AUDIO AMPLIFIER

(MONO)

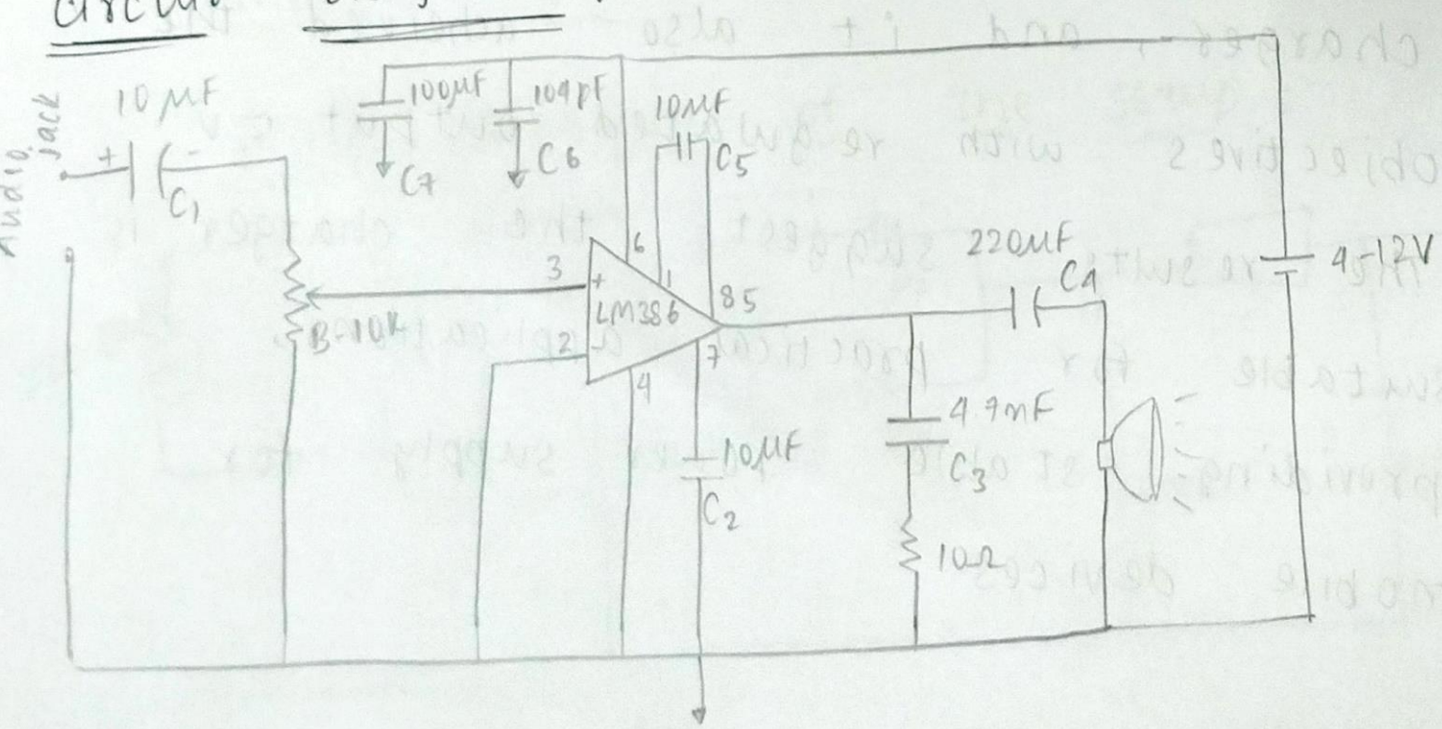
-ee23btech11042

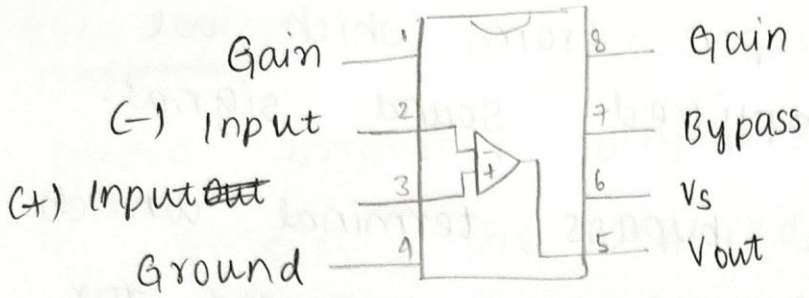
Aim : To design and implement a simple audio amplifier circuit capable of amplyfying audio signals.

equipment used :

- → LM 386 IC
- → Bread board
- → 10μF capacitor (x 3)
- → 220μF, 4.7nF, 100μF, 104pF
- → 10Ω resistor
- → B-10K potentiometer
- → Audio jack
- → ROHS 8Ω speaker

Circuit diagram :





Functions of various components:

i) LM 386 : It is a low voltage audio amplifier used in music devices like radio, guitar... etc.

→ It's gain is 20-200.

→ It has a wide range of supply voltage range 4-12V.

→ Pin 1,8 : Gain control pins. The default gain 20 can be increased to 200 by using appropriate capacitors. we used 10uf to get the highest gain [200].

→ pin 2,3 : Input pins for sound signals. Negative input terminal is connected to ground. Sound signal is fed to positive input terminal by a potentiometer which acts as volume control knob.

→ Pin 4, 6 : power supply pins. pin 6 is connected to ~~Vc~~ Vcc and pin 4 to ground.

→ pin5: output pin from which we get the amplified sound signal

→ pin7: It is a bypass terminal which is grounded using a capacitor for stability.

→ C_1: It is used to remove DC component of input signal allowing only AC component ~~of~~ to be fed further.

→ C_2: connected to Bypass terminal of IC for stability of the circuit.

→ C_3, 10Ω: It is a filter called 'Zobel Network' used to remove sudden high frequency oscillations / noise.

→ C_4: removes DC component of output signal allowing only AC component to be fed to the speaker.

→ C_5: used to adjust gain

→ C_6, C_7: used to reduce the noise of the ~~output~~ ~~sound~~ Input DC voltage.

→ potentiometer: acts as a volume control knob by adjusting the resistance.

Conclusion : In conclusion, the designed audio amplifier amplifies effectively. It acheives the desired amplification with adjustable volume control. This project demonstrates a basic yet effective approach of audio amplification suitable for various music devices

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