

Desired Voltage Auto Adjusting System

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ABSTRACT- This paper presents the intelligent microcontroller based digital AC dimmer for controlling the required voltage. The domestic AC dimmer that are widely used for controlling the load voltage relies on varying the phase of bidirectional triode thyristor using the time constant value which is manually adjusted using rheostat or capacitor of gate firing circuit. The AC load connected to those domestic dimmers is isolated using the transformer. The most objective of this work is to implement such a system where we are able to set the desired voltage using the keypad, and system will automatically set the output as per the input point given through the keypad. The system will have facility to sense the voltage which present voltages are displayed on LCD System will control the motor movement as per the necessity. Dimmer is employed to varies the output voltage through the manually. Here we are visiting develop such a system which can remove limitations of this system.

Index Terms: Arduino UNO, LCD Display, keypad, etc.

1. INTRODUCTION:

In this today's world digital technology is becoming normal a part of our life. In each and each field the automation looks a necessary part. We use such a large amount of devices, for that digital electronics is integrated part. We use some measurement device like voltmeter, millimeter, current meter, frequency meter etc. of these now we found have digital electronics. We use function generator. Also we use dimmer switch for maintaining the specified voltage output as per our next circuit requirement. Now it's time use some digital electronics for this equipment to form this equipment digital one.

1.1 Introduction of Dimmer:

Dimmers are devices connected between Electrical machine and provide system also want to varies lower to higher (0-230v) of voltage. By changing the voltage magnitude applied to the any appliances. Dimmers direct size from small units the dimensions of domestic and residential purpose for controlling the output of voltage. During this dimmer varies the voltage by manually or nobe.

1.2 Exiting System:

As we use the dimmer switch for the adjusting the voltage as per out input requirement of the subsequent circuit, we set it manually for instance suppose the necessity is 180 volt A.C. Then we've to maneuver the nob either clockwise or anticlockwise to regulate the voltage therein case for checking the voltage we set we required the multimeter. Also setting time depends upon skill of the person involved within the operation.

1.3 Idea behind the Project:

Dimmer is employed to varies the output voltage through the manually. Here we are visiting develop such a system which can remove limitations of the present system. Here we are going to develop such a system where we will set the specified voltage using the keypad, and system will automatically set the output as per the input point given through the keypad. In laboratory every equipment are digitalized but dimmer isn't digitize, so we commit to make a digital dimmer.

2. LITERATURE REVIEW:

[1] This paper presents the event of an intelligent microcontroller based digital AC (AC) dimmer for controlling the ambient intensity level. The domestic AC dimmer that are widely used for controlling the load voltage relies on varying the point in time of bidirectional triode thyristor (TRIAC) using the time constant value which is manually adjusted using resistor or capacitor of gate firing circuit of TRIAC. The AC load connected to those domestic dimmers is isolated using the transformer. The most objective of this work is to implement the digitally isolated forward phase controlled TRIAC based intensity level control from the onsite or at remote location using different topologies that replaces the standard AC dimmer. The capacitive touch sensor is employed for finger touch controlled dimming at the onsite location while the remote dimming is performed using Bluetooth communication interface. To perform onsite dimming, AC input voltage supplied to light be varied in proportional to the fundamental measure elapsed during which the finger is placed over the capacitive touch sensor. So as to facilitate remote dimming, the dimming level signal is supplied from Android based

smart phone having the applying software for paring connection and digital communication with Bluetooth transceiver interfaced with microcontroller. [2] This paper presents microcontroller based digital AC (AC) dimming techniques for controlling the ambient intensity level. During this work, the sunshine intensity control is intelligently implemented by varying the AC voltage using the digitally isolated forward phase controlled gate pulses of bidirectional triode thyristor (TRIAC). The most objective of this work is to digitally control the firing angle delay of gate of TRIAC from both onsite and remote location using different methods that replaces the standard AC dimmer. The dimming level signal is transmitted to the low cost microcontroller board from the capacitive touch sensor at the onsite location. At the remote location, dimming is performed using either the Bluetooth communication interface or web based dimming from the client computer to microcontroller board using NI (National Instruments) LabVIEW software. So as to perform onsite dimming, AC input voltage supplied to light be varied in proportional to the fundamental measure elapsed during which the finger is placed over the capacitive touch sensor. To facilitate remote dimming, the dimming level signal is supplied from Android based smart phone having the applying software for paring connection and digital communication with Bluetooth transceiver interfaced with microcontroller and also the dimming signals are supplied from the client computer to microcontroller board using web publishing tool of LabVIEW.

