Name: \_\_Replace with your name(s)\_\_\_\_

EID: \_\_Replace with your EID(s)\_\_\_\_\_

Semester: Spring 2024

Course: ECE445L

1. ***Requirements Document:***
2. I have completed the Project Requirements Document at the end of this lab document (Check box if true). ☐

B) ***Objectives*:**

1. In a few sentences, describe the purpose of the lab and the features of your alarm clock.

C) ***Hardware Design Deliverables:***

1. Deliverable 1: Using KiCad, create a schematic or figure showing all external components connected to the TM4C123 board. You do not need to show hardware components on the TM4C123 LaunchPad board. Include a screenshot below.

D) ***Software Design Deliverables:***

1. I have pushed my code to GitHub for grading (Check box if true).
2. Briefly describe the system design. Include a data flow and call graph if your system is different than Figure 3.1 and 3.2.

E) ***Measurement Data:***

1. Deliverable 2: LCD graphic update latency
2. Deliverable 3: 3V3 RMS noise
3. Deliverable 4: Speaker measurements without dampening
4. Deliverable 5: Speaker measurements with dampening
5. Deliverable 6: System current measurement

F) ***Analysis and Discussion Questions:***

1. Give two ways to remove a critical section.
2. What would be the disadvantage of updating the LCD in the background ISR?
3. Did you redraw the entire clock for each output? If so, how could you have redesigned the LCD update to run much faster, and create a lot less flicker? If not, how did you decide which parts to redraw?
4. Assuming the system was battery powered, list three ways you could have saved power.

G) ***Project Requirements Document:***

Include any changes to the Project Requirements Document from the Lab 3 Document below. Note that at minimum, you must update sections 2.2 and 2.5 to reflect the features of your lab.

1. Function Description
   1. Scope: List the phases and what will be delivered in each phase.
   2. Usability: Describe the interfaces. Be quantitative if possible.