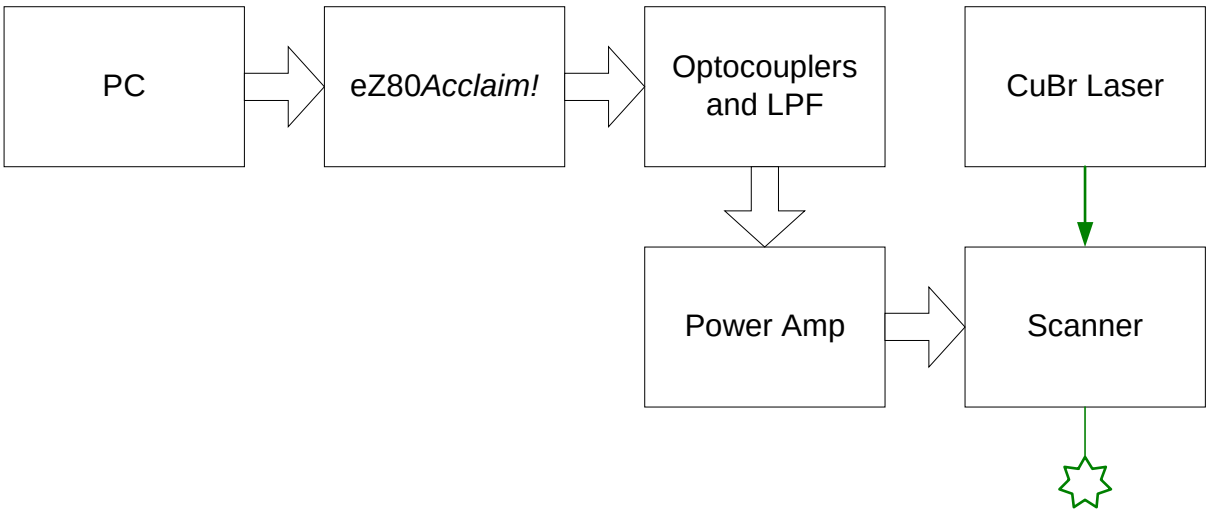
Abstract

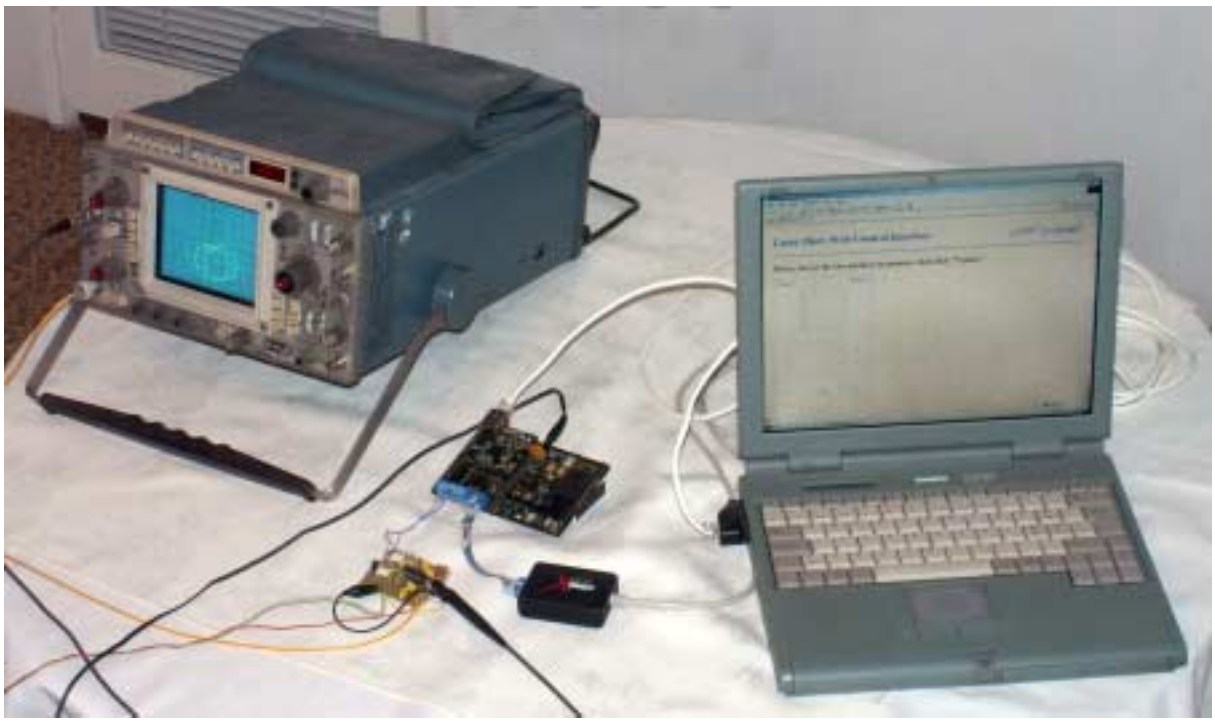
This project demonstrates the use of the eZ80Acclaim! platform as a portable and flexible controller for a two-axis electrodynamic scanner, such as are commonly used with visible lasers in light shows at disco clubs and concerts. The eZ80F91 CPU is powerful enough to achieve smooth animation by PWM-controlling both axes of the scanner. The embedded Ethernet controller and web server allow the light jockey to select and adjust the animation parameters on-the-fly. Overall it is an application which clearly shows and stretches the potential of the eZ80Acclaim!.

