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Resistor Testing By Scanning Barcode

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ABSTRACT

Resistors should not made only precisely but also ohomic. That is linear one. In market various type of resistors are available. For e.g, carbon, metal film etc. and they are tested by various methods. Their values are selected close to Quantum Hall resistance of 6.453ohm and 12.906ohm.And they are tested at room temperature using dual frequency method. This measurement method is used for detecting the abnormalities in the resistor. Abnormalities present in resistors can be caused due to faulty welds, film aberrations, resistive path inconsistency, contact instability etc.

I INTRODUCTION

Now a days, high quality electronic components are required, such as for high frequency, for low noise, for precision, etc. Non linearity in the resistors may causes due to various reasons. Such as faulty welds, film aberrations, contact instability etc.

This defects present in resistors may not be easily discovered by normal testing methods. Dual frequency testing method is one of the measurement method for resistor testing. In dual frequency measurement method two synthesizers are used. to Resistors were tested by two methods. One is dual frequency method using two synthesizers. This measurement is capable of finding abnormal conditions in resistors due to various reasons. Second method is standard repetitive short time overload test. This test is used for screening the defects in bulk metal film resistors.

The measuring unit Equipment is a further developed. The equipment is used for Reliability testing of passive electronic components. The Measuring unit determines the non-linearity of an electronic component, and takes this as an indicator of the reliability of the component. In the measuring unit, the third harmonic distortion is taken as a measure of the non-linearity. The measuring method offers a very high operational speed; it is non-sensitive to external fields; it gives a high resolution; it is non-destructive, and is therefore used for automatic 100% go/no-go production test of resistors and other components.

The other one is the third harmonic distortion measuring method. When a current of l0kHz is flown to a test resistor then 30kHz voltage is measured through band pass filter circuits. Resistors are normally considered to fulfill Ohm's Law E = I R. This is, Of course, valid for most practical cases.

If, however, this linear relation is investigated carefully, it is found that there is always measured some deviation from linearity. This is due to the fact that many resistors are made from materials having a non-linear current-voltage characteristic: carbon, various metal-oxides.

II METHODOLOGY

Initially customer will provide a batch paper. On that batch paper barcode is present which provide customer's requirement. Batch Paper contains the customer requirement which are given by customer. By using scanner we can scan the barcode provided by the customer. After scanning the barcode corresponding resistor value and tolerance get displayed on PC. On PC we are having App. In App we are having one chart, by calculation corresponding third harmonic value get displayed on App, then this value is given to the arduino uno board. Measurement unit is used to measure the third harmonic value of resistor under test. This third harmonic value is given to the arduino uno board where two values get compared. If value is greater than particular range then that resistor is accepted else rejected.

