VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

IBRAHIMBAGH, HYDERABAD

Department of Electronics and communication Engineering

Academic Year 2022-23

Electronic Devices

Activity Report

Conducted for: II B.Tech IIISem **Date:**3/10/2023

Name of the Activity: Project based learning

Description: Project based learning is given as assignment -3 in the Electronic devices course to apply the concepts learned in the classroom to meet the given Specifications practically.

Outcome of the activity conducted:

S.No.	Activity is conducted to help students to	Blooms	COs covered and justify
1.	To apply the theoretical concepts to meet the given specifications practically.	Apply	CO:3 Employ PN- Junction diode as a circuit element.

VASAVI COLLEGE OF ENGINEERING

(AUTONOMOUS)

Department of E.C.E

ACCREDITED BY NAAC WITH 'A++' GRADE

Ibrahim Bagh, Hyderabad-31

Class: BE III Sem (ECE-A) **Subject:** Electronic Devices
Name of the Faculty: V. Krishna Mohan **Academic Year**:2022-23

Innovative Teaching Method: Project based Learning.

This is given as assignment -3 in the Electronic devices course to apply the concepts learned in the classroom to meet the given Specifications practically.

Group	Roll Numbers	Name Of the Student	Project Title with Specifications
1	AMBATI. ZIPPORAH KAMLI THOMAS	1602-20-735-075	Design of Samsung Mobile charger with 5Volts and 0.7 Amps
	ABHIJEETH. MANAKAN	1602-21-735-065	
	KUKUNURU. AKASH	1602-21-735-067	
2	AKSHAR. MANOOVYA THORRA	1602-21-735-069	Design of Dell Laptop charger with 19.4Volts and 4.62 Amps
	G. V AKSHIT KUMAR	1602-21-735-070	
	A. MAHESREE	1602-21-735-071	
	KARNATI. ARUN REDDY	1602-21-735-072	
3	SATTENAPALLI. CHAITANYA SAI	1602-21-735-073	Design of Power supply for Creative speaker system with 12Volts and 2.9 Amps
	DONTULA. DINESH KUMAR	1602-21-735-074	
	YALLA. DIVYA	1602-21-735-075	
	GUNTOJU. HARSHITHA	1602-21-735-076	
4	JASWANTH. POSANI	1602-21-735-077	Design of DC variable power supply from 0.1 to 30 Volts.
	MADGULA. KARTHIK	1602-21-735-078	
	ANNALDESH. KAUSHIK	1602-21-735-079	
	KEERTHI.	1602-21-735-080	
5	SOMASI. KEERTHI SREE	1602-21-735-081	Clap Switch to control AC appliance using T-FlipFlop
	SAGARLA. MAHALAXMI	1602-21-735-082	
	MD. RAQIBUDDIN	1602-21-735-083	
	J. MANIKANTA	1602-21-735-084	
6	ARTHAM. MUKESH	1602-21-735-085	Design of HP charger with 18.5Volts and 3.5 Amps
	PALAPARTHY. NAGA VENKATA SAI GANESH	1602-21-735-086	
	MIDDELA. NAVYA	1602-21-735-087	
	DUBBULA. NIKHIL	1602-21-735-088	
7	NITHIN. MUNIGALA	1602-21-735-089	Design of Power supply for 46inch LCD TV with 24Volts and 2.5 Amps
	MATETI. PRAGATHI	1602-21-735-090	
	GATLA. PRANAV KUMAR	1602-21-735-091	
	DASARI. PRIYANKA	1602-21-735-092	
8	GUDEPU. PRUDHVI RAJ	1602-21-735-093	Design of SMPS with three different Voltages (You can choose voltages)
	BHUKYA. PURNIMA	1602-21-735-094	
	SUNKARI. RAJANEESH	1602-21-735-095	
	KAPA. RAVINDER REDDY	1602-21-735-096	

