Workshop on Microcontrollers
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Problem set: 8 Date: June 14,2023

Tone Generation using Timers and Speaker Interfacing with pt-51.

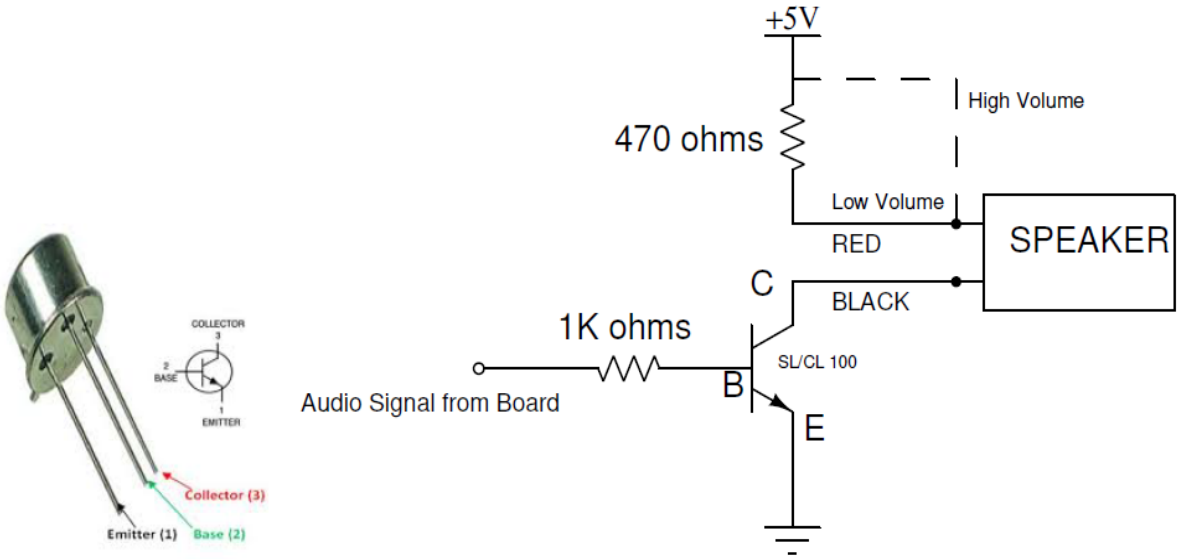
Write a code in C, to play notes corresponding to the frequencies given in Table 1 (The order and duration of the notes are also mentioned). The musical notes can be generated as square waveforms of specific frequencies.These can be generated and heard using the speaker with appropriate interfacing.

S. No.	Note	Frequency (hz)	duaration (ms)
1	Sa (low)	240	500
2	Re	270	500
3	Ga	300	500
4	Ma	320	750
5	Pa	360	750
6	Dha	400	1000
7	Ni	450	1000
8	Sa (high)	480	1000

Table 1 : Note frequencies, sequence and duration.

1. Use timer T0 to generate the note (waveform) of appropriate frequency. Use timer T1 to control the duration of the note. The output has to be written to port pin P0.7. Verify the frequencies generated and the duration for which it is played in Keil and proceed to part 2

2. Connect the speaker to the Pt-51 kit using the SL100 transistor and interfacing circuit shown in Figure 1. You should be able to hear the notes being played out on the speaker.



(a) SL100 pinout

(b) Speaker driver circuit.

Figure 1 : Circuit for interfacing Pt-51 with speaker.