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NON CONTACT VOLTAGE DETECTOR TESTER

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Abstract— In this project, a non contact voltage detector tester work by sensing a very small amount of current that is capacitively coupled from the live circuit to the tester and back to ground. The system includes a thyristors, antenna, LED, buzzar, resistor.

I. INTRODUCTION

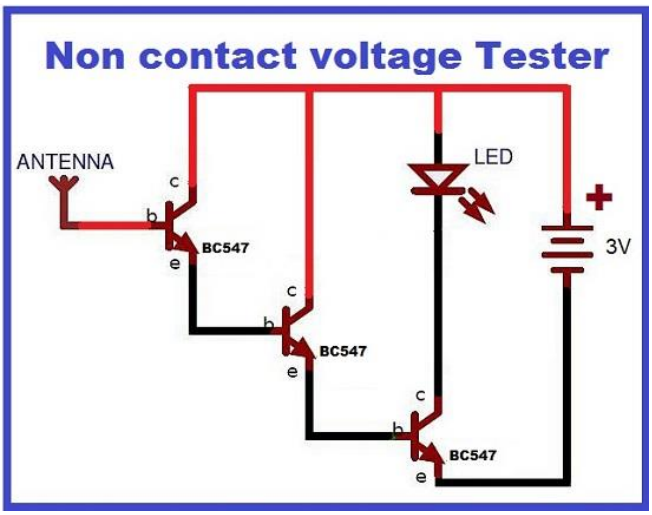
In the modern era, electrical power systems are an integral part of daily life and secure and efficient management of these systems is crucial. In this context, the non contact voltage detector technology provides a secure and efficient solution. Transmission lines are one of the most critical forms of transmission equipment in the power system. The accurate measurement of transmission line voltage is of great significance to the stable operation and power security of the power system. At present, the mainstream voltage measurement methods mainly include traditional contact voltage measurement and new non-contact voltage measurement. At present, the traditional electric energy information acquisition mainly adopts the contact voltage measurement technology, which requires the metal part of the cable to be in contact with the measurement. The probe is connected to the secondary equipment for voltage and current measurement. Contact voltage measurement requires that the copper core and the measuring probe are in direct contact, which not only damages the cable insulation layer, but also must be installed without a power supply, affecting the power supply quality and making installation difficult. In the process of contact measurement, the insulation layer of cable is damaged and the operation safety of the power cable and equipment faces severe challenges.
A contribution in the field of password-based circuit breaker **Security and privacy:** Improving the security and privacy features of password-based circuit breaker with GSM to protect against unauthorized access and data branches [8-9].

II. EVALUATION

The remainder of this paper is organized as follows. Our Contribution in this research paper is described in section 2. Section 3 Explain the block diagram of the system and different components. Section 4 describes the different methodologies. Detailed working of the system is described in section 5. Section 6 present some concluding remarks about the work performed.

III. BLOCK DIAGRAM

BLOCK DIAGRAM



Block Diagram non contact voltage detector.
A small copper wire (about 12CM) is wound as an antenna and is connected to the base of the first NPN Transistor. If this antenna detects the magnetic field when placed near AC energized objects like cables and switches, it gets induced with a small current (due to electromagnetic induction) and hence activates the first transistor.

Since the output of the first transistor drives the second transistor, it gets activated as so on. As the third transistor is activated, the LED is turned ON indicating the presence of a voltage.

Additionally, you can place a small buzzer in series with the LED so that it is activated whenever the circuit detects any voltage.

IV. METHODOLOGY

Identify the requirements: The first step is to identify the requirements, including the types of alerts that need when the voltage is detected.

Design the tester circuit: Based on the identified requirements, design the circuit for the non contact voltage detector.

Fabrication of the final circuit: when the design has been finalized, the next step is to fabricate the final circuit. This involves transferring the circuit design into hardware, and testing the detector to ensure it works as intended.

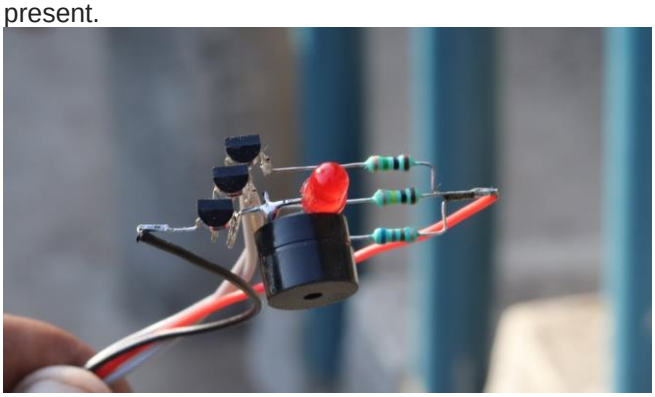
Test the system: Test the system to ensure that it works as intended.

Finalize the system: Make any necessary adjustments or modifications to the system to ensure it meets all requirements and works as intended.

V. WORKING

Non-contact voltage testers work by sensing a very small amount of current that is capacitively coupled from the live circuit to the tester and back to ground. Non-contact voltage testers light up when they detect this current without needing to make direct contact.

A built-in sensor at the tip of the tester detects the presence of voltage when touching a conductor, outlet, or supply cord. By holding the tool, you are the ground reference through capacitive coupling. When the tip glows red and the unit beeps, you know voltage is present.



VI. CONCLUSION

In conclusion, the fabrication of a non contact voltage detector can be useful to detect voltage in any system. Overall, the fabrication of this device can be a valuable investment for anyone looking for non contact voltage detector tester.

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