PROJECT PROPOSAL SEMINAR

# DESIGN AND CONSTRUCTION OF RLC CIRCUIT TRAINER


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# PRESENTATION OUTLINE

- INTRODUCTION
- STATEMENT OF THE PROBLEM
- AIM OF THE PROJECT
- OBJECTIVES OF THE PROJECT
- METHODOLOGY

# INTRODUCTION

- ❑ General Training Method
  - Human Instructor
  - Demonstration
- ❑ Technical Training Method
  - Technical Instructor
  - Real Time Environment
- ❑ Circuit Trainer
  - Virtual Environment
  - Simulator
  - Model e.t.c

Sample of General Training Method

# INTRODUCTION

In laboratory settings, an RLC trainer is an essential tool for students and researchers to experiment with and understand circuit behavior. The RLC trainer allows users to :

- Analyze circuit behavior
- Measure circuit parameters

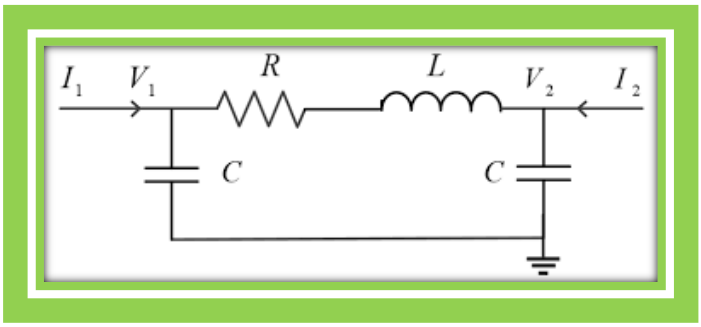


Figure 1: Transmission Line RLC model

There are various application models that can be arranged on an RLC circuit trainer such as :

- CO2 Filters
- Oscillators
- Transmission line

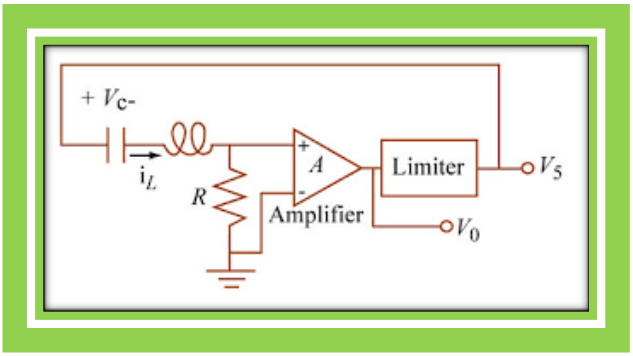


Figure 2: RLC Oscillator model

This project sets to be an opportunity for learners and electronics enthusiast to gain more knowledge on electronic circuits.

# INTRODUCTION (Cont'd)

**Figure 3: Sample of an RLC Circuit Trainer**

An RLC (Resistor-Inductor-Capacitor) circuit is a fundamental component in Electrical Engineering, used to simulate various electrical phenomena. The RLC trainer allows users to analyze and measure circuit parameters, such as

- Impedance
- Resonance
- Frequency response

# STATEMENT OF PROBLEM

In our society, Electronics education is hindered by;

1. Limited access to hands on RLC circuit experimentation.
2. High cost of existing trainers.
3. Safety concern for students.
4. Lack of interactive learning tools.

This project will be of benefit to students, educators and Electronics enthusiast by providing improved electronics literacy and better preparedness for Electronics industry careers.

# AIM OF THE PROJECT

This project aim to design and construct an RLC Circuit trainer

# OBJECTIVES OF THE PROJECT

The objectives of the project are as follows:

- To design an affordable and portable RLC circuit trainer.
- To enhance electronics education through hands-on experience.
- To improve understanding of RLC circuits.

# METHODOLOGY

**Objective 1**: To design an affordable and portable RLC circuit trainer.

- Review work on past projects will be done to study pasts project's limitations and create gaps for possible improvement
- Recreation of roadmap for an affordable RLC circuit trainer will be engaged by leveraging the block diagram of (Fig 4)
- Circuit design and best component's selection will be done for an improved RLC circuit trainer.

