Draft prioritised StrEmbed-4 Specification for the technology demonstrator (requirements copied from AKB/HHC doc)

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| Area | Requirement | Priority level | Importance | Days to do |
| Open file | 1. To read assembly files in STEP AP214 format that are generated by CAD systems. STEP files exported via SolidWorks 2016 were used for testing. | Essential –cannot run without this | 1st - Top |  |
| Assembly tree | 1. To visualise graphically an assembly structure in two forms, an assembly tree and a Hasse diagram, entries of the former and the elements of the later are linked. | Desirable –can run with one visualisation | 2nd |  |
| Assembly tree | 1. To display an assembly structure as a collapsible tree. Each individual part is an indivisible atom for the purpose of interrogating an assembly structure. A collapsed sub-assembly on the tree is also considered as an indivisible atom as long as it is not expanded. | Nice to have –can run without this; CAD can already do this | 4th |  |
| Hasse diagram | 1. To display an assembly structure as a Hasse diagram. A shadow hypercube lattice could be shown in the background to represent all possibly assembly structures for a given number of atoms (parts or collapsed sub-assemblies). To show graphically that the Hasse diagram is embedded onto the corresponding hypercube lattice. | Essential –cannot show embedding without this | 1st - Top |  |
| Extraction of info of an assembly structure | 1. To highlight a part or a sub-assembly by moving a cursor over corresponding graphical item in the Hasse diagram. Simultaneously the corresponding part or sub-assembly at the assembly tree will be highlight. It is optional to show information related to a selected entity. | Nice to have –can run without this | 4th |  |
| Extraction of info of an assembly structure | 1. To show the feasibility of relating nodes of a Hasse diagram and items of an assembly tree to a pre-processed image that shows the geometries of a product, in this case a robot arm. A potential extension of this approach is to use OpenGL or VRML or equivalent to visualise a product in real-time instead of using a pre-processed image. | Very nice to have – but can run without this | 3rd |  |
| Modification of assembly structure | 1. To modify an assembly tree to support another stage of product life cycle. For example, if an input product structure represents a product as-design, modified assembly structures could represent the product as-built, as-ship, or as-maintain, etc | Q: Is this to reconfigure a structure? | 1st – Top – if A2Q is Yes |  |
| Modification of assembly structure | 1. To afford a user interface allowing modification of an assembly structure that operates on the assembly tree. It is anticipated that different product structures are not entirely different from one another, but it could be morphed from one to another with a small number of changes. | Nice to have –can run without this | 4th |  |
| Save file | 1. To save a modified assembly structure as a STEP AP214 which is readable by CAD systems. Output STEP files were imported and tested using using SolidWorks 2016. | Desirable –can run without this | 2nd |  |
| User interface | 1. To afford basic user expectation of a typical pull down menu driven graphical user interface, including open and save files at locations of users’ choices, usage instructions and help, progress indicators and messages if appropriate, graceful exception handling and error messages. | Nice to have –can run without this | 4th |  |