DESIGN AND REALIZATION OF VIRTUAL WORLD MANAGEMENT SYSTEM

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At present, one of the most urgent problems of the game engineering is to design a virtual world management system, which makes it possible to describe the development and self-regulating of a virtual world [1]. This system provides a non-linear development model where the virtual processes behave themselves closely to the processes in the real world.

We specify the structure of the virtual world consisting of the following elements: the basic elements are countries, cities, sections of the population, natural resources, industrial resources. These elements are related to each other by the four basic processes: political, economic, social and military. There arises the problem to find effective management of above-mentioned processes which ensures stability of virtual world development.

We design the Entity Relationship Diagram (ERD) [2] of the inner virtual world relationship system and find an algorithm for making decisions based on this model.

Also we design an ERD for the political system, which includes the following subsystems: a decision making subsystem, an external relationship regulation subsystem, and subsystem of power change, and we propose algorithms implementing these subsystems.

The ERD of economics system which includes the following subsystems: a production and consumption analysis subsystem, a trade connection subsystem, is under development. This ERD is subordinate to political system ERD is sense that it provides data for the making decision subsystem.

The system described above is implemented to an on-line game "Aidos world" which we are developing now. Also the proposed system can be applied to situational management and to distant education, where it can be used for simulation decision results.

References
1. *Jason Tan, Chris Beers, Ruchi Gupta, and Gautam Biswas* . Computer Games as Intelligent Learning Environments: A River Ecosystem Adventure //*Artificial Intelligence in Education* C.-K. Looi et al. (Eds.) IOS Press, 2005. Pp.646-653.
2. *Peter Chen.* The Entity-Relationship Model - Toward a Unified View of Data // *ACM Transactions on Database Systems* **Vol. 1**, No. 1, 1976. Pp. 9-36.