Lab Experiment #7

December 17, 2024

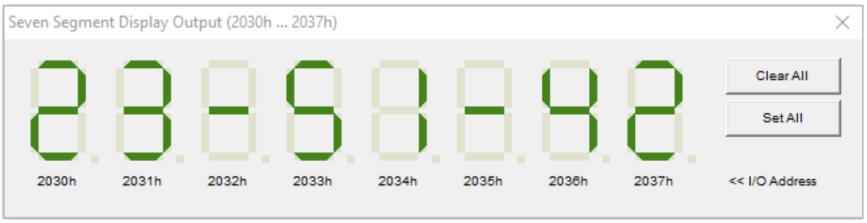
Objective(s)

- Become familiar with using I/O devices.

Lab Work 1

Write an assembly program that is able to display the current time on the Seven Segment Display Output in the Emulation Kit.

1. Get the current system time as hour, minute, and second. Then separate them into digits (Separation algorithm is up to you. You can use your Lab5 work).
2. Display each digit on the corresponding segment on the Seven Segment Display. Separate hours, minutes, and seconds by '-'. For example, if hour=23, minute=51, second=42, then your output must be 23-51-42.
3. Do all your work in an infinite loop to make it look like a live digital clock. So if your output is 23-51-42 now, then it must be 23-51-43 one second later. Your output should look like this:



Lab Work 2

Write a calculator app: Your code should be able to perform basic operations if your results exceed 99 throw an error message. You can create your own symbols for operations.

1. Display the numbers used in an operation.
2. Create your own signs for operations.

Hints

1. You can get the current system time by `INT 21h / AH=2Ch` (See Interrupts section under the emulator documentation).
2. Using Emulation Kit:
   (a) Download Emulation Kit on the course web page and copy the `Emulation Kit.exe` file to the `DEVICES` directory under the path where `emu8086` is installed.
   (b) Start the kit by using `"#start=Emulation Kit.exe#"` instruction in your code.
   (c) For further explanation on using seven-segment displays, please see the Seven Segment Output section on Emulation Kit Help.pdf.

Evaluation

You must complete your work until the lab hour. You will be evaluated during the lab session.