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ITEA 3 is a EUREKA strategic ICT cluster programme

Exploitable Results by Third Parties

15015 ENTOC

Project details

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Name: **Boiler-plate Requirements Specification Tool**		
Input(s):	Main feature(s)	Output(s):
▪ Plant description	▪ Formalized description of requirements by means of boilerplates	▪ Plant description enriched with requirements

Unique Selling Proposition(s):	▪ Formalization of Requirements ▪ Compatibility with the AutomationML format ▪ Flexibility in the formalization
Integration constraint(s):	▪ Java Runtime Environment
Intended user(s):	▪ Requirement Engineers, Plant Design Engineers
Provider:	▪ TWT GmbH Science & Innovation
Contact point:	▪ Christian König – christian.koenig@twt-gmbh.de
Condition(s) for reuse:	▪ Commercial license
	Latest update: 07/01/2019

Name: **Product and Process Requirement Analyz3r**		
Input(s):	Main feature(s)	Output(s):
▪ Plant and product description	▪ Schedule Optimization ▪ Resource Dead-Locks avoidance	▪ Optimized production schedule

Unique Selling Proposition(s):	▪ Formalized variability handling ▪ Automatic resource Dead-Locks avoidance ▪ Compatibility with AML as information source
Integration constraint(s):	▪ Java Runtime Environment
Intended user(s):	▪ Requirement Engineers, Plant Design Engineers
Provider:	▪ Chalmers University of Technology
Contact point:	▪ Knut Åkesson knut.akesson@chalmers.se
Condition(s) for reuse:	▪ Licence to be negotiated
	Latest update: 07/01/2019

Name: **Requirements-Add-on for 3D Modelling Tool**		
Input(s):	Main feature(s)	Output(s):
▪ Requirement lists in AML-format	▪ Import of AML-files including RoleClasses ▪ Assigning requirements to 3D objects or hierarchy-nodes	▪ 3D Plant data model including formalized requirements

Unique Selling Proposition(s):	▪ Combination of 3D layout design and requirements specification in one tool
Integration constraint(s):	▪ Operating System: Microsoft Windows ▪ Installation of software taraVRbuilder
Intended user(s):	▪ Planners for plants and material-handling systems
Provider:	▪ tarakos GmbH
Contact point:	▪ klaus.hanisch@tarakos.de
Condition(s) for reuse:	▪ commercial licence to be negotiated
	Latest update: 07/01/2019

Name: **Rule-based AML-interface-**		
Input(s):	Main feature(s)	Output(s):
▪ AML-file ▪ varying rulesets for interpretation	▪ Import of AML-files including varying dialects, RoleClasses or SystemUnitClass Libs	▪ Flexible AutomationML-interface considering several individual or standardized role-class and SystemUnitClass specifications

Unique Selling Proposition(s):	▪ AML interface is able to read and write many kinds of AML- libraries ▪ Enterprise- or domain specific AML-structures are read-/writeable as well as standardized libraries
Integration constraint(s):	▪ Operating System: Microsoft Windows ▪ Installation of software taraVRbuilder required ▪ Stand alone tool on request
Intended user(s):	▪ Planners for plants and material-handling systems ▪ IT specialists who need to convert data among different engineering tools or AML-dialects
Provider:	▪ tarakos GmbH
Contact point:	▪ klaus.hanisch@tarakos.de
Condition(s) for reuse:	▪ commercial licence to be negotiated
	Latest update: 07/01/2019

Name: **Process Planning Tool-**		
Input(s):	Main feature(s)	Output(s):
▪ AML-file including plant resource structure	▪ User defines process steps and selects one or more needed resources for every step supported by the imported resource list	▪ AML-file containing resources, processes and dependencies among them

Unique Selling Proposition(s):	▪ Tool enables to create an integrated plant data model including resources, processes and their dependencies ▪ Resource structure can be imported from different tools
Integration constraint(s):	▪ Operating System: Microsoft Windows
Intended user(s):	▪ Planners for plants and material-handling systems
Provider:	▪ tarakos GmbH
Contact point:	▪ klaus.hanisch@tarakos.de
Condition(s) for reuse:	▪ commercial licence to be negotiated

