

# VARIABLE GAIN AMPLIFIERS

By

Gregory Scott Notaro

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Professor Khaled N. Salama  
Thesis Advisor

Rensselaer Polytechnic Institute  
Troy, New York

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## **Abstract**

Amplification can be argued as being one of the most useful and most desirable circuit functions available. The ability to amplify current or voltage signals is a wide spread idea, yet its many structures remain in a developmental stage. The Variable Gain Amplifier is a prime example of this concept and has the ability of not only performing amplification, but doing so on varying levels determined by some form of control. An electronic amplifier that alters its gain depending on a control voltage is always in high demand in electronic systems. This technology can be seen in applications such as audio level compression, audio level expansion, synthesizers, and amplitude modulation. The purpose of this research is to study some of the popular Variable Gain Amplifier architectures through analysis and simulation to understand which circuit blocks offer the best results. Comparing standard architectures to a recently developed amplifier configured in Variable Gain Amplifier form will prove there are still improvements being made on this age old idea.