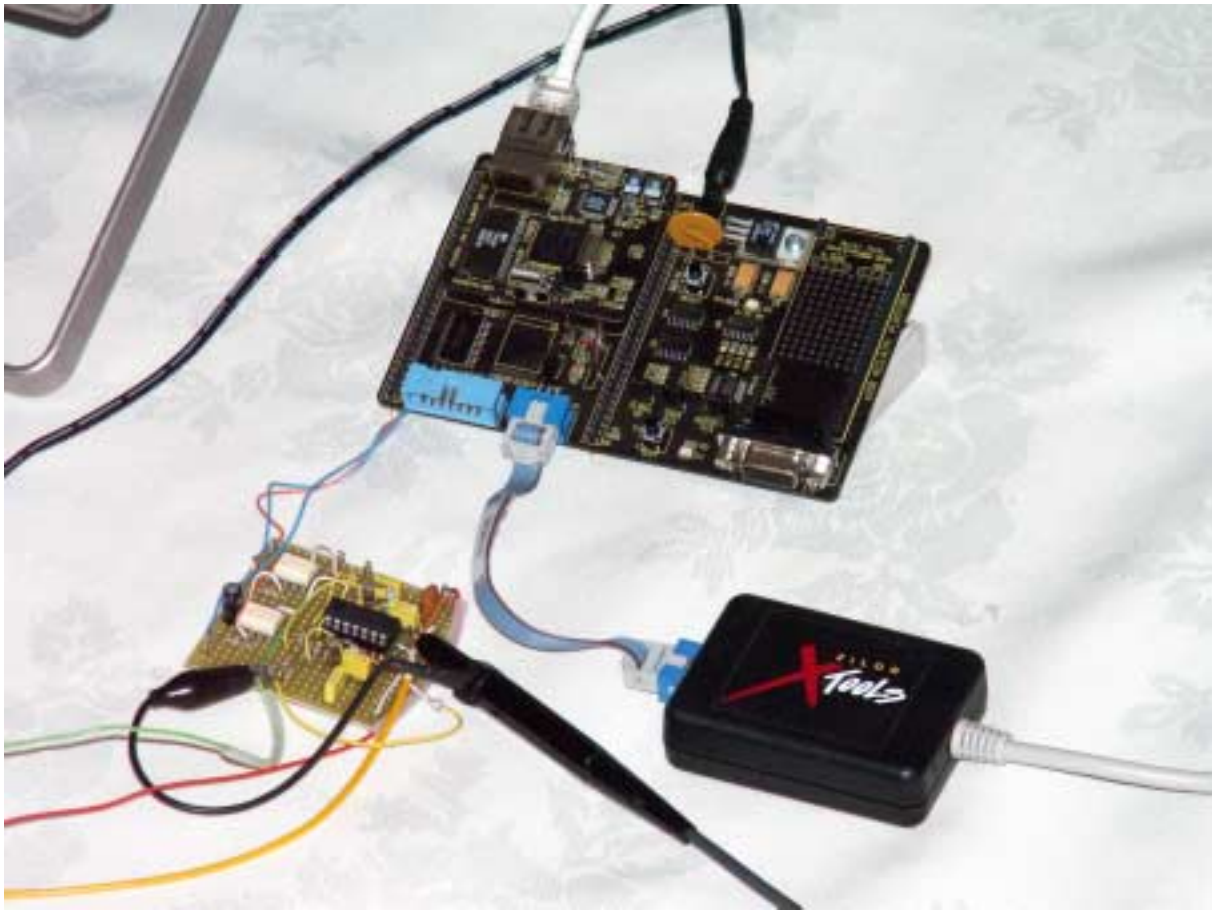
An image drawn by a scanner-deflected laser beam is vector-based. The laser show program consists of a looping animation of morphing between two such images. A simple web interface allows the operator to control the laser show program in real time by specifying the desired images, the animation speed and the time to hold each image prior to morphing it into the next.