Latest update: 07/01/2019

Name: **Web based planning tool – proof of concept**		
Input(s):	Main feature(s)	Output(s):
	▪ Users can design 3D layouts at a browser based application by using 3D object libraries for material handling and manufacturing systems	▪ web based planning tool for material handling and manufacturing
Unique Selling Proposition(s):	▪ low barrier for IT administration compared to desktop installation ▪ easy access for users ▪ cross-platform application, also available at mobile devices	
Integration constraint(s):	▪ Mozilla Firefox, Chrome	
Intended user(s):	▪ Planners for plants and material-handling systems	
Provider:	▪ tarakos GmbH	
Contact point:	▪ klaus.hanisch@tarakos.de	
Condition(s) for reuse:	▪ Proof of concept - commercial licence to be negotiated	
	Latest update: 07/01/2019	

Name: **Tool for project milestone planning**		
Input(s):	Main feature(s)	Output(s):
▪ AutomationML files with a resource hierarchy	▪ Formalized description of project planning information for creation of production equipment	▪ Original AML file enriched by milestone information

Unique Selling Proposition(s):	▪ Formalized project information to be exchanged between customers and suppliers of production equipment ▪ Easy import of project planning information into ERP systems of equipment suppliers ▪ Clearness of what to deliver and when to deliver ▪ Usable for project tracking
Integration constraint(s):	▪ Python 2.7 interpreter
Intended user(s):	▪ Planners for production systems
Provider:	▪ Institut für Automation und Kommunikation e.V. (ifak)
Contact point:	▪ Mario Thron - mario.thron@ifak.eu
Condition(s) for reuse:	▪ Research and development contract to ifak
	Latest update: 07/01/2019

Name: **Standardized requirement specification language - milestone definition**		
Input(s):	Main feature(s)	Output(s):
	▪ Formalized description of project planning information for creation of production equipment	▪ Intended: Best Practice Recommendation at AutomationML e.V.
Unique Selling Proposition(s):	▪ Formalized project information to be exchanged between customers and suppliers of production equipment	
Integration constraint(s):	▪ Software tools for handling XML (specifically AutomationML based on CAEX 2.15 schema)	
Intended user(s):	▪ Industrial planners of production equipment	
Provider:	▪ Intended publisher: AutomationML e.V.	
Contact point:	▪ Later on for: office@automationml.org ▪ During preparation time: Mario Thron – mario.thron@ifak.eu	
Condition(s) for reuse:	▪ Public available	
	Latest update: 07/01/2019	

Name: **Standardized requirement specification language - material handling**		
Input(s):	Main feature(s)	Output(s):
	▪ Standardized specification of material handling systems by using AutomationML	▪ standardization
Unique Selling Proposition(s):	▪ Unification for data exchange among engineering tools related to material handling domain	
Integration constraint(s):		
Intended user(s):	▪ Planners and automation technicians of material handling domain	
Provider:	▪ AutomationML e.V.	
Contact point:	▪ klaus.hanisch@tarakos.de	
Condition(s) for reuse:	▪ Public document	
	Latest update: 07/01/2019	

Name: **Component description (White paper) - Chapter Simulation (FMU)**		
Input(s):	Main feature(s)	Output(s):
	▪ Standardized description of interconnections between simulation models of different vendors. ▪ Based on AutomationML and Functional Mockup Interface technologies.	▪ Public available whitepaper
Unique Selling Proposition(s):	▪ Specification of a set of different simulation models, which appear in a co-simulation environment.	
Integration constraint(s):	▪ FMI co-simulators, which must be prepared to interpret the data according to this whitepaper ▪ FMI co-simulation models	
Intended user(s):	▪ Planners of production equipment ▪ Users of virtual commissioning scenarios	
Provider:	▪ Intended publisher: AutomationML e.V.	
Contact point:	▪ Later on for: office@automationml.org ▪ During preparation time: Mario Thron – mario.thron@ifak.eu	
Condition(s) for reuse:	▪ Public available	
	Latest update: 07/01/2019	

