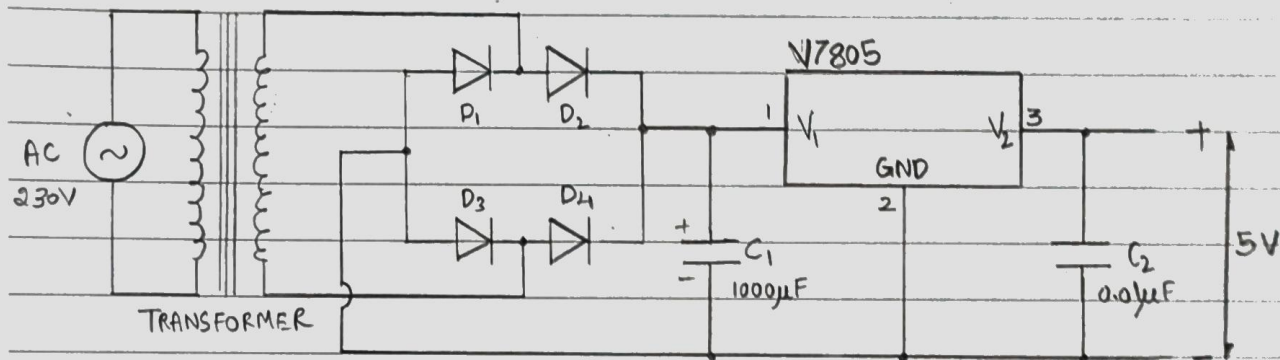


# A REPORT ON MOBILE CHARGER

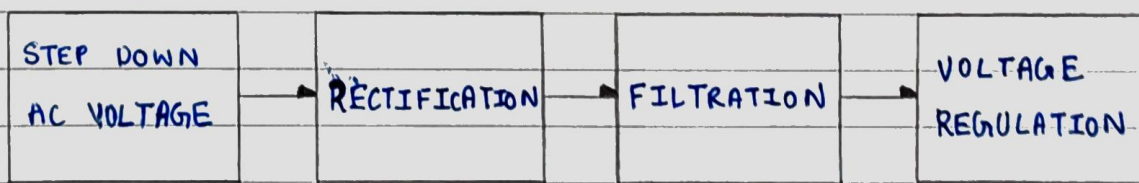
Objective: To build and demonstrate a basic mobile charger.

Components used: Breadboard, transformer (230V  $\rightarrow$  12V), diodes, 1000 $\mu$ F capacitor, 0.01 $\mu$ F capacitor, V-7805 regulator, USB connector.

Circuit diagram:

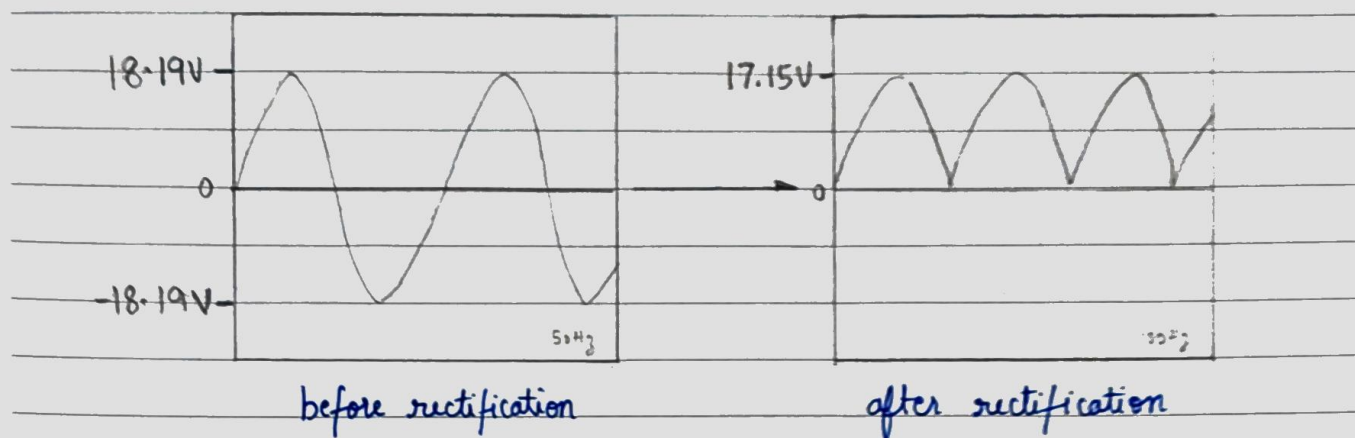


Block diagram:

