Project Progress Report

Implementation of Conventional and Neural Controllers Using Position and Velocity Feedback

Week Ending: April 4, 2000

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Objective

This week's objective was to implement all calculated controllers in Wincon2.0 and in C-Code.

Progress

We tried to connect our Wincon2.0 system to the robot arm and found out that we built an oscillator. After the minor loop gain was decreased by a factor of 20 the system worked. The problem is, if we decrease the minor loop this much the controller has no impact on the system and so it works like if it would not have been there. When we took the minor loop out and ran the system only with the Feed Forward- and P-Controller there was no improvement compared to the proportional controller alone.
After recalculating the minor loop we got a slightly different gain, which did not improve the overall controller. We still had an oscillator.
The next approach will be to implement it in C-Code. This step was chosen to avoid any problems, which may have occurred in the Wincon2.0 simulation only. Another reason is that the noise of the motor can possibly mess up our minor loop differentiation. So we will feed the plant output through a neural network for curve fitting to get rid of the noise, which hopefully solves our problem.