

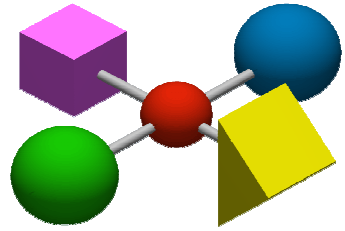
A proposal for ECHORD

Using STEP (ISO 10303) and
the Semantic Web to:

- model the capabilities of a robotic systems,
- model tasks to be performed and
- describe how to perform the tasks by the robotic system

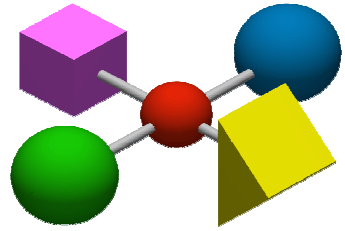
Lothar Klein,
LKSoftWare GmbH, Germany
(UAB LKSoft Balitc, Lithuania)

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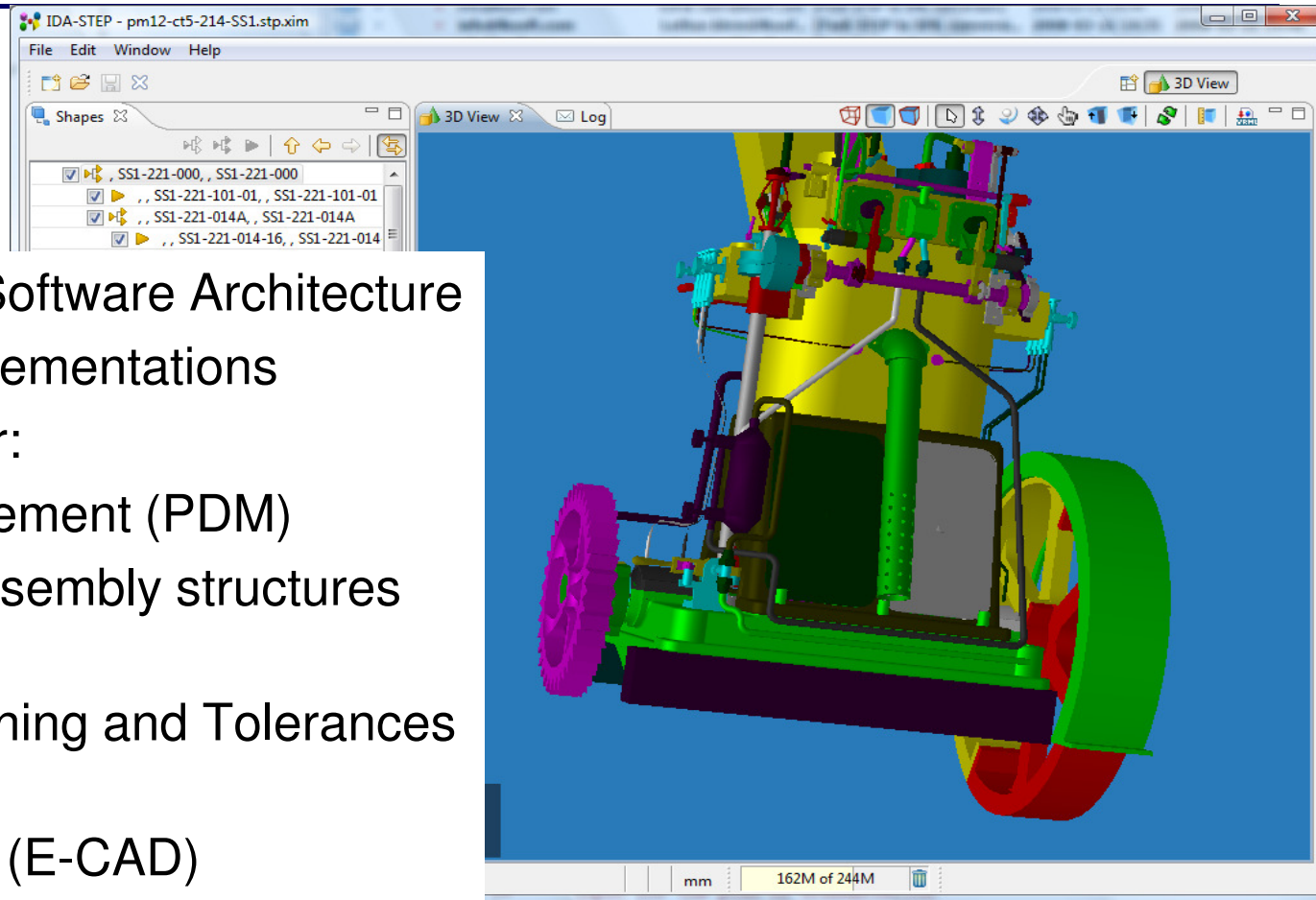


About STEP and LKSoft

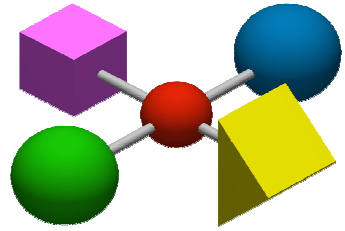
- ISO 10303 *"Industrial automation systems and integration - Product data representation and exchange"*
 - a **neutral** and computer-interpretable representation of products throughout their life cycle.
 - Developed by the ISO Technical Sub-Committee TC 184 - *Industrial automation systems and integration*, SC4 - *Industrial Data*
 - LKSoft is actively participating in ISO TC184/SC4 and is a leading provider of software for STEP
 - Within the European S-TEN project LKSoft developed and implemented a mapping between STEP and the Semantic Web, <http://www.s-ten.net>
 - The Semantic Web is an activity from W3C for a new intelligent web-world. It consists of RDF, OWL, SPARQL ...
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IDA-STEP v4



- A Component oriented Software Architecture
- for Cross STEP-AP Implementations
- Neutral data handling for:
 - Product data management (PDM)
 - 3D Geometry and assembly structures (M-CAD)
 - Geometric Dimensioning and Tolerances (GD&T)
 - Electrical installation (E-CAD)
 - Printed circuit boards (PCB-CAD)
- Free viewer available through the Internet.
- <http://www.ida-step.net>



Possible (needed) things to do

- Standardization:
 - Update/correct ISO 10303-105 Kinematics and make it available for a new version of AP203/214. This was already agreed on the last ISO TC184/SC4 meeting in Mai 2009.
 - Extend ISO 10303 for kinematic dynamics
 - Provide a mapping from ISO 10303-105 to OWL / Semantic Web
 - Software and example development:
 - Develop a kinematic model of a real robotic system in both STEP and equivalent OWL form
 - Formulate a real task (e.g. some assembly or disassembly) in ISO 10303/OWL
 - Show how the task can be achieved by taking the STEP/OWL model of the robot and calculate the needed movements from the data. Represent the data in neutral STEP & OWL form
 - Provide a command interface to drive the robot using Semantic Web technology (RDF, SPARQL)
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