VIVA-TECH INTERNATIONAL JOURNAL FOR RESEARCH AND INNOVATION
ANNUAL RESEARCH JOURNAL
ISSN(ONLINE): 2581-7280

"PORTABLE EARTHING"

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Abstract : *Portable earthing systems are essential safety tools designed to protect personnel and equipment from electrical hazards during maintenance or emergencies in electrical networks. These systems provide a temporary, low-resistance path to the ground, preventing electrical shocks by dissipating fault currents. The project on portable earthing focuses on the design, functionality, and importance of using portable earthing devices in various industries, including power plants, substations, and construction sites. This project covers the key components of portable earthing systems, such as earthing rods, clamps, flexible conductors, and insulation elements. It also explores different configurations suitable for low, medium, and high-voltage applications. A significant part of the project involves analyzing the technical standards, proper installation procedures, and maintenance practices to ensure maximum safety. The outcome aims to highlight how portable earthing minimizes the risk of electric shock, arc flash, and equipment damage by neutralizing stray currents during planned or unplanned outages. Furthermore, the project discusses real-world applications, challenges in implementation, and advancements in materials and design for enhanced durability and reliability*.

Keywords PCB, Earthing, Portable Earthing, Ground Earthing, Circuit, Resistance Earthing, Leakage Current, Stray Current, Earth Pit, Ground Earthing, Stray Current, Protection Device, Technical Standards.

I. INTRODUCTION

In electrical systems, the risk of electric shock and equipment damage is always present, especially during maintenance, repair, or emergencies. Portable earthing serves as a critical safety measure by providing a temporary, low-resistance connection to the earth, ensuring that stray currents are safely discharged

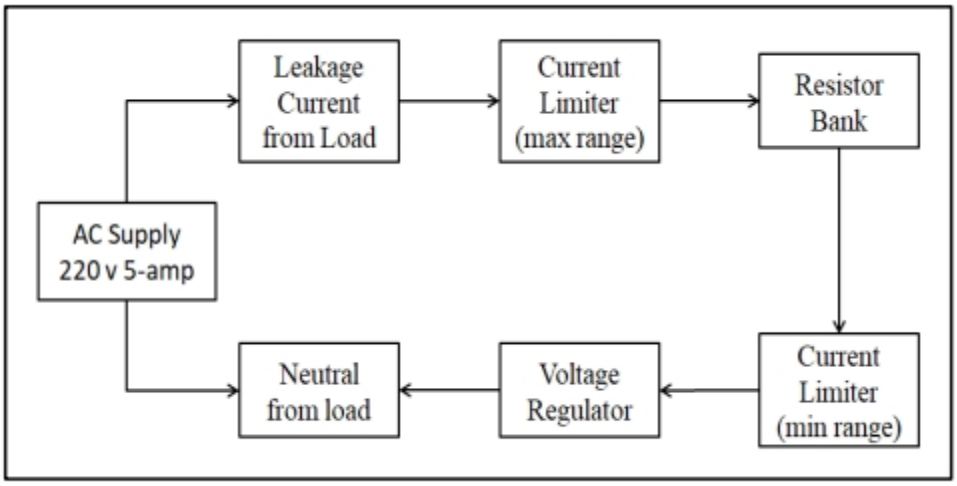
II. LITERATURE SURVEY

Earthing plays an important role in the safe and reliable operation of an electric network. The choice of earthing system, in both medium voltage (MV) and low voltage (LV) networks, depends on the type of installation as well as the network configuration. This chapter explains different methods of earthing equipment, distribution substations and MV and LV networks

III. METHODOLOGY

1. Calculation for finding the resistance for dissipation of leakage current of 5 amp load in 230v AC supply. Resistance (R) = Voltage (V) Current (I) = 230 V 5 A = 46 ohm

3.1 Block Diagram



3.2 Circuit Diagram

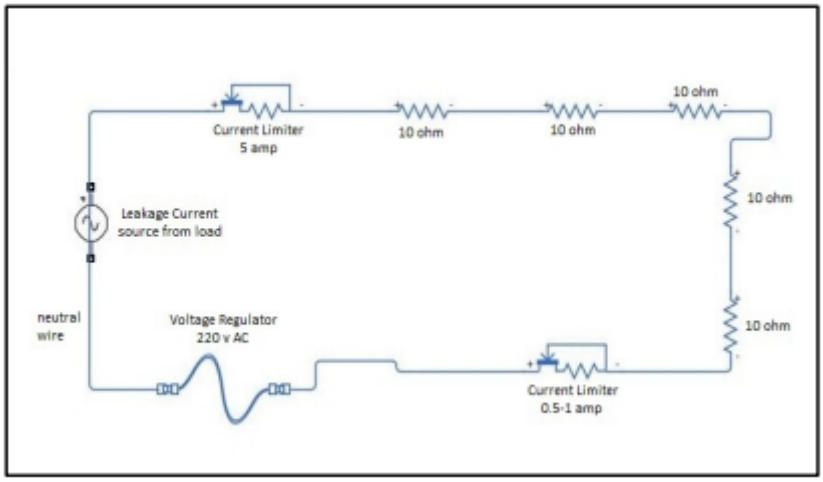


Table no.1. Cost Estimation

Sr.	Description	Qty	Rate	Amount
1	Resistors 46 ohms	1	30	30/-
2	PCB	1	100	100/-
3	Connecting wire	10m	5	50/-
4	Breadboard	1	150	150/-
5	AC Switch 5 amp	2	25	50/-
6	3 pin Socket	2	40	80/-
7	PVC Board	1	80	80/-
8	Current Limiter	1	1000	1000/-
9	Voltage Regulator	1	170	170/-
		TOTAL AMOUNT		1,710/-

IV. CONCLUSION

Integrating energy audits with motor failure forecasting provides a comprehensive approach to industrial energy management. By leveraging real-time data and predictive analytics, organizations can enhance efficiency, reduce costs, and achieve sustainability goals. The proposed system demonstrates the potential for significant operational improvements, paving the way for smarter industrial practices.

Acknowledgements

We shall be failing in our duty, if we will not express our sincere gratitude to all those distinguished personalities with the help of whom we have successfully completed our project

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