9	PAVUSHETTI. REVANTH	1602-21-735-097	Design of Sony Handycam charger with 8.4Volts and 1.7 Amps
	UPPULUTI. RISHI	1602-21-735-098	
	GILLA. RISHITH CHANDRA	1602-21-735-099	
	ROHAN. BERI	1602-21-735-100	
10	B. RUTH GLADYS	1602-21-735-101	Design of Nokia Mobile charger with 5Volts and 350mAmps
	UPPU. RUTHVIKA	1602-21-735-102	
	MANGALI. SAI CHARAN	1602-21-735-104	
	SAREDDY. SAI CHARAN REDDY	1602-21-735-105	
11	M. SAI SHANMUKHA KEERTHANA	1602-21-735-107	Design of Lenovo laptop charger with 19Volts and 3.42 Amps
	BOPPIDI. SAI SHARANYA	1602-21-735-108	
	KONGARI. PEDDA SAI SWETHA	1602-21-735-109	
	SALMA. ANJUM	1602-21-735-110	
12	BANOTH. SANJAY	1602-21-735-111	Design of Apple laptop charger with 24Volts and 1.87 Amps
	LANGANURU. SASHIKANTH	1602-21-735-112	
	JUPUDI. SATHWIK	1602-21-735-113	
	CH. SATWIK	1602-21-735-114	
13	POLA. SHIVA KALYAN GUPTA	1602-21-735-115	Design of Buck Convertor
	A. SHIVA KUMAR	1602-21-735-116	
	GODASI. SRI GANGA PRANAV	1602-21-735-117	
	THATIKONDA. SRIVASTAVA	1602-21-735-118	
14	VADALI. SURYA NAGA KIREETI	1602-21-735-119	Design of Buck boost convertor
	PALAKURTHI. SURYA SANDEEP	1602-21-735-120	
	KUMBHAGIRI. SUSHANTH	1602-21-735-121	
	PALUCHANI. SWETHA	1602-21-735-122	
15	DONADULA. VARSHA	1602-21-735-124	Design of IBM laptop charger with 16Volts and 3.75 Amps
	DOSADA. VARSHA REDDY	1602-21-735-125	
	VUPPULA. VENKAT REDDY	1602-21-735-126	
	CHIRIVELLA. VENKATA DEVARSHI	1602-21-735-127	
	HANUMANDLA. VYSHNAVI	1602-21-735-129	Design of Dual Channel DC variable power supply from 0.1 to 30 Volts.
	P. YASHASH ANIRUDH	1602-21-735-130	
	UPPULA. VANDANA	1602-21-735-308	
	KAMLEKAR. DIKSHITHA	1602-21-735-309	
16	AREPALLI. SUSHMA PRASHALI	1602-21-735-310	Design of Computer SMPS with +12V 18A , -12V 0.5A, +5V 30A and +3.3V 21A
	ABHISHEK. REDDY PALLA	1602-21-735-311	
	N. MUKESH	1602-21-735-312	
	SIRI HARSHITHA	1602-21-735-313	
	NATHADI. SATHVIKA	1602-21-735-314	
17	Mansi Talla	1602-21-735-020	Design of 8.4V, 1.5A REGULATED POWER SUPPLY (CHARGER)
	Nachiketh Ch	1602-21-735-021	
	Naveen	1602-21-735-022	

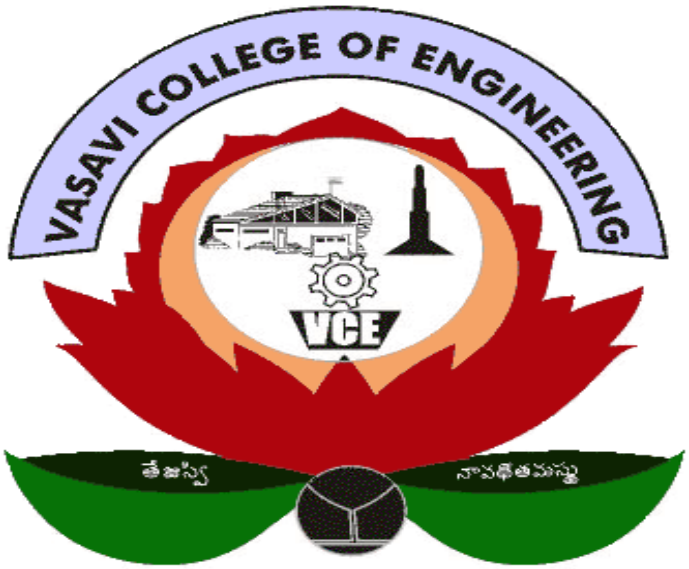
VASAVI COLLEGE OF ENGINEERING

ELECTRONIC DEVICES

MINIPROJECT REPORT

8.4V, 1.5A REGULATED POWER SUPPLY (CHARGER)

ECE-A **II/IV** **III Semester**



Submitted by:

1602-21-735-020 Mansi Talla

1602-21-735-021 Nachiketh Ch

1602-21-735-022 Naveen

CONTENTS: **pg no:**

INTRODUCTION, AIM AND GLIMPSE OF PROJECT:

The main aim of this project is to make a DC regulated power supply of constant voltage 8.4V, 1.5A current from 230 v AC supply.

A regulated power supply is a device that maintains a constant output voltage regardless of changes in the input voltage or load current. In this project, we will be designing a 8.4V, 1.5A regulated power supply using a full wave rectifier and a capacitive filter. There are several ways to design a regulated power supply without using an IC regulator, one of which is using a zener diode in conjunction with a transformer and a rectifier.

