Lab Assignment 1

EEE212 - 03 Microprocessors
2021-2022 Fall

In this lab, you are going to use your 8051 board and keypad. Please read the notes and the assignment requirements carefully.

Important Notes

- After you have completed the assignment, you need to get a check from one of the lab **TAs** (not tutors). The check consists of explanation of the code and a small demonstration. Demonstration will be performed using the **8051 board**, and Proteus simulations are not accepted.
- You can get a check after the deadline if the queue for the check is long, so do not worry. In such case, you will get your check based on your latest submission to the Moodle. Therefore, do not try to change your code once you have submitted your code.
- This is an individual lab. You can cooperate but you have to write your **OWN** code. Any form of plagiarism will not be tolerated. Codes will be compared by assistants and Turnitin software.
- The deadline is strict. Submit your code before the deadline.

Part A (30 pts)

Let AB denote the last two digits of your student ID number. We ask you to generate a square-wave signal with a frequency of $\big(100 + 50 \times ((A + B)//5 + 1)\big)$ Hz., and $\%70$ duty cycle, where $//$ is the mod operator, i.e., $1//5 = 1$, $13//5 = 3$, etc.

Part B (70 pts)

In this part, we ask you to generate a square-wave with the following properties,

- **Frequency:** Same as in Part A.
- **Duty Cycle:** $\%(20 + 5 \times D)$,

where duty cycle is determined at the beginning via a keypad input $D \in \{0, 2, 4, 6, 8\}$.