



# DC variable power supply with short circuit protection

PRESENTED BY

MD. HEDAYETUL ISLAM CHY.

& MOHAMMAD MESBAH UL AREFIN SAKIB

# Abstract

- ▶ Power management plays a major role in virtually every electronic system because it controls, regulates, and distributes DC power throughout the system. Here we make a dc power supply which will keep safe the circuit from excessive voltage and cost effective too. The maximum current of the power supply is 1A which also keep the circuit safe. And voltage is variable and which is 0 -30v.

# Problems

- ▶ Unstable dc voltage
- ▶ High current output
- ▶ Costly/Expensive
- ▶ No voltmeter display/analog meter
- ▶ No short circuit protection

# Solution

- ▶ Stable voltage output
- ▶ Maximum current is 1A
- ▶ Variable dc voltage 0-30v
- ▶ Has short circuit protection
- ▶ Cost effective
- ▶ Use digital voltmeter display
- ▶ Can get all components in local shop

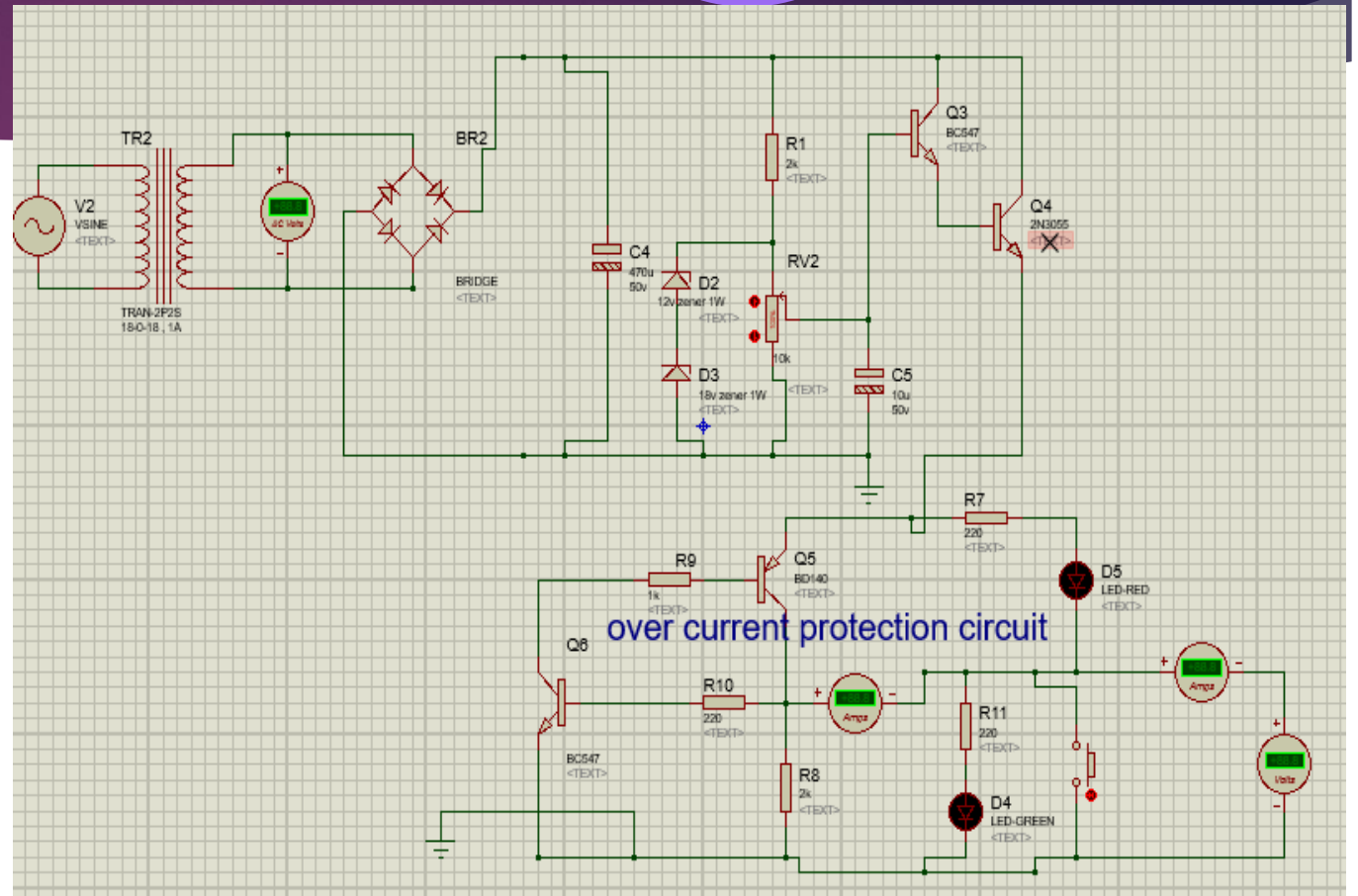
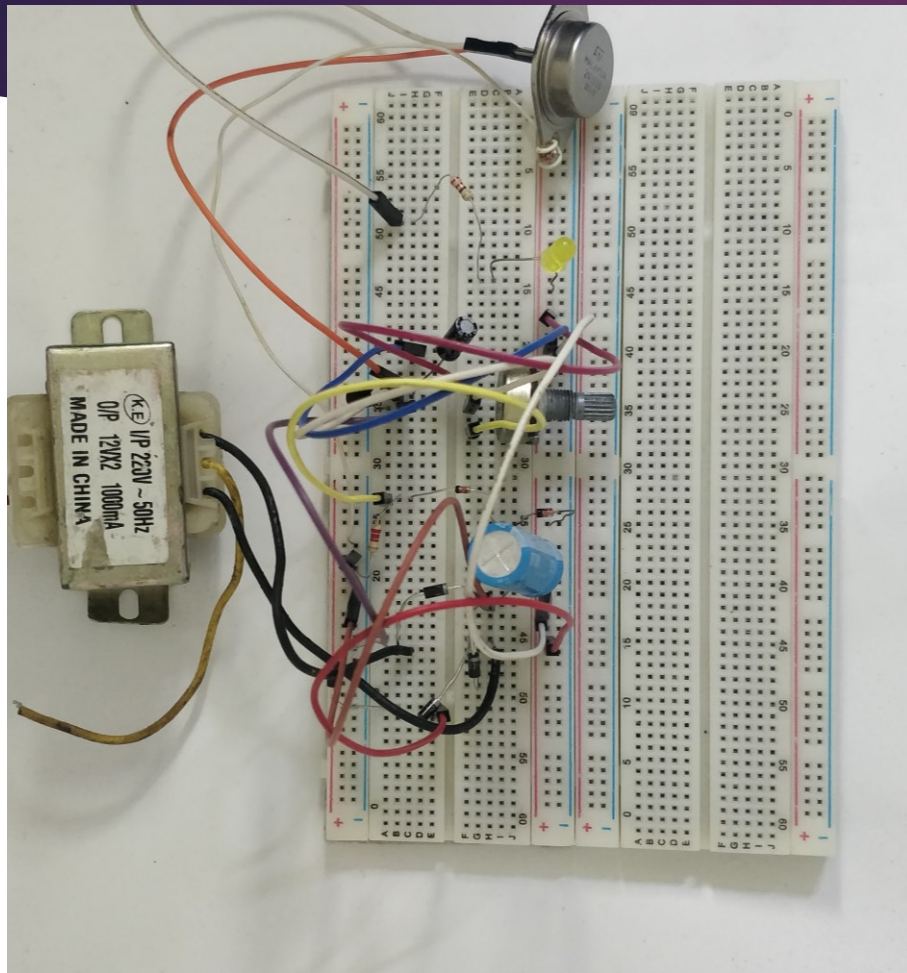
# Basic theory

