IDEI PN-II-ID-PCE-2007-1
Proiect Nr: ID-653
**Proiect title: DEVELOPMENT OF A NEW CONCEPT FOR MANUFACTURING MACHINE
        CONTROL - HOLARHIC ATTRIBUTIVE CONTROL**

Objectives, activities and degree of Accomplishment

An *		Objectives	Activities	Degree of Accomplishment
2007	1	Development of the concept of control using the holarhic attributive model and unsupervised online learning	Building general model of the holarchic-atributive model for machine tool	Achieved
			Development of the algorithm for unsupervised learning and applying to control of machine tools	Achieved
			Integration of the model and of the algorithm in the holarchic-attributive control concept by unsupervised learning	Achieved
2008	2	The conceiving of a new method of rapid reconfiguration of the machine's numerical control system	Development of a reconfiguration method of numerical control system	Achieved
			Conceiving of a new high language for the development of the machine-program	Achieved
			Method simulation	Achieved
			Development of an interpreter based on the developed method and application to machine tool prototype	Achieved
	3	Development of a programming system based on tasks	Conceiving of an conversion algorithm for command the machine tool	Achieved

			Development of a high level task based programming language.	Achieved
			Method analysing by simulating in case of turning processes	Achieved
			Implementation of the new algorithm and of the language in the machine tool architecture	Achieved
	4	Conceiving online forecast and compensation techniques for the machining errors	Building of a online modelling method for modelling the rellation between processing error and state values of the machine tools	Achieved
			Experimental research concerning method application in case of machining errors prediction	Achieved
			Development of an online prediction and compensation system and the application to machine tool prototype	Achieved
2009	5	Development of a system for online stability control	Experimental research concerning Liapunov exponent and and stability reserve	Achieved
			Identification of a indicator for online evaluation of stability reserve	Achieved
			Building of the experimental of stabilty control to machine tool prototype	Achieved
	6	Development of a system for adaptive optimal control for the process intensity	Conceiving of a new economic modelling technique to machine tools	Achieved
			Development of monitoring system for energy monitoring	Achieved
			Conceiving and application to the machine tool prototype of the algorithm system for adaptive optimal control for the process intensity	Achieved

		Development of a virtual programming and machining system	Conceiving a algorithm for trajectory function of task to be achieved.	Achieved
	7		Development of a software for algorithm implementation	Achieved
			Implementation of the algorithm in the control system architecture of machine tool prototype	Achieved
2010	8	Providing predictability by synthetic modeling of the machine operation	Identification of the model classes to describe rellation between machine processing task and the level of energy consumption	Achievement in progress
			Development of a synthetic modelling of machine tool processing based on unsupervised learning techniques	Achievement in progress
			Experimental testing of modelling procedure performance	Achievement in progress
	9	The pilot implementation for the adaptive-optimal control system for an experimental numerical controlled lathe	Building of a machine tool prototype with a holarhic-attributive control system by online unsupervised learning	Achievement in progress
			Testing of the machine tool for validation of the new concept	Achievement in progress
			Comparative evaluation of machine tool performance to classic machine tool performance	Achievement in progress