

TOOLKIT FOR DEVELOPMENT OF EXPERT SYSTEMS

A.V.Gavrilov
Novosibirsk State Technical University,
Nemirovich-Danchenko str., Novosibirsk, 630087, Russia,
Phone: +7 3832 46-04-92,
Fax: +7 3832 46-11-53,
E-mail: Avg@vt.cs.nstu.ru

This software is intended for creation and using of Expert Systems for solving of different tasks in diagnostics, planning, forecasting and so on.

Software is developed by technology of Hybrid Expert Systems of company Insycom Ltd. (joined with development of Computer Engineering of NSTU). This technology is a result of many years of work of some employees and students under the direction of author. This technology is characterized by:

- ❑ Representation of knowledge by frames, rules and linguistic variables,
- ❑ Backward fuzzy inference engine,
- ❑ Possibility to execute external programs,
- ❑ Possibility of import of facts from databases by SQL-query during inference,
- ❑ For comment of questions and comment of results at solving of tasks the graphics files (gif, avi and html) may be used,
- ❑ Possibility of publishing and support of developed Expert Systems in Internet.

Toolkit consists of packages ESWin 2.0 and W.E.S.T. 1.0, in particular (fig.1):

- ESWin 2.0 - Expert Shell for solving of tasks by interpretation of Knowledge Bases (for developers),
- ESWinUs 2.0 - Interpreter of Knowledge Bases for End Users,
- EdKB 2.0, KlbEdit 1.0 - Editors of Knowledge Bases,
- KBView 1.0 - program for viewing and diagnostics of Knowledge Bases,
- WEST 1.0 – shell for publishing and use of Expert Systems in Internet.

Component WEST 1.0 may be use as independent product and consists of:

- Backward fuzzy inference engine,
- Tool for administration of Knowledge Base,
- Tool for import of Knowledge Base from ESWin.

Facts for inference are got from user during dialogue or from databases by SQL-query. Facts are storing as frames-examples. Pictures (in formats GIF, AVI, HTML) may be used at inference as comments to questions and illustrations to results. The external programs may be used as sources of facts and for other goals. These programs may be executed as results of rules.

All programs are implemented in Delphi except for WEST. One is based on PHP and MySQL. All programs are commercial products and ESWin is using in some organizations of Novosibirsk, Saint-Peterburg and Orenburg.

Demo version of ESWin 2.0 is available for download from <http://www.insycom.ru> and WEST 1.0 is available for trial in <http://vt.cs.nstu.ru/~expssystem/>

In present time next version 3.0 is developed and planed to issue to 2005 year. New version will differ from present one by following features:

- Possibilities to operate with temporal concepts,

- Possibility to connect with different neural networks (in particular with several networks),
- Forward fuzzy inference engine,
- Using of procedural knowledge.

ESWin and WEST are offered for sale both together and separately as commercial products. Moreover, we are ready to take part in international grants or contracts for development or use of our technologies implemented in this products (with enough financial support).

References

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 [2] Gavrilov A.V., Novitskaya J.V. The Architecture of the Hybrid Expert System. - / The 6-th Russian-Korean International Symposium on Science and Technology. Materials. - Novosibirsk, 2002. - Vol. 3.- P.70.
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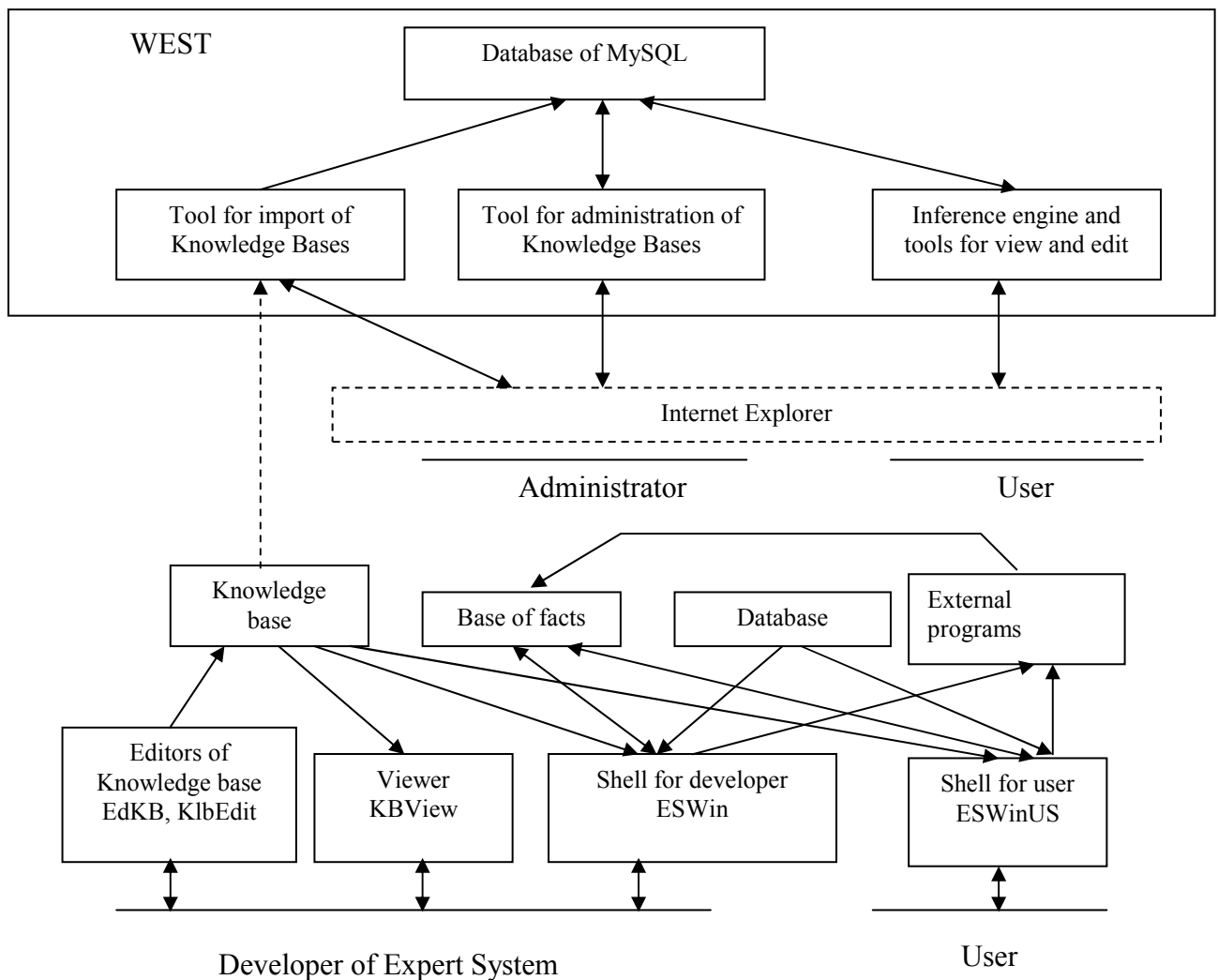


Fig.1 Structure of toolkit for development of Expert Systems