The system consists of the eZ80Acclaim! platform, analog processing circuit, power amplifiers, a CuBr laser, a PC with a web browser, and a two-axis electrodynamic scanner. The design of the power unit, scanner and laser itself fall beyond the scope of this project. The block diagram of the system is shown on **Error! Reference source not found.** on page 2.



System block diagram

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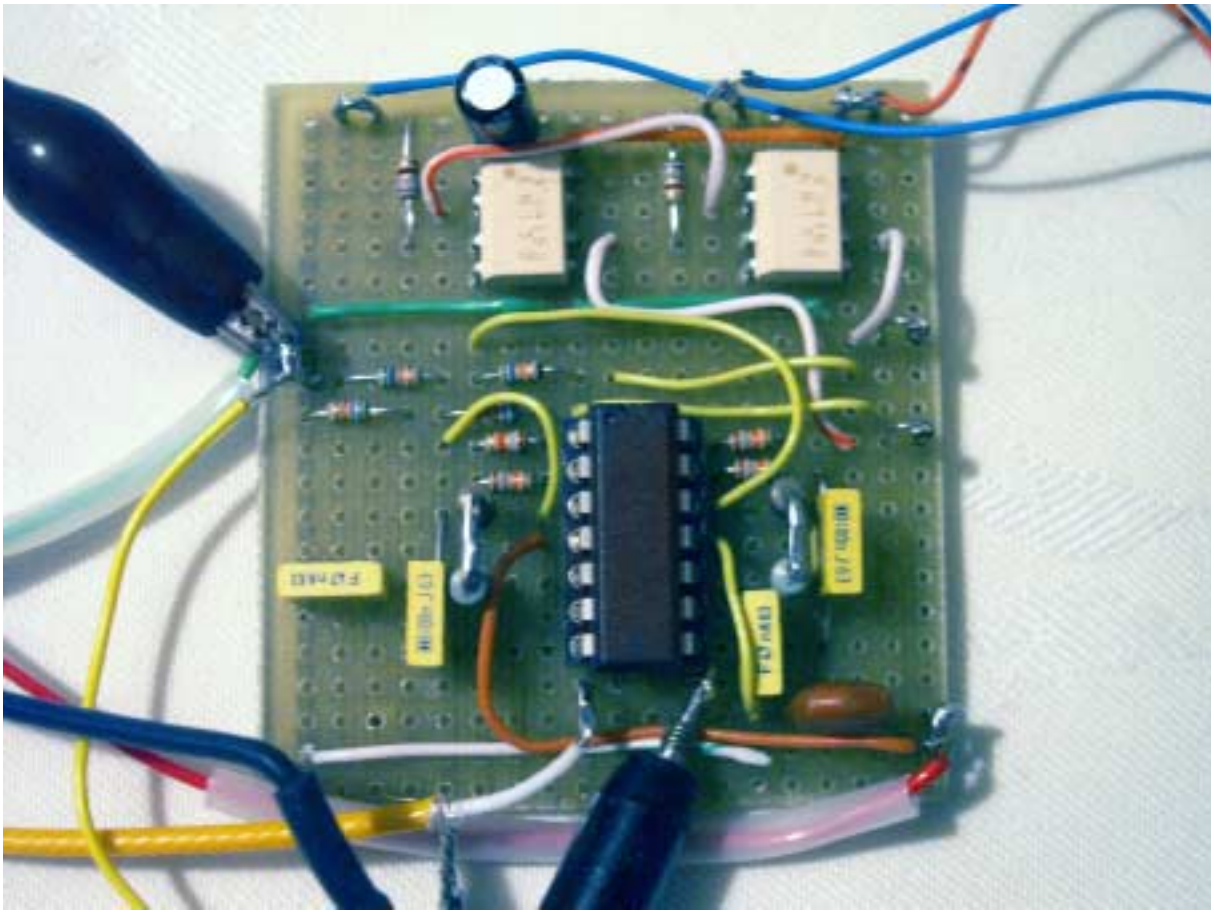
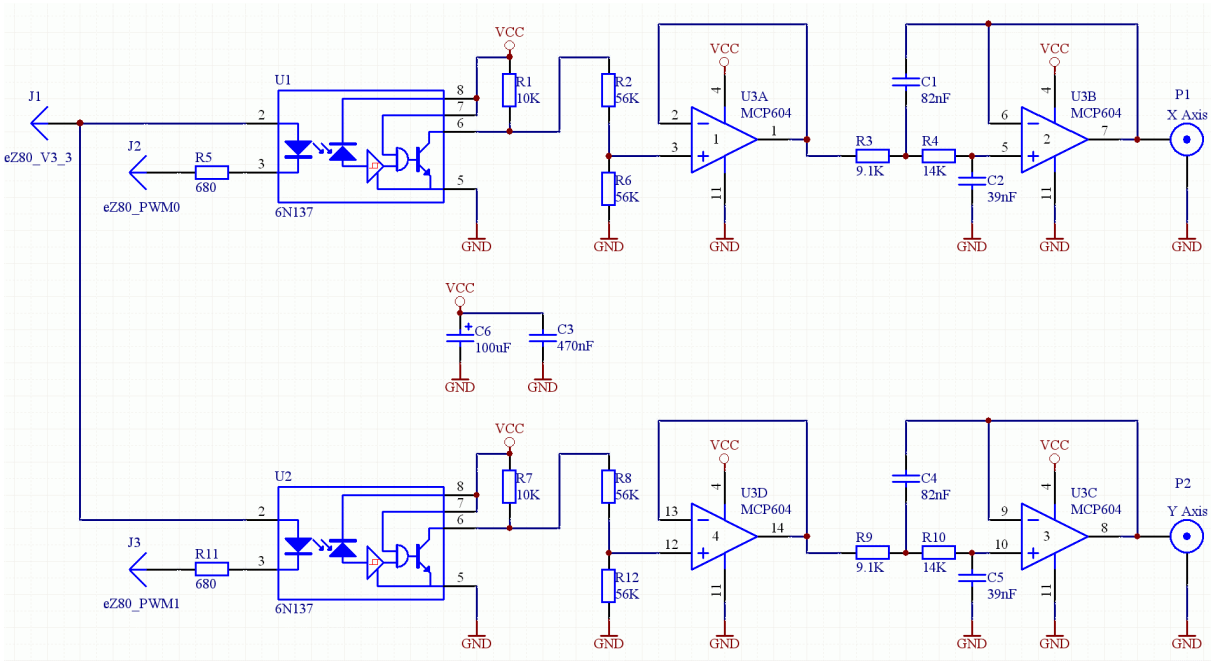