# METHODOLOGY (Cont'd)

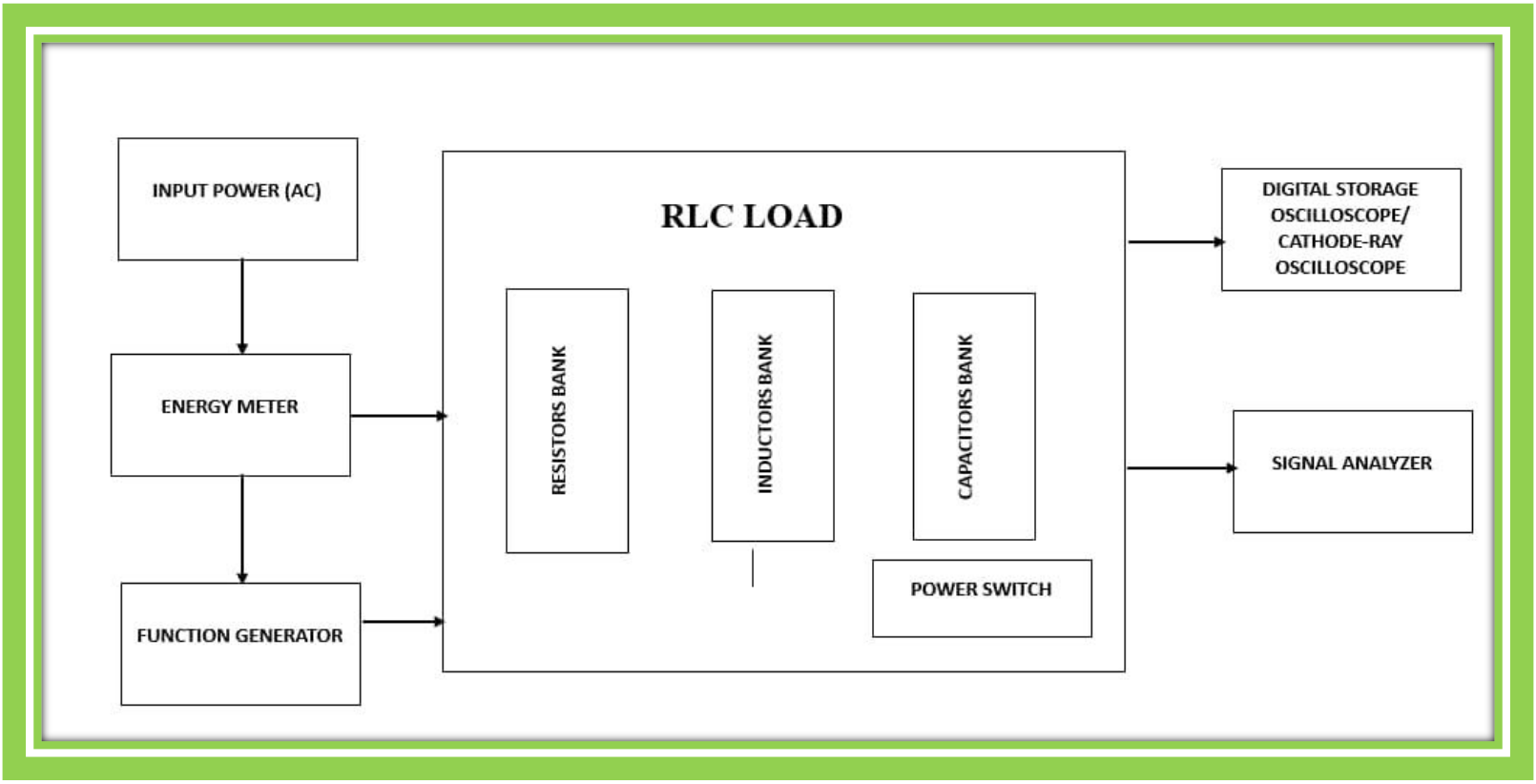


Figure 4: The Block Diagram of the Propose RLC Circuit trainer

# METHODOLOGY (Cont'd)

**Objectives 2**: To Enhance electronics education through hands-on practical.

- Visualize and measure circuit behavior, reinforcing theoretical concepts.
- Conduct experiments in a safe and efficient manner

# METHODOLOGY (Cont'd)

**Objectives 3**: To Improve understanding of RLC circuits.

- The trainer will be designed to accommodate various experiment setups.
- Allows students to explore different circuit configurations and measurements.
- This project will develop a user manual and experiment guide for students

# THANK YOU FOR LISTENING