



EE337 Microprocessors Laboratory

Wadhvani Electronics Laboratory

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Problem set: 7(b)

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In this part of the lab, you will implement tone generation based on the key pressed using the Pt-51 board.

1. [20 points] Refer to Table 1 to see which musical note needs to be played for each key.

Key	Note	Frequency (Hz)
1	Sa (low)	240
2	Re	270
3	Ga	300
4	Ma	320
5	Pa	360
6	Dha	400
7	Ni	450
8	Sa (high)	480
9	Silence	0

Table 1: Key to Musical Note Mapping

Task Guidelines:

- Extend your previous implementation of keypad interfacing.
- Every time a valid key is pressed, the corresponding musical note must be played on the speaker and its name displayed on the LCD until another valid key is pressed.
- For example, if 1 is pressed, the speaker should output a square waveform of 240 Hz frequency and the LCD should display “Sa”.
- Use the hex file provided, `Keypad.hex`, to verify all the keys.

TA Checkpoints:

- Check if the corresponding musical notes are being played on the speaker when a key is pressed.
- Check if the LCD correctly displays the name of the musical note being played.