LEDAS Ltd. (www.ledas.com), an independent software provider of computational components and software development services for PLM and ERP markets, releases the next version of its variational geometric solver LGS 2D that is used by CAD/CAM/CAE software development companies to implement parametric capabilities in engineering applications.

Working with 2D parametric sketches, many CAD users face over-defined situations with a superfluous set of geometric constraints (logical and dimensional) that makes parametric modifications of the sketch elements impossible. A variational constraint solver automatically detects over-defined parts of a sketch to be visualized for a user. Version 2.2 of LGS 2D contains significant improvement in this area. Previously, any constraint cycle included a superfluous constraint was marked as over-defined, while typical user scenarios design a correct but logically over-defined sketch. For example, a user can create two vertical lines and then set a distance dimension between them. This distance dimension implies parallelism constraint, which is superfluous since both lines are constrained to be vertical. The problem is logically over-defined, but this does not prevent its successful parametric modification. In LGS version 2.2 developers can choose whether a cycle of superfluous logical constraints should be marked as over-defined by setting a relevant solver option. The default mode is the same as in the previous versions: all over-defined constraints are marked.

LGS 2D 2.2 is an important step forward in model diagnostics. The over-defined diagnostics algorithm was significantly improved to detect subtle constraint dependencies.

The solver’s performance on large models with thousands constraints was advanced considerably. First, a new decomposition diagnostics was plugged in to enhance accuracy and efficiency. Second, the set of LGS 2D decomposition techniques was perfected and extended to further improve both the natural behavior (producing a solution that meets end users’ expectations) and performance.

About LGS 2D

The LGS 2D geometric solver is a computational module, engineered to support two-dimensional parametric design in CAD and computer graphics systems, as well as many other applications that require parametric connections or constraints to be set between geometrical objects.

LGS 2D supports creation and modification of the geometric models by means of (explicit or implicit) constraints. Typical geometric objects are points, lines, circles, or arbitrary curves. Objects can be fixed in an absolute coordinate system or with respect to each other (the latter feature is provided by the so-called rigid sets of objects). A set of geometric constraints includes logical constraints between geometric entities (like coincidence, parallelism, tangency, etc.), and dimensional constraints (that specify the required values for the given distances, angles or radii). LGS 2D moves and rotates objects to positions where all constraints are satisfied with minimal possible transformations of the initial configuration.

LGS 2D is a cross-platform software package. It is a set of binary libraries that runs under all 32- and 64-bit Windows, Linux, *BSD, AIX, HP-Unix, Sun Solaris and other OS. Coded in C++, LGS 2D has a C-based API to be integrated into a broad range of software applications (even not coded in C/C++). LGS 2D can be used as a self-supporting component, or jointly with LGS 3D version. Both 2D and 3D versions have similar API, the set of three-dimensional objects and constraints intersects with the analogous set in two dimensional case, providing a complete parametric solution for all aspects of CAD/CAM/CAE system functionality - from 2D sketching to 3D modeling, kinematics simulation, assembly design and analysis.

To learn more about LGS2D, visit LEDAS web-site at http://ledas.com/products/lgs2d/.
LEDAS Improves Variational Sketching Usability with Release 2.2 of its LGS 2D Geometric Solver

Novosibirsk, Russia - March 4, 2009

About LEDAS

LEDAS Ltd. is an independent software company founded in 1999; it is based in Novosibirsk Scientific Centre (Akademgorodok), Siberian Branch of the Russian Academy of Science. A leader in constraint-based technologies, LEDAS is a well-known provider of PLM components: geometric constraint solvers for CAD/CAM/CAE, optimization engines for Project Management, Work Scheduling and Meeting Planning as well as interval technologies for Knowledge-Based Engineering and Collaborative Design. The company also provides services for PLM and ERP markets: software development, consulting, reselling as well as education and training. Detailed information about LEDAS is available on the Internet at: www.ledas.com.

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