

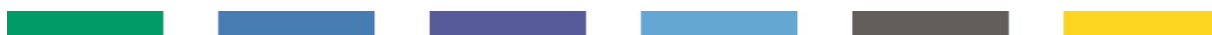


D2.2: System Architecture Definition

Work package	WP2: Requirements and Specifications
Task	Task 2.2: Overall System Definition
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Dissemination level	Confidential (CO) with Publishable Executive Summary
Status	Final
Due date	31/01/2017
Document date	07/06/2017
Version number	1.0
File Name	optiTruck-D2.2-System Architecture Definition-v1.0-Final-PU.docx



optiTruck is co-funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 713788



Control sheet

Version history			
Version	Date	Main author	Summary of changes
0.1	12/10/2016	A. Favenza, A. Vesco	Draft outline
0.2	26/10/2016	A. Favenza	Revised Table of Content
0.3	15/11/2016	A. Favenza, H. Chen, K. Torp, B. Erbas, K. Koprubasi	Revised Table of Content
0.4	30/11/2016	A. Favenza	Revised version of ToC according with IAV
0.5	01/12/2016	A. Favenza, A. Farasin, M. Gaetani	Revised version of ToC according with received comments
0.6	22/12/2016	A. Favenza, A. Farasin, M. Gaetani	Revised version of ToC according with received comments
0.7	03/01/2017	A. Favenza	Contributions to sections 1, 2.1, 3.2, 3.2
0.8	10/01/2017	A. Favenza, A. Farasin	ISMB contributions
0.9	13/01/2017	A. Favenza, M. Gaetani	ISMB contributions
0.10	17/01/2017	A. Favenza, Thorsten Stamm von Baumgarten	IAV contributions
0.11	20/01/2017	A. Favenza, Haibo Chen	LEEDS contributions
0.12	24/01/2017	A. Favenza, M. P. Fanti	ICOOR contributions
0.13	27/01/2017	A. Favenza, K. Behlivan	FORD contributions
0.14	31/01/2017	A. Favenza, K. Torp	AAU contributions
0.15	03/02/2017	A. Favenza, D. Margaritis	CERTH contributions
0.16	07/02/2017	A. Favenza, A. Farasin, M. Gaetani, A. Vesco	ISMB contributions
0.17	10/02/2017	A. Favenza, A. Farasin, M. Gaetani	ISMB contributions
0.18	14/02/2017	A. Favenza, Haibo Chen	LEEDS contributions
0.19	17/02/2017	A. Favenza, Orhan Behiç Alankuş	OKAN contributions
0.20	21/02/2017	A. Favenza, K. Koprubasi	FORD contributions
0.21	24/02/2017	A. Favenza, H. Rauch	IAV contributions
0.22	28/02/2017	A. Favenza, A. Mangini	ICOOR contributions

0.23	03/03/2017	Orhan Behiç Alankuş	OKAN Contribution to section 6
0.24	03/03/2017	A. Favenza	Revision of section 6
0.25	09/03/2017	A. Favenza	Final version, including peer review
1.0	05/06/2017	A. Favenza	Added abstract, Executive summary, approach and conclusions.

	Name(s)	Organisation(s)	Date
Main author/ editor:	Alfredo Favenza Alessandro Farasin Manuel Gaetani Andrea Vesco	ISMB	14/11/2016
Peer reviewed by:	Haibo Chen Kerem Behlivan	LEEDS FORD	06/02/2017
Authorised by:	Orhan Behiç Alankuş Jean-Charles Pandazis	OKAN (SP leader) ERTICO (Project Coordinator)	07/06/2017
Submitted by:	Jean-Charles Pandazis	ERTICO (Project Coordinator)	07/06/2017

Abstract

This document presents a high level description of the optiTruck overall Architecture aiming at defining the main features of the Global Optimizer. This analysis provides a general overview of software and hardware components involved in the Cloud Optimizer and the On-board Optimizer integrating and fusing external data sources and real-time on-board data collected at the cloud-based Architecture in order to reach the optimum levels of fuel and emission reduction and fulfil the goals of the optiTruck project.

Glossary of terms

Acronyms / terms	Description
Transport mission	Defined transport route
Scenario	Definition of specific elements that characterize the test of a transport mission
Innovation Element	Core element of the optiTruck concept that explain how the project results contribute to fuel savings
Use Case	The use case is a set of possible sequences of interactions between systems and users related to a particular goal.
Cloud Optimizer	One component of the optiTruck Global Optimizer that supervises the optimization on the cloud
On-board Optimizer	One component of the optiTruck Global Optimizer that supervises the optimization on the on-board system
Mission Dashboard	Dashboard used to collect transport mission data from the fleet management company
Mission User Interface	Interface used to communicate with the driver
Data architecture	A component of the cloud system responsible for the storage of data coming from on-board system and from external services
On-board sensors	Sensors installed on the equipped optiTruck vehicle
Sensors Fusion Module	A module of the optiTruck architecture that includes all the components to fuse the data from the different sensors placed on the truck (e.g., load, cameras, temperature, etc.)
HMI	Human Machine Interface
IE	Innovation Elements
ETA	Estimated Time of Arrival
UML	Unified Modelling Language

Acronyms / terms	Description
IaaS	Infrastructure as a Service
PaaS	Platform as a Service
SaaS	Software as a Service
PCCM	Predictive Cruise Control Module
RCPM	Rapid Control Prototyping Module
ECU	Engine Control Unit
CAPEX	Capital expenditure
OPEX	Operational expenditure
ETL	Extract Transform and Load
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
ePCC	Enhanced Predictive Cruise Control
FLR	Forward Looking Radar
FLC	Forward Looking Camera
GOC	Global Optimizer Computer
CSV	Comma Separated Value
JSON	JavaScript Object Notation
XML	Extensible Markup Language

Publishable Executive Summary

This document reports about the optiTruck System Architecture, showing diagrams and graphs of each sub-component of the overall system and identifying the interconnection among them together with a description of the simulation environment for HIL and SIL simulations contributing to the success of the solution.

In Chapter 1, an introduction of the scope of this analysis in the context of the optiTruck project is provided together with an explanation of used methodology.

Chapter 2 will provide a first level architectural overview.

Chapter 3 focuses on the definition of the Cloud Computing System including data architecture, cloud optimizer and dashboard.

Chapter 4 focuses on On-Board system, including Predictive Cruise Control Module3, Rapid Control Prototyping Module, Engine Control Unit, Sensors Fusion & Image Processing Module and HMI.

Finally Chapter 5 introduces the optiTruck Simulation Environment and Chapter 6 provides an overview of the data sources ingested by the system including on-board, mission and third party data sources.



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