

## ME 331 Project #2

In the assignment, we will again use the potentiometer to control LEDs. But unlike the in-class assignment, we have more than one LED, and we will not be controlling blink rate. Instead, we will be turning them on as a function of the potentiometer reading.

Additionally, you will only allow them to be turned on if it is “dark” which you will determine using a photocell. You’ll do this part once the LED part is finished

Complete the following steps:

1. Review material for week 3
2. Wire a potentiometer to one analog pin, and a photocell to another
3. Write an Arduino sketch to read the potentiometer and photocell values. Verify that the potentiometer reads zero when turned to the left, and increases in value to its max when turned clockwise to the right. Verify photocell as well (Use the Serial Monitor)
4. Wire 6 LEDs and add setup code for each of them
5. Use the potentiometer to control the LEDs with these conditions:
  - a. With the potentiometer turned fully counter-clockwise (CCW), all LEDs should be turned off
  - b. With the potentiometer turned fully clockwise, all LEDs should be turned on
  - c. As the potentiometer reading increases as it is turned clockwise (CW) from fully off to fully on, one LED should turn on at a time. When it is about halfway, three should be turned on.
  - d. The spacing does not have to be exactly equal, but you should get a fun looking effect as you rev your pot to turn lights on and off as you twist CW/CCW
6. Once the above code is working, it is time to record the lighting conditions using the photocell. Similar to in-class assignment 3b, find the photocell reading in darkness. (Use something other than your hand to block the photocell, so that you’ll be able to record)
7. Add code to your sketch so that the LEDs will only light up if it is dark. The LEDs should not light in ambient lighting. Write “too bright” to the Serial Monitor to indicate when it is not dark
8. Record yourself turning the pot in darkness (LEDs light up then go out with pot turning) and in ambient light (“too bright” message to Serial Monitor)

On Blackboard, submit:

1. the sketch (.ino file)
2. a video of your Arduino circuit running the sketch (step 8)