LAMP ILLUMINATION CONTROL WITH PRECISION USING 4_3 KEYPAD

ABSTRACT

The project is a system that uses a microcontroller to maintain the illumination of a lamp by controlling a thyristor. The illumination is maintained by varying the voltage across it. The system uses the concept of firing angle control of thyristors. A matrix keypad is used to enter the percentage of illumination required by user. This input is fed to microcontroller which automatically initiates the firing angle control of thyristors and adjusts the power supplied to the lamp with the help of a solid state switching mechanism. Illumination of a lamp varies depending on the voltage applied to it. In certain specific applications it is necessary to have controlled illumination as per requirement. This system overcomes the faults in the present system and provides a solution for light illumination control mechanism of the lamp. This system is built by using an Arduino microcontroller and based on the principle of firing angle control of thyristors, which in turn can control the illumination of lamp. An LCD display unit is used, which displays entered percentage of the illumination through a matrix keypad. The firing angle control of thyristors is done by the microcontroller, according to the desired percentage entered by the user. Based on this input the microcontroller will automatically adjust the power delivered to the lamp through a solid state switching mechanism.

BLOCK DIAGRAM

POWER SUPPLY		
TRANSFORMER	RECTIFIER & FILTER	REGULATOR

KEYPAD → ARDUINO

ZERO CROSSING DETECTOR → ARDUINO

ARDUINO → OP-ISOLATOR → TRIAC → LAMP

ARDUINO → LCD DISPLAY