

PROGRAM FOR INDIVIDUALIZED LEARNING

UNIVERSITY OF MINNESOTA

NARRATIVE TRANSCRIPT FOR: Alan Kilian

PROJECT TITLE: A Procedural Guide to Adjusting Motor-Controlling Equipment

PROJECT DESCRIPTION: This project was to write a guide to help novice engineers adjust the equipment controlling a motor.

The final version of the guide to adjusting motor-controlling equipment was published in the July 2000 issue of Circuit Cellar magazine. This magazine is published for the working engineer, and has over 15,000 paid subscribers.

The article was also selected by the editors to be provided online. It remains available at:

<http://www.circuitcellar.com/pastissues/articles/Killian120/Killian120.pdf>.

PROJECT DURATION: July 1996 – February 2002

PROJECT EVALUATOR: *William K. Durfee, Professor, Mechanical Engineering, Minneapolis, MN

The objective of Mr. Kilian's project was to create an example motion control system and to write a tutorial guide for non-engineers who are interested in or need to learn about motion control.

Mr. Kilian created a very clever example system based on an Etch-a-Sketch modified so that the knobs were turned by computer-controlled motors. A nice benefit is that performance plots appear directly on the Etch-a-Sketch screen as the knobs are turned.

The tutorial took the form of an article about motion control that appeared in Issue 120 of Circuit Cellar. This was an excellent choice for two reasons. First, the magazine having editorial oversight meant that the quality bar for the tutorial was automatically raised. Second, Circuit Cellar readers are the precise target audience for the tutorial; smart people (some engineers, some not) who like to invent and work on computer-controlled products, gadgets and devices.

The article does a nice job of explaining the basics of PID motion control without going into detailed theory. Coupling the explanation with results from a practical system that can easily be built means the reader can go beyond reading about motion control to learn-by-doing. I am a strong believer of the hands-on approach to understanding engineering principles.

PROJECT TITLE: A Procedural Guide to Adjusting Motor-Controlling Equipment

page 2

The article demonstrates that Mr. Kilian has a good knowledge of motion control, certainly at the level of an undergraduate mechanical engineering student, and is well positioned to move ahead in this field.