

Week 2 homework***Due date reminder, etc.***

Please email your completed assignment to the course TA by Thursday, 5 pm of next week. Assignments that are late by at most one week will receive at most 50% of full credit. We will not grade anything submitted more than one week late.

When your homework submission includes one or more Arduino code files, please use the template **p398dlp_template.ino** as the starting point for your code. (I have it posted to the course homeworks web page.) Please fill in ***all*** of the fields shown in the template file.

In addition, your homework submissions—code, cell phone photos, etc. must include enough identifying information for us to tell who you are!

Problem 1.

Write a brief description of exactly what your project device will do, then list all the breakout boards/modules the device will need to accomplish this, and how they enter into the device's ability to record the data you'll need.

Problem 2.

In addition to the BME680 and LCD you've already placed on your breadboard, add a keypad, microSD breakout board, and DS3231 real time clock (RTC).

Write/find/appropriate/invent... a single Arduino program that does all of the following:

- Sets the RTC to the (approximate) current date and time that your laptop identifies as the date/time when you last compiled our program (do this in `setup()`). There is demo code out there that'll show you how to do this;
- Watches for keypad input and displays the entered key to the LCD whenever a key press is detected (do this in `loop()`);
- Depending on what you've typed on the keypad, your program will either:
 - write the current RTC date and time to the LCD or...
 - open a CSV file (e.g. HW.CSV) on a microSD memory card and write ten lines to it, with each line showing the current (RTC) time and a line number, then close the file or...
 - write a message to the LCD, then fall into an infinite loop so that nothing else of interest happens.

There is a program on the code... repository web page identified as “the code I used to check the PCBs before distributing them to the fall 2020 class” that does a lot of what I'm asking you to do. There's quite a lot more code there than you'll need, but you ought to be able to lift from it the stuff you'll want.

I'll have you working on this in class so that Shubhang and I can help you navigate through my very long program; you'll finish (and document) your work for this homework assignment.