3. PROPOSED SYSTEM:

In this system the user can set the desired output voltage with the assistance of keypad. LCD will provide computer programme. The system will have facility to sense the voltages which present voltage are displayed on LCD. System will control the motor movement as per the need i. e. if point is quite the current voltage then microcontroller will move the motor clockwise and stop when the desired output voltage is achieved. If point is a smaller amount than the current voltage then microcontroller will move the motor anticlockwise and stop when the desired output voltage is achieved.

4. SYSTEM ARCHITECTURE OVERVIEW:

As we use the dimmer switch for the adjusting the voltage as per out input requirement of the subsequent circuit, we set it manually as an example suppose the necessity is 180 volt A.C. Then we've got to maneuver the nob either clockwise or anticlockwise to regulate the voltage in this case for checking the voltage set as we required the multimeter for accuracy. Also setting time depends upon skill of the person involved within the operation. Here we are going to develop such a system where we will set the

desired voltage using the keypad, and system will automatically set the output as per the input point given through the keypad.

In this project we use hardware component LCD display (16*2), Arduino Uno, PIC 16F877A, DC motor, Keypad, Auto transformer

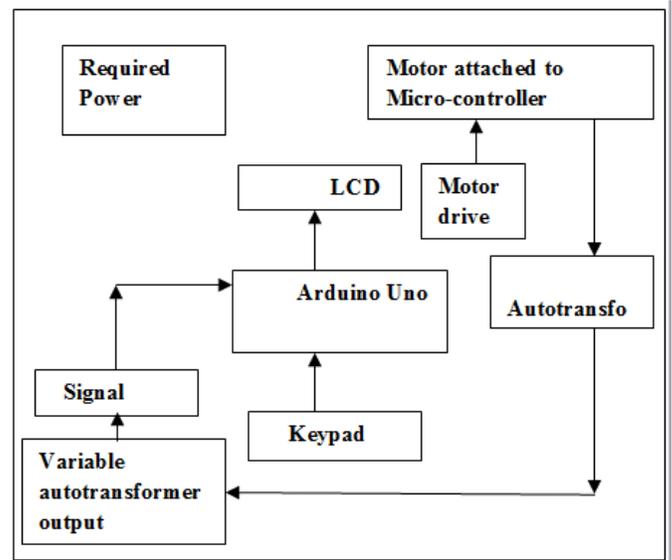


Fig: Block Diagram

ARDUINO UNO: The microcontroller board Arduino Uno relies totally on ATmega328.ATmega 328 has 14 digital i/p o/p pins which 6 will be used as PWM outputs, 6 analog inputs, sixteen MHz ceramic resonator, USB connection and energy jack, ICSP header and button. It certainly linked to the laptop with a USB cable or electricity it with an AC to DC adapter or battery to start out the procedure.

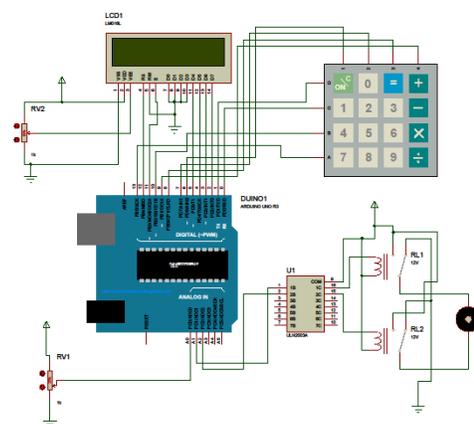


Fig: circuit Diagram

16x2 LCD: It can display 16 characters per line and there are 2 such lines. During this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data. The command register stores the command instructions given to the LCD. A command is an instruction given to LCD try to a predefined task like initializing it, clearing its screen, setting the cursor position, controlling display etc. the info register stores the info to be displayed on the LCD.

DC MOTOR: High efficiency, prime quality low cost DC motor with gearbox for robotics applications. Very easy to use and available in standard size . Nut and threads on shaft to simply connect and internal threaded shaft for easily connecting it to wheel.

5. RESULT:

Testing of the various components used to ensure the acclaimed voltage and current rating was ascertained was carried out. Other than the results from proteus simulation, the prototype system also did yield an expected result as the system was able to show voltage as per input. It reduces time as compare with manual system.

6. CONCLUSION:

By implementing this idea in digital dimmer automatic control of output voltage as per input .It reduces time as compare with manual system. No need of multimeter for checking output voltage accuracy.

7. REFERENCES:

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