Name: **AML-FMU Configurator**		
Input(s):	Main feature(s)	Output(s):
▪ AutomationML file of a production system ▪ Functional mock-up Interfaces (FMUs)	▪ Link Functional Mock-up Interfaces to AML ▪ Set initialize values of FMUs inputs ▪ Link in- & outputs between FMUs	▪ Extended AML file with FMUs & how setup for a co-simulator via FMUs

Unique Selling Proposition(s):	▪ Standalone prototype tool which use just standard data formats ▪ Create an extended AML file without tool dependencies
Integration constraint(s):	▪ Prototype ▪ No all functions are tested jet ▪ No all functions are realized ▪ Use of non-official public extensions of the AML standard to link FMUs
Intended user(s):	▪ Create & setup the virtual behavior plant model for virtual commissioning
Provider:	▪ EKS InTec GmbH
Contact point:	▪ anton.strahilov@eks-intec.de
Condition(s) for reuse:	▪ AML must fix the suggestion to extend the AML standard by linking of FMUs

Latest update: 07/01/2019

Name: **Engineering Model Store Prototype**		
Input(s):	Main feature(s)	Output(s):
▪ Packages of engineering data (from equipment manufacturers)	▪ Handling of packages, which include AutomationML files and behavior models in form of FMI models. ▪ Automatic dependency management	▪ sets of packages of engineering data to be used in co-simulation scenarios
Unique Selling Proposition(s):	▪ Package management including dependencies between packages and versions of packages, even if they are originally provided by different equipment manufacturers	
Integration constraint(s):	▪ The server provides an HTTP based REST service API	
Intended user(s):	▪ Companies, which provide virtual commissioning scenarios.	
Provider:	▪ Institut für Automation und Kommunikation e.V. (ifak)	
Contact point:	▪ Mario Thron - mario.thron@ifak.eu	
Condition(s) for reuse:	▪ Research and development contract to ifak	
	Latest update: 07/01/2019	

Name: **AddOn for Planning Tool - Access to different model stores-**		
Input(s):	Main feature(s)	Output(s):
▪ 3D data from online CAD-catalogues	▪ Send request to model stores ▪ Selection, download, conversion and import of CAD-models	▪ Access to CAD-models of manufacturers for layout planning aspects

Unique Selling Proposition(s):	▪ User-Access to amounts of precise CAD models of manufacturers for detailed layout planning
Integration constraint(s):	▪ Operating System: Microsoft Windows ▪ Installation of software taraVRbuilder required
Intended user(s):	▪ Planners for plants and material-handling systems
Provider:	▪ tarakos GmbH
Contact point:	▪ klaus.hanisch@tarakos.de
Condition(s) for reuse:	▪ commercial licence to be negotiated

Latest update: 07/01/2019

Name: **Collada import to AGX Dynamics**		
Input(s):	Main feature(s)	Output(s):
▪ A scene description with physics according to the COLLADA 1.4 standard	▪ Parsing, interpretation, and translation of COLLADA concepts into AGX Dynamics entities.	▪ Representation of the described simulation contents within the AGX Dynamics simulation engine

Unique Selling Proposition(s):	▪ Industry grade real time physics for COLLADA models
Integration constraint(s):	▪ Requires AGX Dynamics, which is available for Windows, Linux and macOS
Intended user(s):	▪ Users of modeling and authoring tools that generate COLLADA documents and require high quality industry grade simulations
Provider:	▪ Algoryx Simulation
Contact point:	▪ contact@algoryx.se
Condition(s) for reuse:	▪ Commercial license
	Latest update: 07/01/2019

Name: **FMU export from AGX Dynamics**		
Input(s):	Main feature(s)	Output(s):
▪ Simulation model in the AGX Dynamics physics engine	▪ Creation of an FMU from an AGX Dynamics scene specification.	▪ An FMU containing the simulation scene along with bootstrapping functionality to integrate with an existing AGX Dynamics installation

