**PROJECT TITLE: SMART WATER MANAGEMENT**

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**TEAM CODE :** PROJ\_201032\_TEAM\_1

**Python code :**

from pyfirmata import Arduino, util

import time

# Arduino board and port setup

board = Arduino('/dev/ttyACM0') # Replace '/dev/ttyACM0' with the appropriate port for your system

it = util.Iterator(board)

it.start()

# Pin configurations

ultrasonic\_trigger\_pin = 9

ultrasonic\_echo\_pin = 10

motor\_pin = 3

potentiometer\_pin = 0

# LCD configurations (assuming you have a 16x2 LCD)

# Add your LCD setup code here

# Function to read distance from ultrasonic sensor

def get\_distance():

board.digital[ultrasonic\_trigger\_pin].write(1)

time.sleep(0.00001)

board.digital[ultrasonic\_trigger\_pin].write(0)

duration = board.digital[ultrasonic\_echo\_pin].read\_pulse(1)

distance = (duration / 2) / 29.1 # Divide by 29.1 or 58.2 for distance in inches or centimeters respectively

return distance

# Main control loop

try:

while True:

distance = get\_distance()

print("Distance: {:.2f} cm".format(distance))

# Read potentiometer value to control motor speed

pot\_value = board.analog[potentiometer\_pin].read()

if pot\_value is not None:

motor\_speed = pot\_value \* 255 # Map potentiometer value to motor speed (0 to 255)

board.analog[motor\_pin].write(motor\_speed)

# Display distance and motor speed on LCD

# Add your LCD display code here

time.sleep(0.5) # Wait for 0.5 seconds before the next iteration

except KeyboardInterrupt:

board.exit()