A Major-Project report on

"SOURCE CURRENT RIPPLE REDUCTION WITH INPUT VOLTAGE CONTROLLED LED DRIVER"

Submitted to

Jawaharlal Nehru Technological University, Hyderabad

In partial fulfillment of the academic requirements for

the award of Degree of

BACHELOR OF TECHNOLOGY

In

ELECTRICAL & ELECTRONICS ENGINEERING

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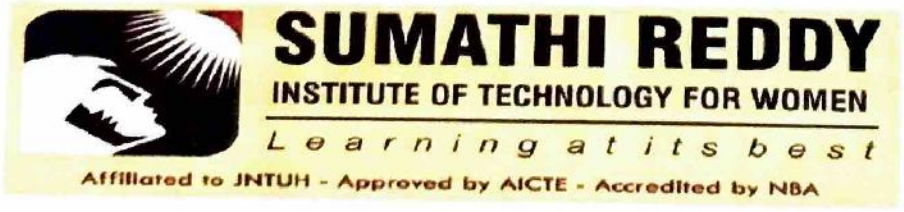

2022-23

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CERTIFICATE

This is to certify that the major project entitled **"SOURCE CURRENT RIPPLE REDUCTION WITH INPUT VOLTAGE CONTROLLED LED DRIVER"** submitted to **JNTUH** carried out by the following students of **IV-B.Tech** in the partial fulfillment for the award of the B.Tech Degree in **Electrical &Electronics Engineering** during the academic year 2022-23.

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ABSTRACT

With the increase in the power demand for lighting applications, efficiency concerns and developments in LED lighting, majority of lighting applications are becoming LED based. Photo-voltaic (PV) source based industrial or commercial lighting has considerable importance. PV based systems give better performance if the current drawn from it has reduced ripple current. This paper presents an LED driver configuration for PV based systems such that source current ripple can be reduced. A three-phase series resonant converter is used for obtaining the DC output voltage for LED load. The load voltage is regulated by controlling the input voltage of the inverter. A controlled voltage is derived and added to the PV source for regulating the total input to the converter system. The input to the inverter configuration is always maintained to be constant irrespective of increase or decrease in the PV source. A buck-boost converter is used on the source side for deriving controlled voltage for regulation of input voltage to the three-phase series resonant converter feeding the LED load. For dimming the illumination, low frequency PWM technique is used. The proposed converter is studied using MATLAB simulation for 100.3W of output power. The converter is expected to give high efficiency and can handle large lighting loads with reduced ripple in the source current.

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