The circuit diagram for a 8.4V,1.5A regulated power supply using a zener diode would consist of the following components:

COMPONENT SPECIFICATIONS:

- **TRANSFORMER 12-0-12 (2A)**
- **1N4007 -NO.**
- **RESISTORS 2No.**
- **8.2V ZENER**
- **1000nF(400V)**
- **BREAD BOARD**

STEPS FOLLOWED:-

1)A transformer to step down the input voltage to a suitable level for the zener diode

2)A full-wave rectifier to convert the AC input voltage to DC

3)A filter capacitor to smooth out the ripple voltage

4)A zener diode to regulate the output voltage

5)A load resistor to represent the load on the power supply

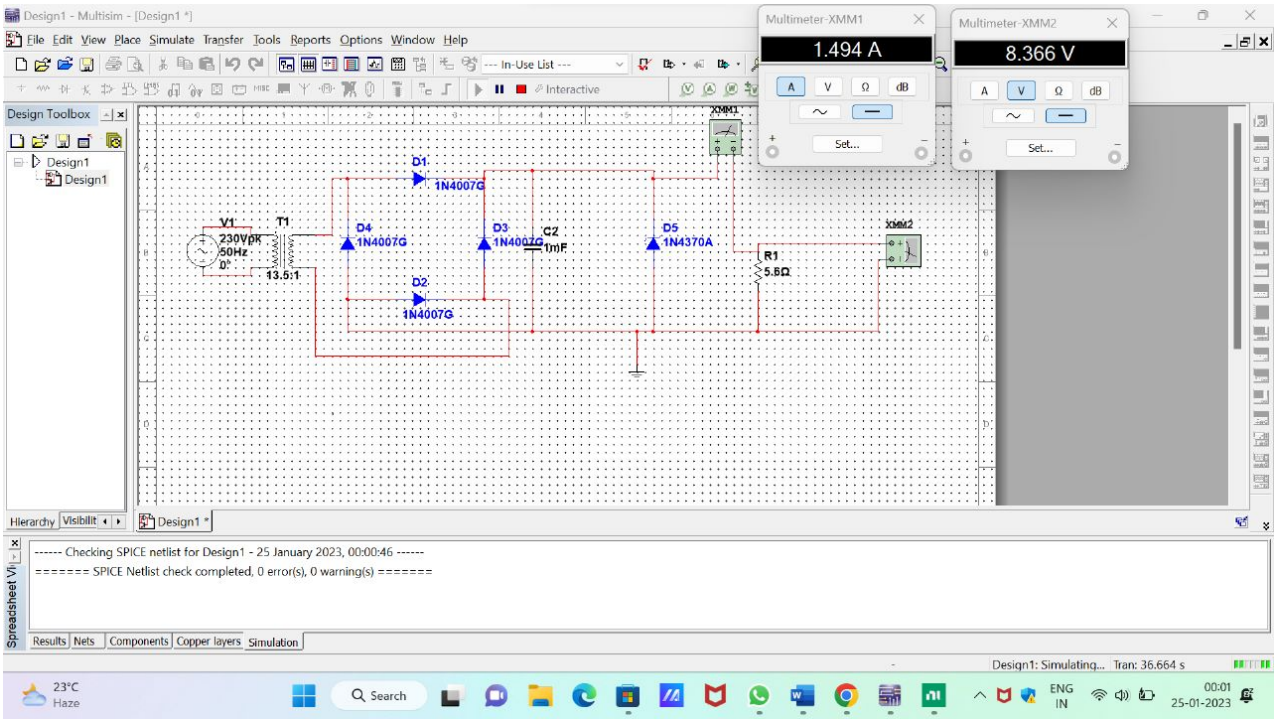
6)A resistor to limit the current flowing through the zener diode

7)The output voltage can be adjusted by changing the zener diode voltage rating, which can be calculated by adding the desired output voltage to the voltage drop across the load resistor.

Note:- Before implementing the design with hardware component, first testing must done in MULTISIM in order to know the specifications and required components of the design.

CIRCUIT DIAGRAM

We have tested the above circuit in multisim and then we have designed the same on bread board.


