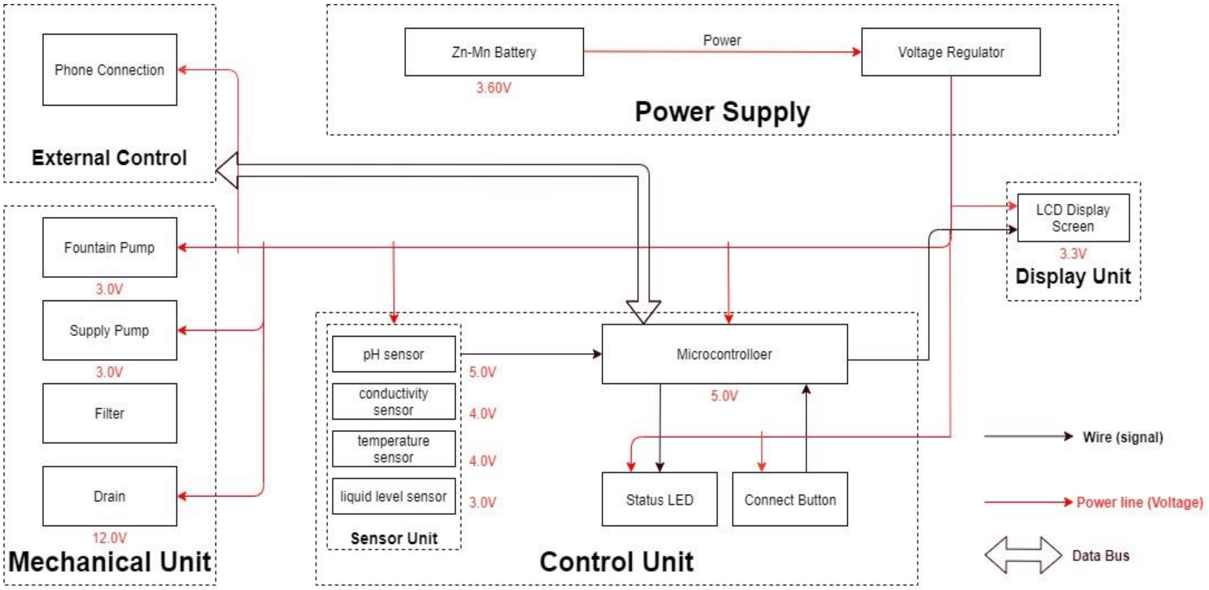
SMART WATER FOUNTAIN

Design

The block diagram below is a general design of our solution. We divide our design into four modules, including Power Supply, Control Unit, External Control, and Mechanical Unit. Details of each unit is presented in the diagram and described in the next section.



Block Diagram of Smart Water Fountain

Python

Import RPi.GPIO as GPIO

Import time

# GPIO pins for water pump and LED lights

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```
Pump_pin = 17

Light_pin = 18



# Initialize GPIO

GPIO.setmode(GPIO.BCM)

GPIO.setup(pump_pin, GPIO.OUT)

GPIO.setup(light_pin, GPIO.OUT)



# Function to control the water pump

Def control_pump(state):

    If state == “on”:

        GPIO.output(pump_pin, GPIO.HIGH)

    Else:

        GPIO.output(pump_pin, GPIO.LOW)
```

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```
# Function to control LED lights
Def control_lights(state):
    If state == “on”:
        GPIO.output(light_pin, GPIO.HIGH)
    Else:
        GPIO.output(light_pin, GPIO.LOW)


# Main program
Try:
    While True:
        # Read sensor data and make decisions based on it.
        # For example, turn on the water pump and lights if water level is low.


        Control_pump(“on”)
```

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```
    Control_lights("on")

    Time.sleep(5)  # Run the fountain for 5 seconds

    Control_pump("off")

    Control_lights("off")

    Time.sleep(60)  # Wait for a minute before running again

Except KeyboardInterrupt:

  GPIO.cleanup()  # Cleanup GPIO on program exit
```