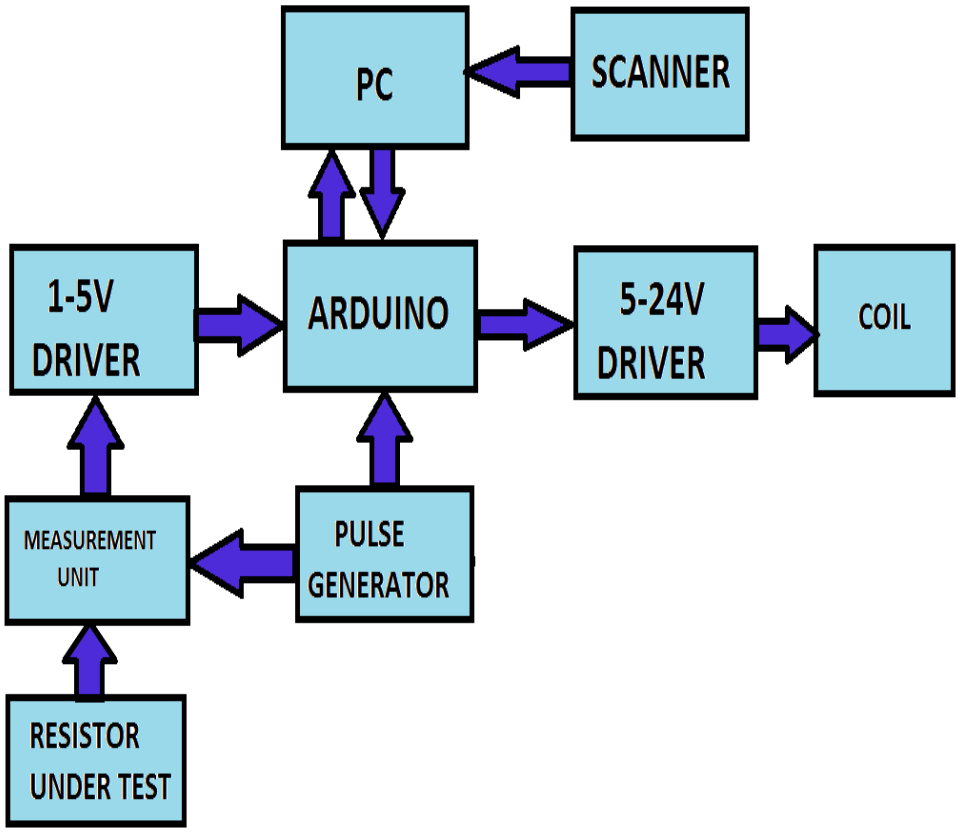

Fig.Block diagram of resistor testing

III LITRATURE SURVEY

SR NO.	TITAL	AUTHOR	METHOD	ADVANTAGES	DISADVANTAGES	REMARK
1.	Resistor's Linearity Testing	Isao Minowa, Hiroyuki Tominaga Electronic Engineering, Tamagawa University, Japan	Isao Minowa, Hiroyuki Tominaga Electronic Engineering, Tamagawa University, Japan	Used to test non linearity of resistors	60% Failure of resistors can be detected	
2.	Component linearity test improves reliability screening through measurement of third harmonic index	Arne Salomon Reliability and Quality Control Manager Radiometer, AS.Copenhagen, Denmark	Third HarmonicMeasuring Method	Used to test non linearity of resistors	90% Failure of resistors can be detected	

Table. Literature survey

III COMPONENTS USED TO IMPLEMENT THE IDEA

- **SCANNER :** Scanner will scan the barcode on the paper which contains customer requirements.

HONEYWELL 1900:

- **PC :** Scanned values then displayed on pc such as resistor value,tolerance and third harmonic value. Resistor value on pc is get compared with value which in the program.
- **ARDUINO :** Arduino board is interfaced with pc, go-no-go box and third harmonic unit. Arduino is an open-source computer hardware and software company, project and user community. It also designs and manufactures **µc** based kits for building digital devices and interactive objects that can sense and control objects with many devices.

Go-NO-GO BOX : This box will accept the resistor above particular value and reject the others

MEASUREMENT UNIT : Used to measure third harmonic value of resistors.

