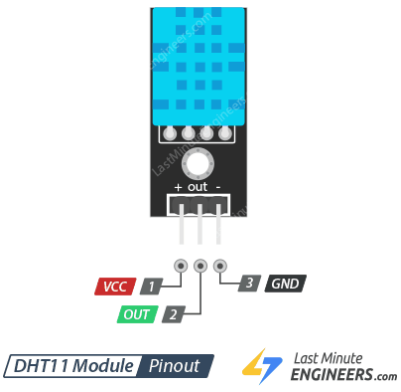
1. An overview of the design and any constraints on the system (example: operating temperatures, power requirements, etc)
    a. This works by first checking if the button is pressed (high or low) to determine which state it will be in.
        i. By default, when starting, the system is on (i.e. green light)
        ii. When the button is pressed, the system will go into disabled (i.e. yellow light) and the system will go inactive. (no measuring, etc..)
            1. For both conditions, RTC monitors and every transition is sent to the computer and displayed on the serial monitor
    b. During IDLE, water levels are being monitored and if it is too low, it will go into ERROR (i.e. red light)
        i. LCD prints “error”
    c. During IDLE, if the temperature is out of the range (threshold in this case 22 > t > 18 but for the demonstration purpose in the video, these are changed to 20 > t > 18 to accommodate for the temperature when filmed to show this stage), the fan turns on (i.e. blue light)
        i. Vent positions (step motor) are controllable by the potentiometer
        ii. The fan requires another power source to prevent damage to the Arduino ATMega 2560
        iii. Water monitor is still being monitored to see if the water level is sufficient; if not, it will not meet the condition to run the loop and it will go into the ERROR stage

2. Github Repository: https://github.com/1201-yakish-ashley/CPE301-FINAL.git
3. Video: https://drive.google.com/file/d/1uqiJ8kgiDeb-Z5Uk4MZePxIEwvdMXu4z/view?usp=share_link

4. Complete schematic
    a. DHT11 (temperature and humidity)

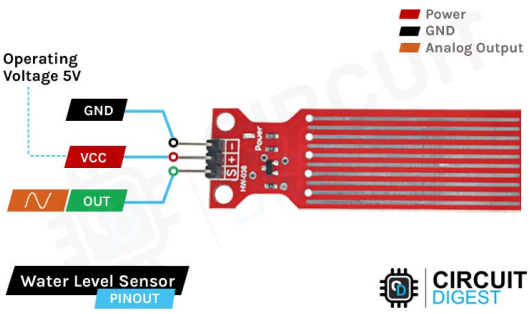


- VCC = connected to +
- GRD = connected to -
- OUT = connected to pin 13 (PB7)

b. LCD screen

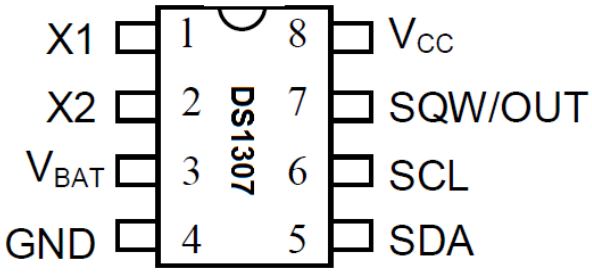
- (1) VSS = ground
- (2) VDD = power
- (4) Register select = pin 12
- (5) Read/Write = ground
- (6) Enable = pin 11
- (11) pin 4 = pin 5
- (12) pin 5 = pin 4
- (13) pin 6 = pin 3
- (14) pin 7 = pin 2
- (15) LED+ = power
- (16) LED- = ground

c. Water sensor



- GRD = ground
- VCC = power
- OUT = Analog pin 0 (PF0)

d. DS1307



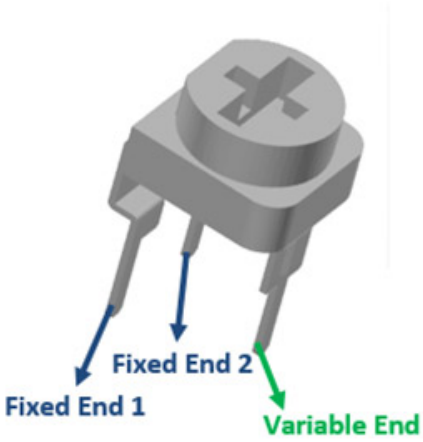
- GRD = ground
- VCC = power
- SCL = SCL/pin21 (PD0)
- SDA = SDA/pin20 (PD1)

e. Button (state change (disable))
Input = PA2 (pin24)

f. LED lights

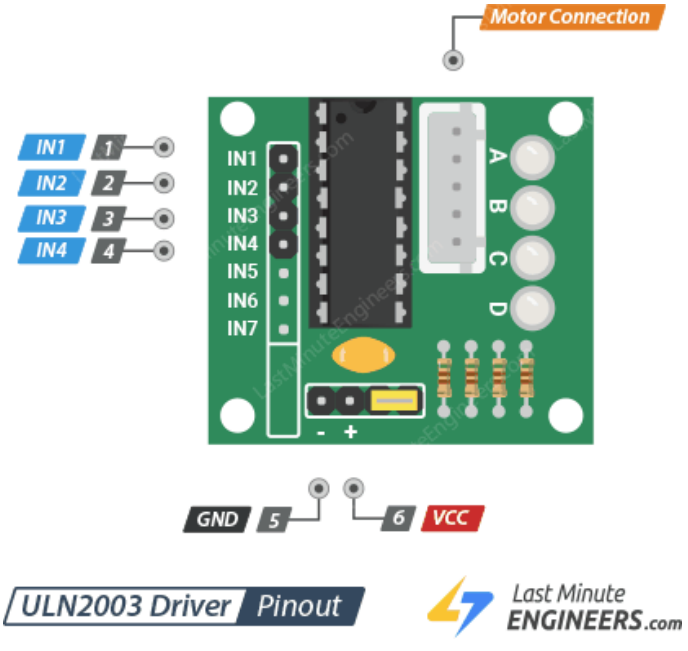
i. Yellow light = pin 37 (PC0)
ii. Green light = pin 6 (PH
iii. Blue light = pin 45 (PL4)
iv. Red light = pin 46 (PL3)

