# How to add a new plant:

1. Since the current setup utilizes all the 8 bits on the shift register. You need to add another shift register in series with the current one. Serial Out (Pin 9) of the first shift register should be connected to Serial Data in (Pin 14) of the next shift register. All other connections remain the same.
2. Update the following two lines in ***plantWatering\_config.h***

#define SHIFT\_REG\_NUM\_BYTES ~~1~~ 2

#define SHIFT\_REG\_INIT\_STATE ~~0b10101010~~ 0b1010101010101010 //LED off and PUMP relay off

1. In ***plantWatering\_config.h, Plant\_Watering\_project.ino*** look for **“//ADDING A NEW PLANT”**, and follow coding examples right below that line

# Using a different type of relay:

The code base currently assumes the relays are all ACTIVE\_LOW. Meaning, they turn ON when a 0 is sent to the relay control pins. If there is a need to use a ACTIVE\_HIGH relay, update the following lines in file ***CLASS\_PLANT.h***

this->pump = new VIRTUAL\_PIN(pump\_pin, ~~1~~ 0/\*active\_low\*/);

# Moisture sensor

The code base assumes a capacitive moisture sensor. Meaning higher values from the moisture sensor mean lower moisture level. In order to do the reverse mapping, the following is done in ***CLASS\_PLANT.h :: get\_moisture\_level()***

//Prevent having negative numbers

if(moist\_level\_raw > MOIST\_SEN\_MAX){

return 0; //0% moisture

} else if(moist\_level\_raw < MOIST\_SEN\_MIN) {

return 100; //100% moisutre

} else {

return moist\_level\_sen->map\_reading\_to\_percent\_reverse();

}

If you decide to use a different type of moisture sensor that does not require an reversal, update the above code to the following

//Prevent having negative numbers

if(moist\_level\_raw > MOIST\_SEN\_MAX){

return 100; //100% moisture

} else if(moist\_level\_raw < MOIST\_SEN\_MIN) {

return 0; //0% moisutre

} else {

return moist\_level\_sen->map\_reading\_to\_percent();

}

# Changing moisture sensor calibration

In ***CLASS\_PLANT.h*** feel free to update the following two lines

#define MOIST\_SEN\_MAX ~~550~~ <CALIBRATION MAX>

#define MOIST\_SEN\_MIN ~~350~~ <CALIBRATION MIN>

# Getting help on what commands are supported on the serial port

Sending “help” on the serial monitor should give the list of supported commands

wl - water level

cm - currnet millis

<plant>\_d - plant data stored in EEPROM data

<plant>\_c - plant pin and other config data

<plant>\_ms - plant moisture and state data

<plant>\_mwt - manual watering trigger

<plant> - p1, alo, ant, lef