- ▶ Transformer
- ▶ Electronic devices
  1. BJT
  2. Resistor
  3. Electrolytic capacitor
  4. Rectifier
  5. Potentiometer
  6. Display

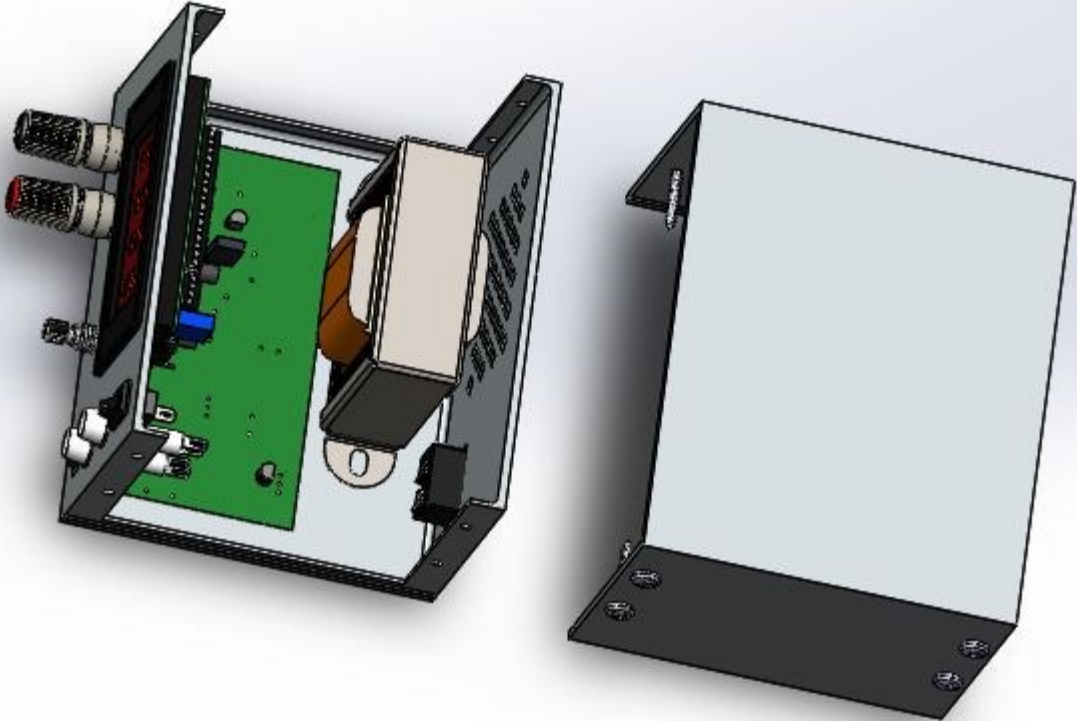
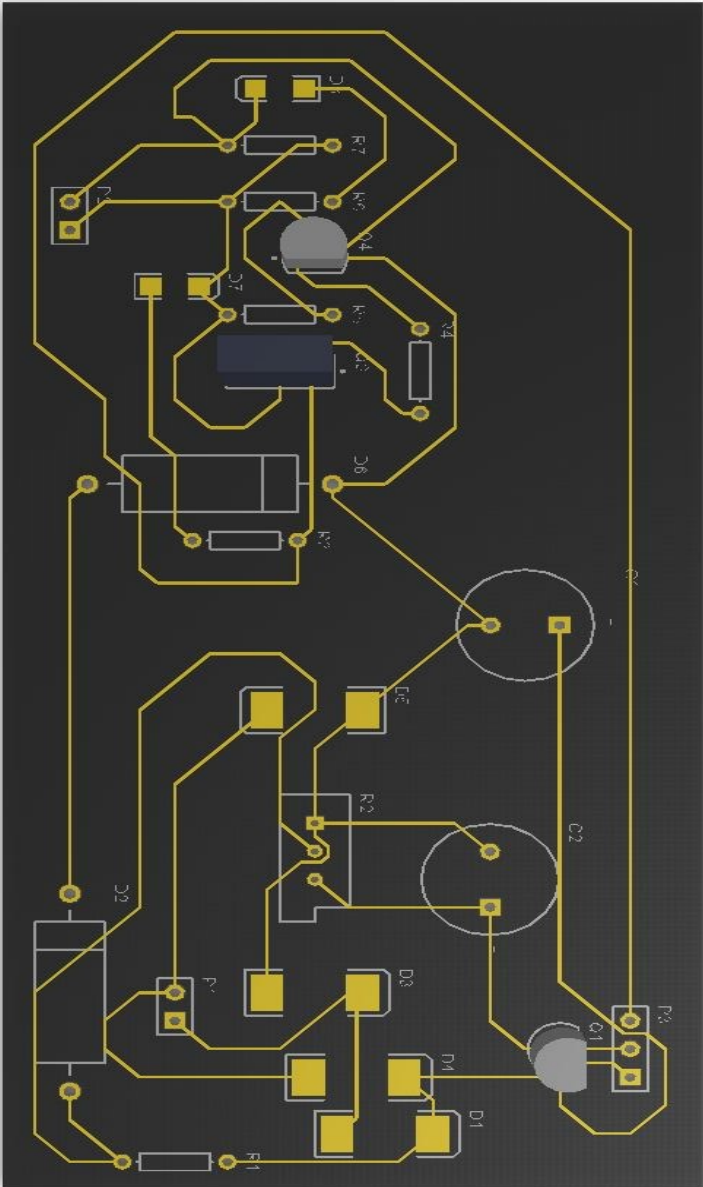
# features

- ▶ Cost effective dc power supply
- ▶ Portable electronic device
- ▶ Reduce risk
- ▶ Get stable supply

# Device picture



# CAD





# Application

- ▶ In lab works
- ▶ For personal use
- ▶ In research
- ▶ Small electronic shop

# limitation

- ▶ Operate not more than 30v
- ▶ No variable current
- ▶ Maximum current is 1A

# BILL OF MATERIALS

Components	Quantity	Cost(taka)
Transformer	1	90
Digital voltmeter display	1	300
2N3055	1	20
BC547 and others		20
	Total	430
<b>For Short circuit protection</b>		
BD140	1	5
BC547	1	2
Others		13
	Total	20
Total price with short circuit protection		450

# Conclusion

- ▶ In our project we try to make our dc power supply which is cost effective and easy to use, understand and operate and suitable for our lab work and personal uses

# Future works

- ▶ Will add current variation
- ▶ Try to reduce the cost more
- ▶ Reduce the complexity of the circuit
- ▶ Try to add negative voltage



THANK YOU