

Arduino Ohm Meter

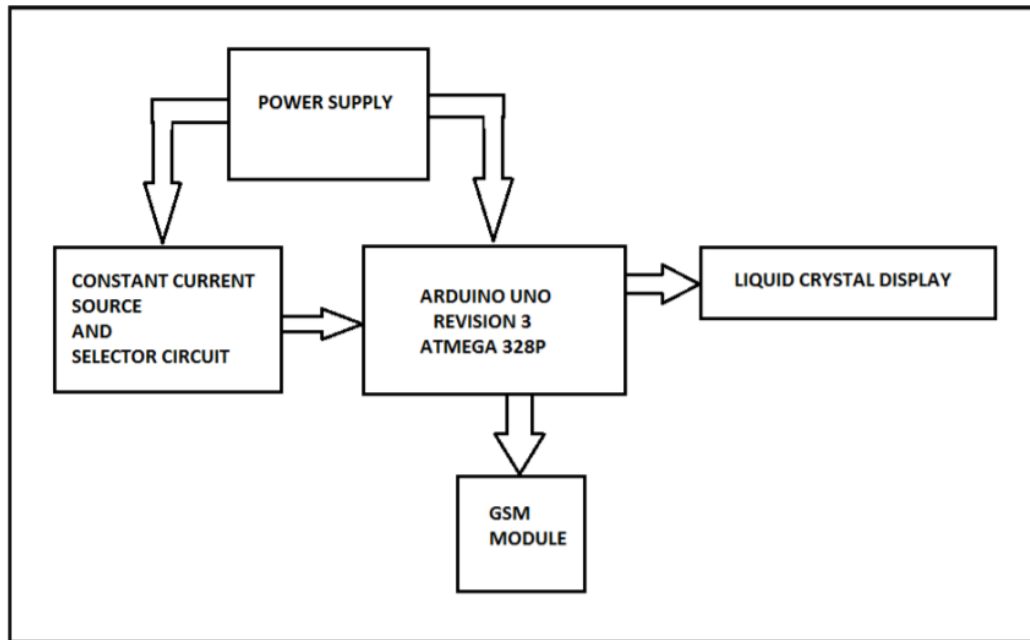
Abstract:

Ohm meter is an electrical instrument that measures electrical resistance, the opposition to the flow of current. Milli-ohmmeter makes low value resistance measurements in Ohms (Ω). Earlier ohm meters were based on the meter movement known as galvanometer. Conventional Ohm meters available in market have complex and expensive circuit. They are not exclusively dedicated to measurement of Ohmic values, in milliohms. This system of Ohm meter based on Arduino is a device or instrument has less complex circuitry and considerable accuracy than conventional Ohm meters. The low value resistors are used in internal circuits of automobiles and other machine where accuracy is the major requirement. This system aims for the measurement of low value resistance with improved accuracy which can be extensively utilised by resistor manufacturing industries for testing purpose. Frequent Errors due to manual range selection in conventional ohmmeter is reduced as automated range selection of resistors during measurement. The measurement of resistance and automated range selection mechanism is implemented using Arduino Uno Rev 3. GSM module is used for providing database correspondence between vendor and customer.

Introduction:

The ohm meter is an instrument that measures electrical resistance value. The conventional ohm meters available in market give reading on varied ranges of ohmic values. Precise result and cost effective instruments are always the need of industry. Our system of customized mili-ohm meter is based on Arduino UNO Rev 3 is dedicated for measurement of low ohmic values which can be utilised by resistor manufacturing industries for testing. Use of Arduino makes this system innovative and superior to the conventional ohm meters available in market. Measurement of low ohmic values is a challenge for conventional ohm meters which our system effectively deals with the use of Arduino. Circuitry of the ohmmeter includes three major modules are which are a power supply, selector circuit and current source and Arduino Uno Rev 3. The ohm meter available in market has manual range selection; our system provides an advantage of automatic range selection and displays the values on LCD. The GSM module will send message to the vendor and customer after completion of measurement of each batch of resistors. Thus system is cost effective and precise. It also renders quick results with updated database.

Block Diagram:



Conclusion:

The Arduino based ohm meter system effectively measures low ohmic values of resistors with greater accuracy. The system is cost effective compared to conventional ohm meters. The automated range selection makes the system free from manual errors. GSM module keeps the customer updated with the progress of the respective order of the resistor. Thus this system is a potential device for the industries manufacturing low ohmic value resistors in bulk.