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# A Digitally Controlled Audio Amplifier

Alfred Marino

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**SUBJECT: Senior Design Phase II Final Report**  
**A Digitally Controlled Audio Amplifier**

**DIST: Professor Ramsey**  
**English Department**  
**Indiana-Purdue University**

**Date: April 24, 1989**

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## ABSTRACT

**TITLE:** Digitally Controlled Audio Amplifier

**AUTHOR:** Alfred Marino

**DATE:** April 24, 1989

The Digitally controlled audio amplifier (DCAA) provides a fixed, specific output for any audio input, for example, a record player, or a compact disk player. While conventional amplifiers provide different input jacks for each input, the DCAA uses a single set of universal input jacks. Not only will the DCAA accept any input amplitude from 20 mv to 5 volts peak, but it will maintain the specified output power of 150 watts over this range. The DCAA has 6 main parts: Power Supply, Input Stage, Second Stage, Output Stage, Display circuits, and Reset Circuits. The input stage is most important because it provides the digital and analog circuitry which adjust the amplifier gain. A specific reference value is set for an output, and this circuit compares the input signal to the reference value which adjusts the gain accordingly. The second and output stages provide the voltage and current amplification necessary for a 50 volt swing into a 8 ohm load. Input and output L.E.D. meters display the adjusted input signal and the output power in watts. Applications for the DCAA include a universal amplifier for audio consumers, and a versatile concert amplifier for providing a uniform output for different levels of inputs.