

Homework #2: ECE 461 / 661

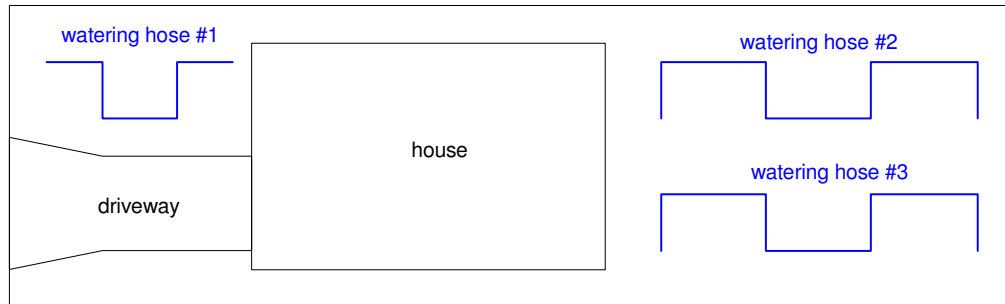
Timers & Counters. Due Wednesday, September 9th
(will accept any time before December 1st so you can use the Micro810 PLC's)

Note: For this assignment, you may use

- Allen Bradley Micro810 PLCs (ECE room 211 or check one out), or
- PLC Fiddle (<https://www.plcfiddle.com/>)

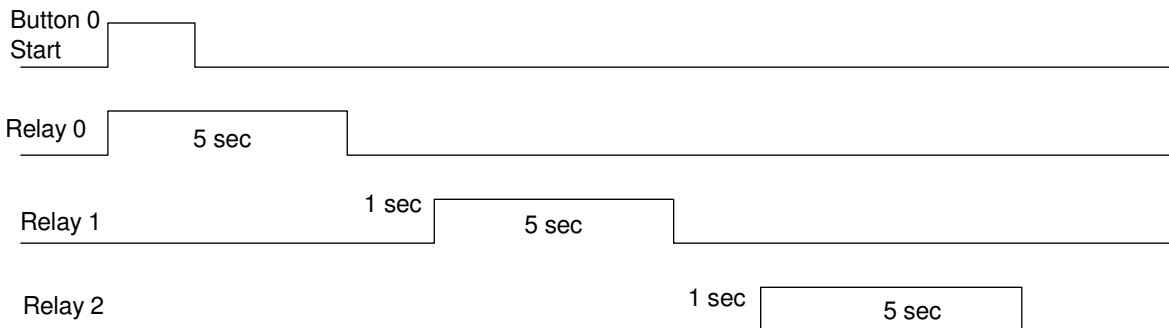
Watering System

- 1) Write a ladder logic program to implement the following function.
- 2) Test your program (collect data on its timing)
- 3) Demo your program (in person or with a video)



When you press button 0 (start irrigation)

- Relay #0 turns on for 5 seconds
- One second later, Relay #1 turns on for 5 seconds,
- One second later, Relay #2 turns on for 5 seconds.



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Automated Watering System

In addition to a manual operation option (problem 1-3), add an automated watering system.

A soil moisture sensor measures the ground moisture

- 0V = dry
- 10V = wet

Start the watering process if

- You press button #0, or
- The moisture sensor reads less than 4.00V for more than 10 seconds,

Otherwise, reuse (repeat) the previous requirements

When watering starts

- Relay #0 turns on for 5 seconds
- One second later, Relay #1 turns on for 5 seconds,
- One second later, Relay #2 turns on for 5 seconds.

4) Write a ladder logic program to implement the manual and automated system

5) Test your program (collect data on its timing)

6) Demo your program (in person or with a video)