANTIS watches over this process too.	15	2:45
13	Adira	From adira video	You don' t want to know how much force is used to bend metal sheets. But you want to know how to maintain the metal benders. And MANTIS uses machine learning to model these giants and tell us when to repair them.	15	3:00
14	Fagor clip	The press, then the clutch brake.	Another big monster monitored by MANTIS. These presses are equipped with Cyber Physical Systems in the most critical components for enhancing press and components robustness, in order to facilitate proactive maintenance activities. The clutch brake, a subsystem of the press, is actually a cyber-physical system itself, which continuously provides its own health status.	15	3:15
15	Same image as in 1	Closing	And all of this is MANTIS!	5	3:20

Total of 200 s – 3:20 min

4 Conclusions

The work done to produce the video led to the creation of a nice piece of work, in our opinion, and it is being submitted to the *Showcase your project* initiative:

http://ec.europa.eu/research/investeuresearch/index.cfm