

**DESIGN AND DEVELOPMENT OF AN AUDIO CONTROL PANEL FOR THE AV
ROOM OF THE COLLEGE OF ENGINEERING AND INFORMATION
TECHNOLOGY (CEIT) OF THE CAVITE STATE
UNIVERSITY (CvSU) MAIN CAMPUS**

**Undergraduate Design Project
Submitted to the Faculty of the
Cavite State University
Indang, Cavite**

**In partial fulfillment
of the requirements for the degree of
Bachelor of Science in Electronics and
Communications Engineering**



00001192

*Design and development of an audio control
panel for the AV room of the College of
620.2 D46 2004
DP-116*

**FELIPA B. MAGADIA
FLORENCE S. MARTIN
RINALYN M. OCAMPO
MARGIE B. RICA FUENTE**

March 2004

ABSTRACT

MAGADIA, FELIPA B., MARTIN, FLORENCE S., OCAMPO, RINALYN M., and MARGIE B. RICAFUENTE. Design and Development of an Audio Control Panel for the AV Room of the College of Engineering and Information Technology (CEIT) of the Cavite State University (CvSU) Main Campus. Undergraduate Design Project. Bachelor of Science in Electronics and Communications Engineering. Cavite State University, Indang, Cavite. April 2004. Adviser: Engr. Michael T. Costa

The design and development of an audio control panel was constructed at Brgy. Kaytapos, Indang, Cavite and at the DCEE Laboratory Room. The main objective of the study was to design, develop, and construct an audio control panel for the AV Room of the College of Engineering and Information Technology. This study was conducted to solve the deficiencies of the existing room, i.e., lack of audio equipment.

The system was composed of six main units: an input audio mixer; graphic equalizer; Class A amplifier; Class B amplifier; crossover network; and speaker system. Input sources such as tape deck, AM/FM tuner, CD player and microphone input were used to test if the system was functional. An audio mixer was constructed to allow blending of the sounds coming from the different input sources used. The composite output was fed to the graphic equalizer. A power supply was constructed to provide the voltage requirement of the power amplifier.

The design project was presented to the adviser and technical critic during the preliminary evaluation conducted at the acoustic room of the College of Engineering and Information Technology on January 26, 2004.

The final evaluation of the design project took place at the acoustic room from January 26-30, 2004. The whole system underwent evaluation through questionnaires.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA	i
ACKNOWLEDGMENT	ii
ABSTRACT	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF APPENDICES	ix
INTRODUCTION	1
Importance of the Study	2
Objectives of the Study	3
Time and Place of the Study	3
Scope and Limitation of the Study	3
Definition of Terms	6
REVIEW OF RELATED LITERATURE	9
MATERIALS AND METHODS	
Materials	18
Methods	20
Construction of the four-input audio mixer	20
Construction of the 5-band graphic equalizer	20
Design of the Class A amplifier	22
Construction of the Class A amplifier	22
Design of the Class B amplifier	22
Construction of the Class B amplifier	27
Design of crossover network	30
Construction of crossover network	30
Construction of power supply	30
Construction of speaker system	34

Testing	34
Evaluation	34
Cost computation	34
RESULTS AND DISCUSSION	
Presentation and Analysis of the Design	35
Four-Input Audio Mixer	37
Five-Band Graphic Equalizer	39
Class A Amplifier	42
Class B Amplifier	44
Three -Way Crossover Network	46
Power Supply	48
Speaker System	49
Testing and Evaluation	52
Statistical Analysis	53
Cost Computation	56
SUMMARY, CONCLUSION, AND RECOMMENDATION	
Summary	64
Conclusion	64
Recommendation	65
BIBLIOGRAPHY	66
APPENDICES	