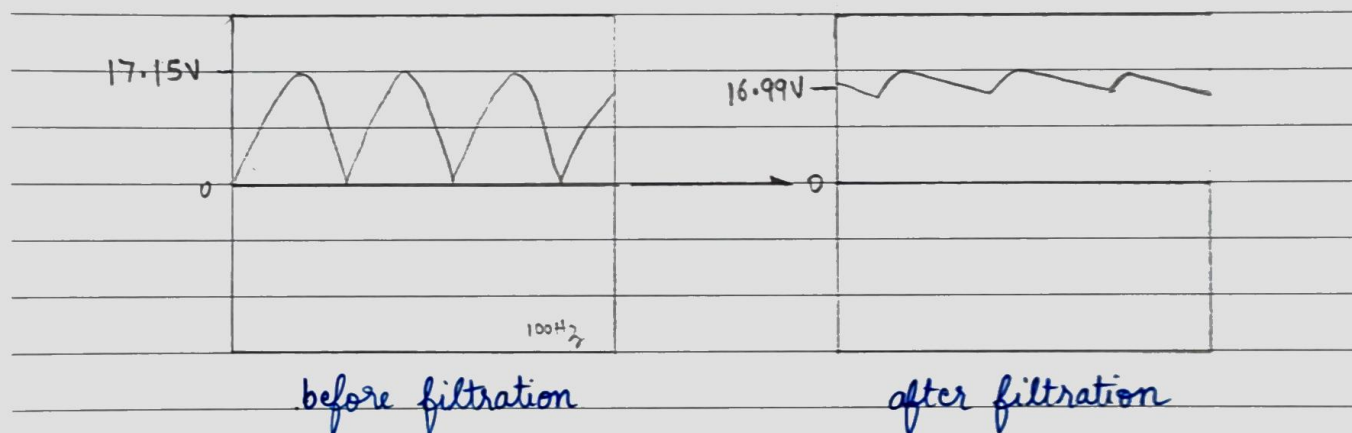


Step down AC Voltage: A 12-0-12 step down transformer is used to convert 230V AC to 12V AC.

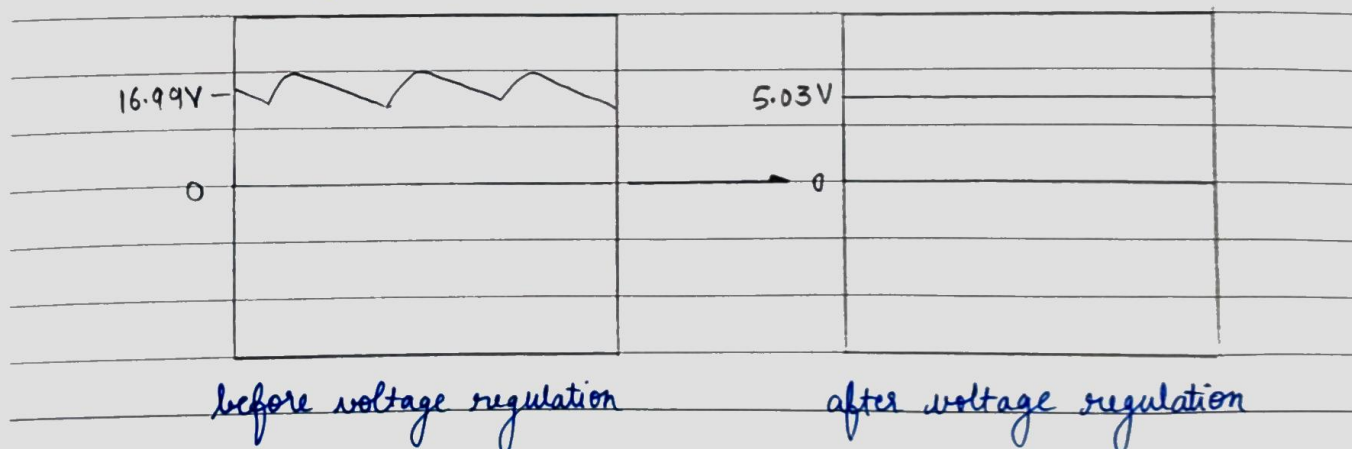
Rectification: A full-wave bridge rectifier is built using 4 diodes i.e. 2 diodes in forward bias and 2 diodes in reverse bias. The rectifier converts the negative half cycle of AC to positive.



Filtration: A  $1000\mu\text{F}$  filter capacitor is used to reduce the ripple factor. The output voltage across the capacitor is a DC output of 7V.



Voltage regulation: A voltage regulator IC V-7805 is used to provide a regulated 5V DC. A capacitor of  $0.01\mu\text{F}$  is connected to the output of the IC to eliminate the noise produced by transient changes in voltage.



### Observation:

Parameters	Values
AC input to transformer	235.1 V (rms)
AC output of transformer	12.86 V (rms)
Voltage across capacitor $C_1$	16.90 V (dc)
Voltage across capacitor $C_2$	5.03 V (dc)
Output current	0.66 A
Power output	3.63 W

Conclusion: The mobile charger designed and built successfully provides a constant 5.03 V DC supply and output current 0.66 A. 3.63 W of power is used to charge the mobile and is effective.