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Biology Computer Interface

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SENIOR DESIGN PROJECT

Nancy Anne Long

May 1987

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ABSTRACT

Dr. Richard Manalis, neurophysicist and biology professor at Indiana-Purdue University, Fort Wayne, would like to replace certain instruments contained in his current laboratory setup with more compact instruments, thereby making the structure suitable for classroom use. The present setup is confined to his laboratory due to the unwieldy size of the various instruments.

Dr. Manalis' laboratory work concerns the study of bioelectric phenomena, specifically, the voltage response across the neural synapse of a frog muscle. Dr. Manalis records this biological waveform via a digital oscilloscope. This signal, however, is contaminated with a 60 hertz line hum. He needs to be able to remove the unwanted signal while leaving the signal of interest intact as much as possible. In addition to removing the undesirable signal, he requires a variable pulse generator, as a variable pulse generator will permit greater control in triggering and applying the stimulus.