

A Major-Project report on

**“ENERGY MANAGEMENT STRATEGY OF A PHOTOVOLTAIC
ELECTRIC VEHICLE CHARGING STATION”**

Submitted to

Jawaharlal Nehru Technological University, Hyderabad

In partial fulfilment 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 **"ENERGY MANAGEMENT STRATEGY OF A PHOTOVOLTAIC ELECTRIC VEHICLE CHARGING STATION"** 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

The adoption of the photovoltaic electric vehicle charging stations has been on the rise. In this paper, a grid connected electric vehicle charging station powered by photovoltaic solar system and a pack of batteries as storage system, is evaluated and analyzed. The most important parameter for supervising the system is the direct current bus voltage. The grid or the energy storage system can supply the electric vehicle charging station to maintain the bus voltage at its level. This supervision is tested by simulating the charging system under different irradiance conditions taking into account the cost of the energy transmission and the state of charge of the battery. The results validate the performance of the proposed energy management and the proper operation of electric vehicle charging station. These test cases are simulated and results are analyzed by using MATLAB/SIMULINK.



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