Memo
TO: Dr. Huggins and Dr. Anakwa
From: Chris Spevacek and Manfred Meissner
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Subject: Senior Project 1999-2000

Implementation of Conventional and Neural Controllers
Using Position and Velocity Feedback

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The primary objective is to investigate, implement, and compare different algorithms for the calculation of the velocity from position information. The algorithms will be applied to a small robot arm system which consists of a controller (PC software), analog-to-digital and digital-to-analog converter PC card, power amplifier, DC motor, gear train, and external load. Some conventional approaches that will be examined are: proportional, PID, and feedfoward controller method. The transfer function of the robotic arm will have to be identified for use in the calculations. To perform the simulations after the design has been determined MATLAB, SIMULINK, and Real-Time Workshop Toolbox will be used. Then a user-friendly interface for controller implementation will be wrote in C-code. If time permits, artificial neural network will be used to implement the controller. The final design will be presented at the annual Student/Faculty Research Exhibition.