Unique Selling Proposition(s):	▪ By exporting an AGX Dynamics scene as an FMU one gets access to high quality industry grade simulations of jointed multibody systems with frictional contacts within the FMI ecosystem, enabling integration with simulation models from a multitude of other sources.
Integration constraint(s):	▪ Requires AGX Dynamics, which is available for Windows, Linux and macOS
Intended user(s):	▪ Organizations already using a specialized simulation software for some part of their design, but who also need the precision and stability of AGX Dynamics for the parts of the scene that is not handled by the specialized simulation software
Provider:	▪ Algoryx Simulation
Contact point:	▪ contact@algoryx.se
Condition(s) for reuse:	▪ Commercial license.
	Latest update: 07/01/2019

Name: **FMU export from Momentum**		
Input(s):	Main feature(s)	Output(s):
▪ Mechanical design in the Algoryx Momentum plugin for the ANSYS SpaceClaim CAD software.	▪ Creation of an FMU from an Algoryx Momentum design.	▪ An FMU containing the simulation scene along with bootstrapping functionality to integrate with an existing AGX Dynamics installation.

Unique Selling Proposition(s):	▪ Efficient and unique combination of CAD and physics modeling for developing simulation components that can be readily exported as FMUs and integrated into FMI systems.
Integration constraint(s):	▪ Requires Algoryx Momentum, a plugin for the ANSYS SpaceClaim CAD software, available for Windows. ▪ Running the FMU requires AGX Dynamics, which is available for Windows, Linux, and macOS.
Intended user(s):	▪ Designers of mechanical sub-systems that need to provide digital models into the engineering tool chain for smart factories
Provider:	▪ Algoryx Simulation
Contact point:	▪ contact@algoryx.se
Condition(s) for reuse:	▪ Commercial license.
	Latest update: 07/01/2019

Name: **Co-Simulation master**		
Input(s):	Main feature(s)	Output(s):
▪ FMI-compliant component models ▪ Plant configuration	▪ Co-Simulation of models for Virtual Engineering of systems	▪ Signal traces

Unique Selling Proposition(s):	▪ Easy integration in Siemens NX MCD (through the EDAG PLC Connect) possible, but not necessary
Integration constraint(s):	▪ Python 3 interpreter
Intended user(s):	▪ Engineers for Virtual Engineering of plants
Provider:	▪ TWT GmbH Science & Innovation
Contact point:	▪ Christian König – christian.koenig@twt-gmbh.de
Condition(s) for reuse:	▪ Commercial licenses
	Latest update: 07/01/2019

Name: **PLC Connect FMU interface**		
Input(s):	Main feature(s)	Output(s):
▪ FMI-compliant component models	▪ Simulation of FMUs during concept design in CAD system NX ▪ Simulation of FMUs for virtual commissioning in CAD system, NX	▪ Fully simulated 3D design

Unique Selling Proposition(s):	▪ Easy integration in Siemens NX MCD ▪ One FMU integration for virtual engineering and virtual commissioning
Integration constraint(s):	▪ Based on TWT Co-Simulation master ▪ EDAG PLC Connect necessary
Intended user(s):	▪ Engineers doing virtual engineering and virtual commissioning, NX users
Provider:	▪ EDAG PS
Contact point:	▪ ali.moghaddam.nejad@edag-ps.com
Condition(s) for reuse:	▪ Commercial licenses for NX and PLCConect which can be acquired from EDAG PS
	Latest update: 07/01/2019

Name: **RF:CSPy FMI Co-Simulator**		
Input(s):	Main feature(s)	Output(s):
▪ Extended AML file (WP3 AML-FMU Configurator) ▪ FMUs (local or from FMU store)	▪ Ran a simulation of several FMUs in a simulation step between 1 and 25 [ms] ▪ Communicate with all tools of RF::Suite	▪ Preformat simulation of FMUs for virtual commissioning