Design1 - Multisim - [Design1 *]
File Edit View Place Simulate Transfer Tools Reports Options Window Help
Design Toolbox
Multimeter-XMM1
1.494 A
Multimeter-XMM2
8.366 V
V1
230V0°
50Hz
0°
T1
13.5:1
D1
1N4007G
D2
1N4007G
D3
1N4007G
D4
1N4007G
D5
1N4370A
C2
1mF
R1
5.6Ω
XMM1
XMM2
Design1
Hierarchy
Visibilit
Design1 *
----- Checking SPICE netlist for Design1 - 25 January 2023, 00:00:46 -----
======= SPICE Netlist check completed. 0 error(s), 0 warning(s) =======
Spreadsheet Vi
Results
Nets
Components
Copper layers
Simulation
Design1: Simulating... Tran: 36.664 s
23°C
Haze
Search
ENG
IN
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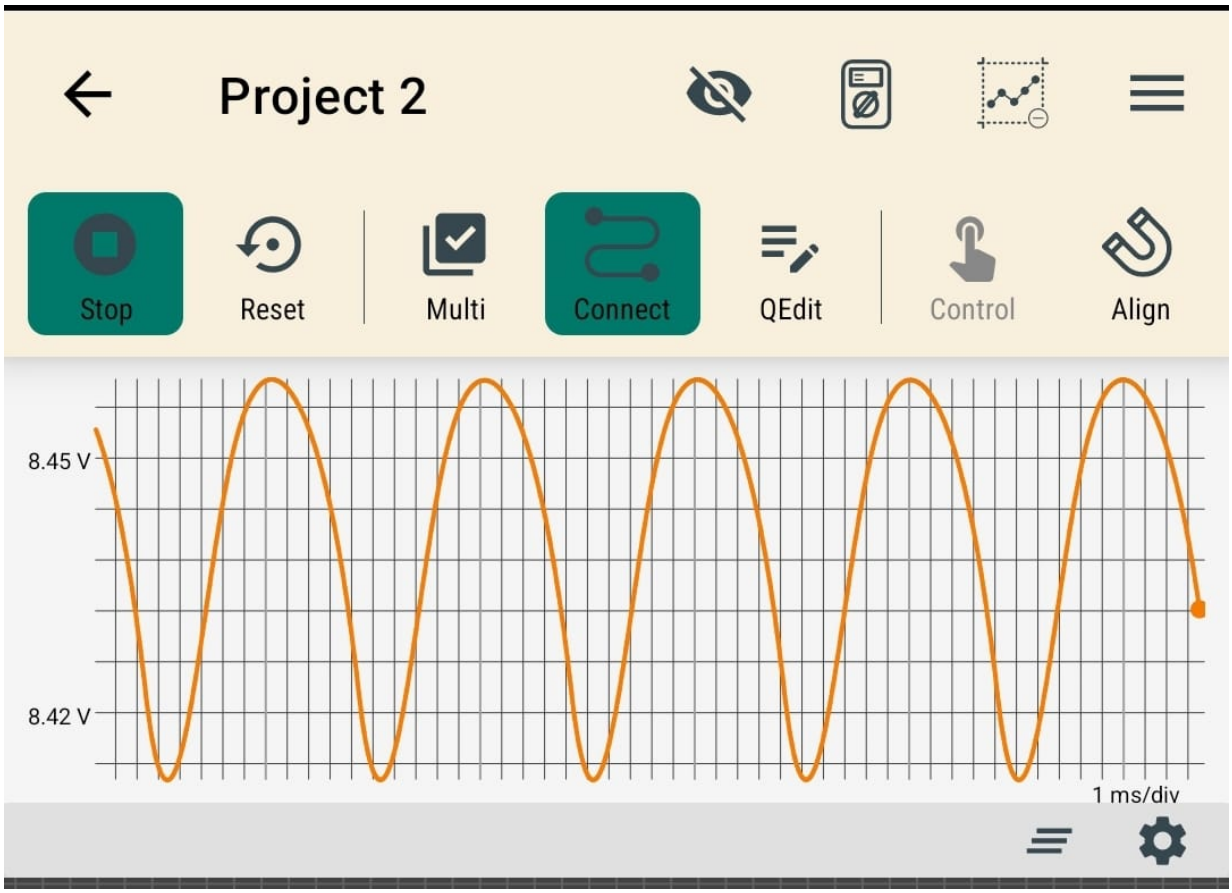
Project 2
Stop
Reset
Multi
Connect
QEdit
Control
Align
8.45 V
8.42 V
1 ms/div

Components used:

- ➢ Full wave rectifier:The full wave rectifier circuit converts the AC input voltage to a DC voltage by allowing current to flow through the diode in only one direction. This eliminates the negative half cycles of the input voltage and provides a smooth DC output voltage. Here, we have used bridge rectifier circuit for more efficiency.

- ➢ Capacitive filter: a capacitor is connected in parallel with the output of the rectifier in a linear power supply. The capacitor increases the DC voltage and decreases the ripple voltage components of the output.
- ➢ VOLTAGE REGULATOR: We have used a zener diode (IN4037A) and a voltage regulator for this circuit for a constant output voltage of 8.5V.

➢APPLICATIONS:

The main function of this is to supply a constant voltage to a circuit that should be functioned in a particular power supply limit.

- ➢ Mobile phone chargers
- ➢ Regulated power supplies in different appliances
- ➢ Various oscillators & amplifiers

CONCLUSION:

The 8.4V, 1.5A regulated power supply is designed using a full wave bridge rectifier, capacitive filter and a regulator. The circuit is easy to build and can be used for a wide range of applications.