

A Major-Project report on

**“EFFECT OF FAULT RIDE THROUGH CAPABILITY ON  
ELECTRIC VEHICLE CHARGING STATION UNDER  
CRITICAL VOLTAGE CONDITIONS”**

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**

By

RESHMA

206Y5A0221

K.LAXMI PRASANNA

196Y1A0206

M.NIHARIKA

196Y1A0208

B.LAXMIPRIYA

206Y5A0201

B.MANASWINI

206Y5A0202

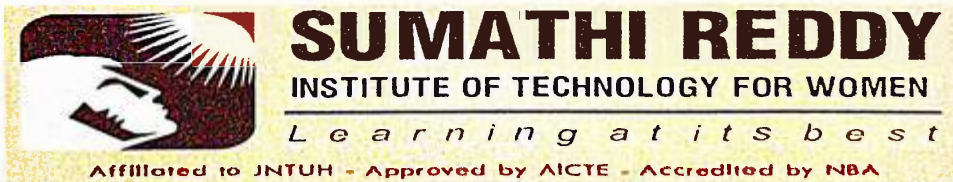
Under the esteemed guidance of

**Mrs. P.SUCHARITHA** M.Tech

Assistant Professor



**DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**



2022-23

*Rajan*

PRINCIPAL

Sumathi Reddy Institute of Technology for Women  
Ananthasagar (V), Hasanpally (M)  
WARANGAL- 506 371(T.S.)



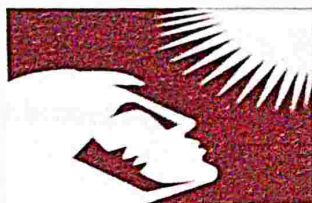
# SUMATHI REDDY

INSTITUTE OF TECHNOLOGY FOR WOMEN

*Learning at its best*

Affiliated to JNTUH - Approved by AICTE - Accredited by NBA

## DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



### CERTIFICATE

This is to certify that the major project entitled “Effect of Fault Ride Through Capability on Electric Vehicle Charging Station Under Critical Voltage Conditions” submitted to JNTUH carried out by the following students of IV-B.Tech in the partial fulfilment for the award of the B.Tech Degree in Electrical & Electronics Engineering during the academic year 2022-23.

RESHMA

206Y5A0221

K.LAXMI PRASANNA

196Y1A0206

**M.NIHARIKA**

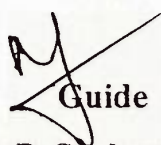
**196Y1A0208**

B.LAXMI PRIYA

206Y5A0201

B.MANASWINI

206Y5A0202

  
Guide

Mrs. P. Sucharitha

  
Head of the Dept

Dr. K. Mahender sharma



  
PRINCIPAL

Sumathi Reddy Institute of Technology for Women  
Ananthasagar (V), Hasanparthy (M)  
WARANGAL - 506 371 (T.S.)



## ABSTRACT

A high-quality power supply is required for the proper functioning of the electric vehicle (EV) charging system. However, the voltage quality is one of the significant issues in the distribution grid. This article aims to examine the impacts of voltage disturbance on EV batteries and charging systems, and provides a fault ride-through capability (FRTC) to enhance the voltage quality. The charging system is constructed by the three-phase controlled rectifier and the dc-dc converter. The EV battery pack is modeled with lithium-ion batteries. The FRTC system is designed to improve the voltage quality, and it is achieved through the dynamic voltage restorer. It protects the EV batteries and charging system from the critical voltage sag levels. The performance of the proposed EV charging station (EVCS) has been investigated in 30%, 60%, and 90% voltage sag through the MATLAB/Simulink platform. Also, the real-time validation has been carried out by the software-in-the-loop test with the help of the dSPACE (DS1202) real-time system. The EVCS with an FRTC system provides better performance than the conventional EVCS.



*Rijan*

**Principal**

Sumathi Reddy Institute of Technology for Women  
Ananthasagar (V), Hasanparthy (M)  
WARANGAL - 506 371 (TS)