IV SIMULATION

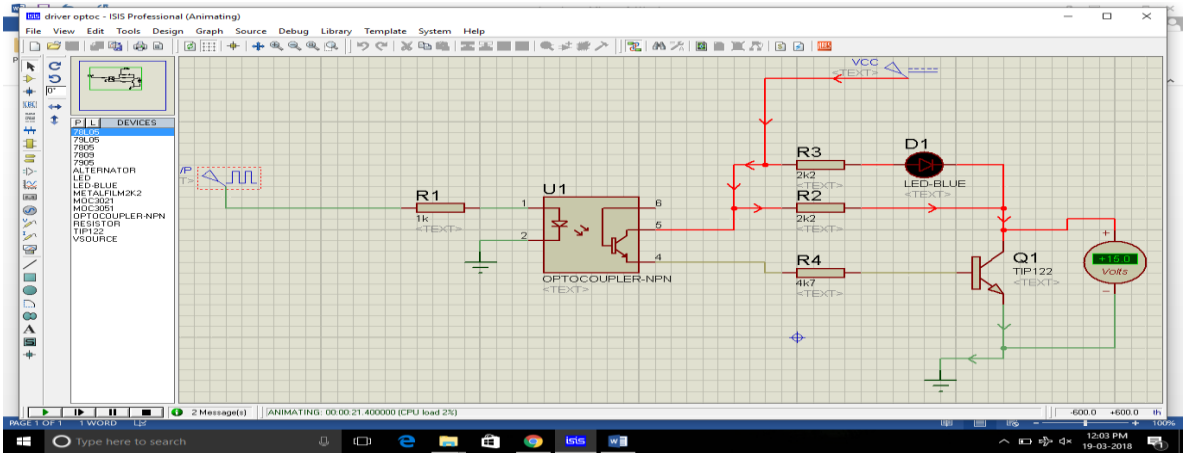

Fig: Amplifier

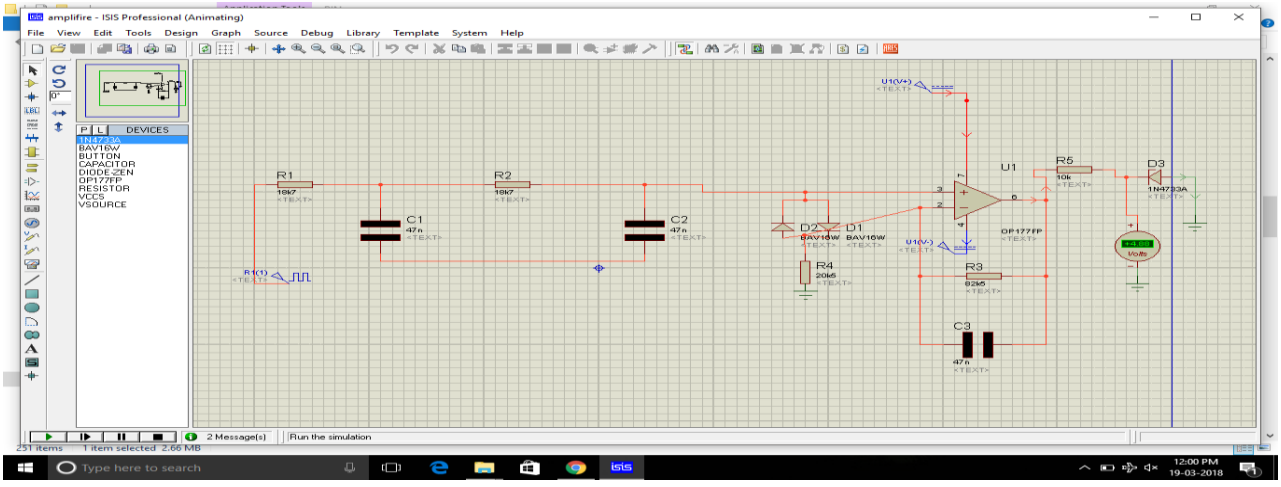

Fig : Output Driver

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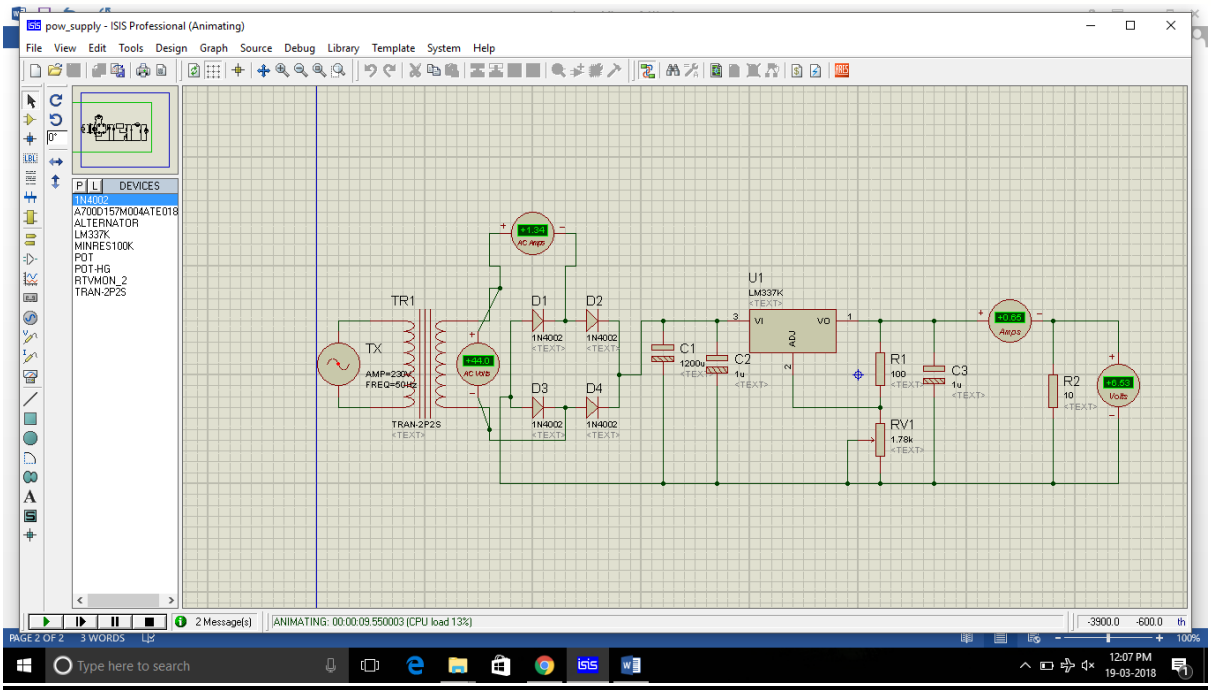

Fig: Power Supply

ADVANTAGES

- As we are setting the resistor value automatically, the man power will get reduced.
- Time consumption will be less.
- The measuring method offers a very high operational speed.
- It is non-sensitive to external fields.
- It gives a high resolution.
- It is non-destructive, and is therefore used for automatic 100% go/no-go production test of resistors and other components

V CONCLUSION

This project fulfill requirements of customer. This method is better for checking the linearity of resistors. This method is very useful for finding out failure in resistors. By using this project defectiveless resistors can be produced.