g. Potentiometer



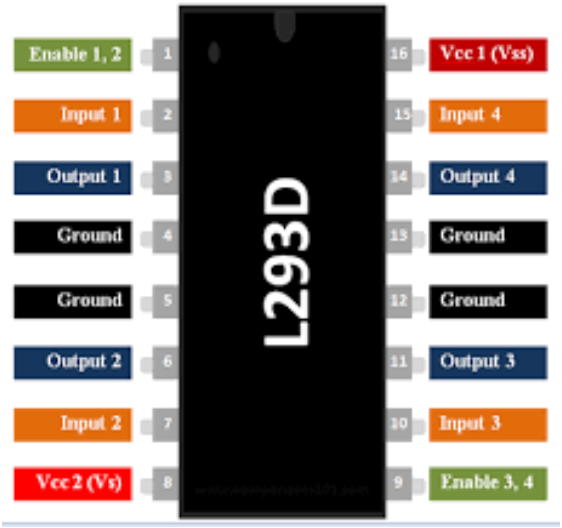
- GRD = ground
- VCC = power
- Variable end = Analog pin 1

h. Stepper motor



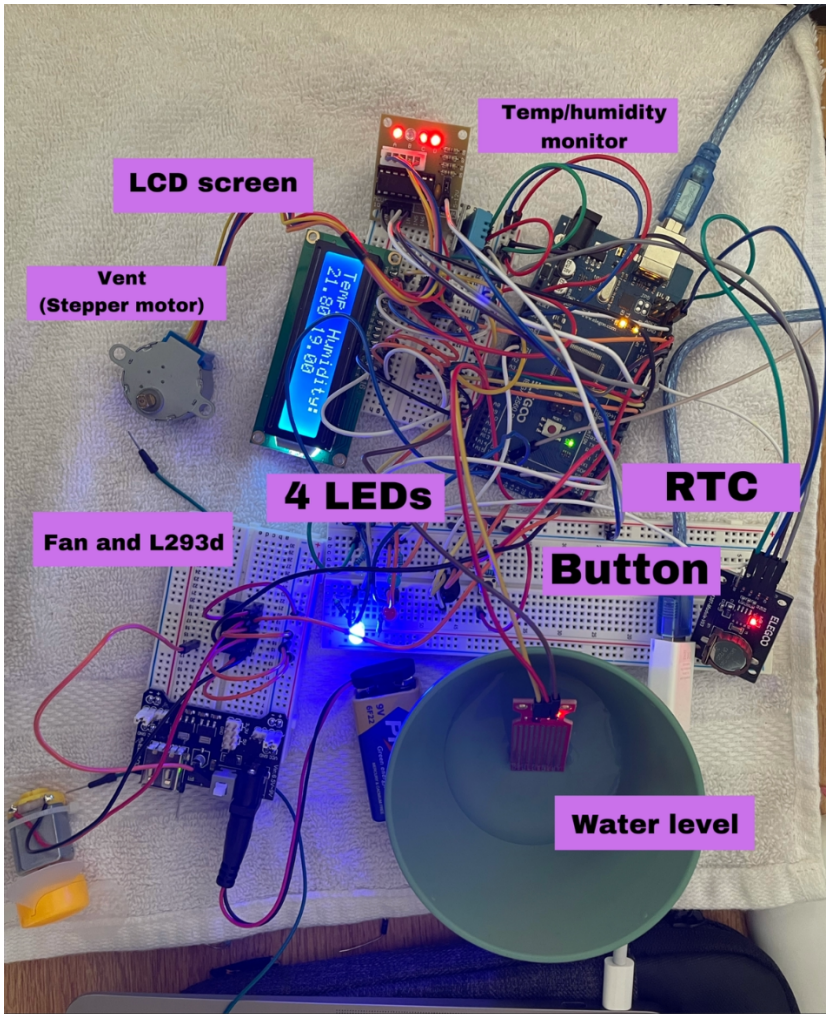
- IN1 = pin 7
- IN2 = pin 8
- IN3 = pin 9
- IN4 = pin 10
- GRD = ground
- VCC = power

i. Fan motor and L293d



- VCC1 = power
- VCC2 = power
- enable = power
- input 1 = pin 31 (PC6)
- output 1 = motor negative
- ground = ground
- ground = ground
- output 2 = motor positive
- input 2 = pin 33 (PC4)

Temp
21.80
Humidity:
19.00
9V
6F22


Temp/humidity monitor
LCD screen
Vent (Stepper motor)
Temp
21.80
Humidity:
15.00
4 LEDs
RTC
Fan and L293d
Button
Water level