Project Number	TQP104
Project Title	Neural network based AI for racing games
Project Description	Artificial Neural Network (ANN) is a network of connected nodes used for information processing. Such networks are widely used for learning in games. Their applications include learning actions, behaviors, strategies, etc. The objective of this project is to create a neural network framework for racing games. The purpose of this work is to assist game designers and artists in their work to create AI players for games. It should consist of at least one of the following goals. • Make the AI smarter, more realistic or more believable. • Reduce the effort needed for the artist and game designers. • Create an IDE environment for the framework. • Real-time learning algorithms to be used in games. Many games already make use of neural network. A non-racing game that uses neural network is “The Sims”. An example of racing game that uses neural network is “Colin McRae Rally 2.0 for (PlayStation)” (“http://www.generation5.org/content/2001/cmr2_psx.asp”). Neural networks is used to train the racing AI for different turns and bends of the racing track. It is beneficial to use neural network because it improves replay value of the game. Racing AI will not always behave the same. This adds significant value to racing games. Different neural network techniques like Kohonen network, Multi-layer Perceptrons, Radial basis function, Hopfield network and other learning algorithms like Markov decision process, Bayesian learning, Q-learning should be explored for AI training.
Hardware/Software	Microsoft Visual Studio 2005 C/C++ environment