(top to bottom) – Experimental set-up, system close-up, filter board close-up



Optocouplers and low-pass filters

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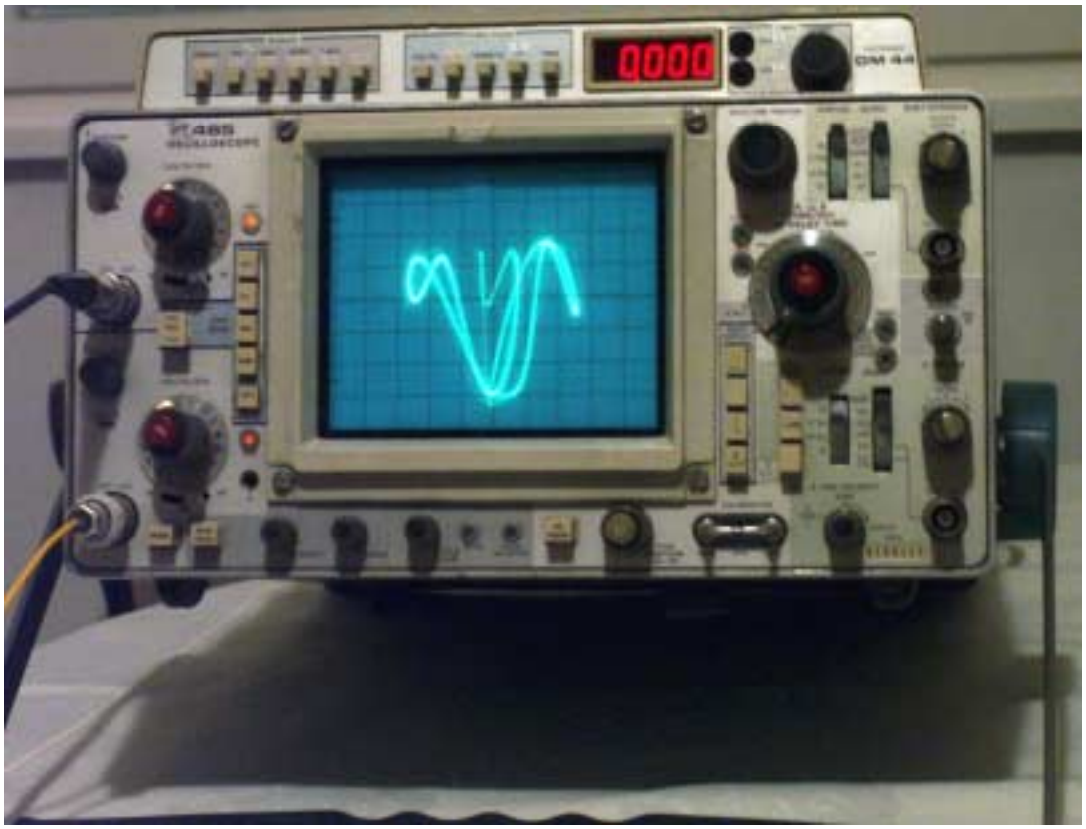

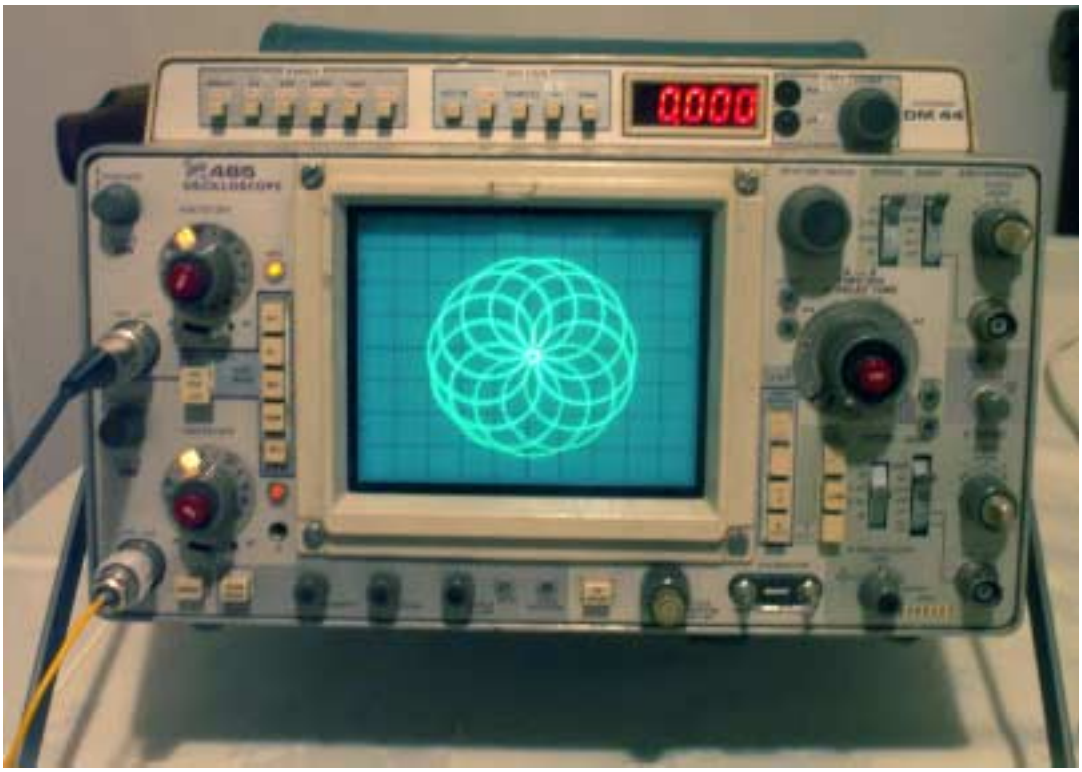

Testing the scanner control signals