Unique Selling Proposition(s):	▪ Using only standard data formats ▪ Useful with RF::Suite tools ▪ Support FMI 1.0 & 2.0 version at same time
Integration constraint(s):	▪ Is a prototype no a final tool ▪ Not all tests performed ▪ No all function realized ▪ Several bugs open
Intended user(s):	▪ Engineer for virtual commissioning
Provider:	▪ EKS InTec GmbH
Contact point:	▪ anton.strahilov@eks-intec.de
Condition(s) for reuse:	▪ commercial
	Latest update: 07/01/2019

Name: **Augmented Reality Model Creator (ARMCor)**		
Input(s):	Main feature(s)	Output(s):
▪ Native 3d cad data	▪ Support preparing of AR needed project ▪ Create automated AR project for DIOTA player	▪ DIOTA player project
Unique Selling Proposition(s):	▪ Reduce preparation time (more than 95%) ▪ Reduce update time of existing DIOTA player projects (deepens on complexity)	
Integration constraint(s):	▪ DIOTA API doesn't support color definition ▪ ARMCor is a prototype	
Intended user(s):	▪ Each mechanical engineer & maintenance owner	
Provider:	▪ EKS InTec GmbH	
Contact point:	▪ anton.strahilov@eks-intec.de	
Condition(s) for reuse:	▪ Design & develop ARMCor as a tool ▪ Extension of DIOTA player API by function to manipulate color informations of the 3d geometry objects	
	Latest update: 07/01/2019	

Name: **Cable damage estimation model**		
Input(s):	Main feature(s)	Output(s):
▪ AGX Dynamics simulation containing one or more cables	▪ Estimation of damage and wear to a cable due to deformation and impacts/contact with itself, other cables or the surrounding environment.	▪ Account of when, where, and why damage and wear was caused to a simulated cable.

Unique Selling Proposition(s):	▪ The wear estimation is based on both deformations and contact forces. The deformation part has its basis in the physics on wire strain
Integration constraint(s):	▪ Requires AGX Dynamics, which is available for Windows, Linux and macOS.
Intended user(s):	▪ Robot operators and programmers who wish to optimize their robot programming and dresspack mounting to minimize cable wear and production down time. ▪ Manufacturing designers where the assembled part contain wires or cables.
Provider:	▪ Algoryx Simulation
Contact point:	▪ contact@algoryx.se
Condition(s) for reuse:	▪ Commercial license.

Latest update: 07/01/2019

Name: **Automatic cable parameters identification**		
Input(s):	Main feature(s)	Output(s):
▪ Real-world cable for which simulation parameters are to be identified	▪ A process and software for identifying simulation parameters based on behavior and response of a real-world cable.	▪ List of AGX Dynamics cable material parameter values

Unique Selling Proposition(s):	▪ Accurate material parameter values ensure that the behavior and response of the simulated cable as close as possible matches the would-be behavior and response of a read-world cable in the same situation.
Integration constraint(s):	▪ Requires AGX Dynamics, which is available for Windows, Linux and macOS.
Intended user(s):	▪ Designers of manufacturing processes involving cables where accurate positioning and dynamics of the cable is important.
Provider:	▪ Algoryx Simulation
Contact point:	▪ contact@algoryx.se
Condition(s) for reuse:	▪ Commercial license.
	Latest update: 07/01/2019

Name: **Process for updating the digital twin**		
Input(s):	Main feature(s)	Output(s):
▪ Photos of production system ▪ Digital twin	▪ Flexible scanning ▪ Automatic comparison and identification ▪ Pose and position estimation	▪ Updated digital twin
Unique Selling Proposition(s):	▪ Automatic update of digital twin based on geometrical changes ▪ Automatic classification and identification ▪ Flexible scanning using photogrammetry	
Integration constraint(s):	▪ Python	
Intended user(s):	▪ Production preparation and maintenance engineers	
Provider:	▪ Chalmers University of Technology	
Contact point:	▪ Petter Falkman petter.falkman@chalmers.se	
Condition(s) for reuse:	▪ Licence to be negotiated	
	Latest update: 07/01/2019	