**SMART WATER SYSTEM**

Hardware description:

* RASBERRY PI
* ULTRASONIC SENSOR
* WATER QUALITY SENSOR
* INTERNET CONNECTION

Install required libraries:

Ensure we have necessary python libraries installed.we may need to install RASBERRY PI,GPIO library

PYTHON PROGRAM:

Import RPi.GPIO as GPIO

Import time

# Add the necessary libraries for water quality sensors

# Import other libraries for data sharing and mobile app integration

# Set the GPIO mode

GPIO.setmode(GPIO.BCM)

# Define GPIO pins for the ultrasonic sensor

TRIG = 23

ECHO = 24

# Define GPIO pins for water quality sensor(s)

WQ\_SENSOR\_PIN = 25 # Replace with the actual GPIO pin

# Set up GPIO pins

GPIO.setup(TRIG, GPIO.OUT)

GPIO.setup(ECHO, GPIO.IN)

GPIO.setup(WQ\_SENSOR\_PIN, GPIO.IN)

Try:

While True:

# Trigger the ultrasonic sensor

GPIO.output(TRIG, False)

Time.sleep(2) # Allow for settling

GPIO.output(TRIG, True)

Time.sleep(0.00001)

GPIO.output(TRIG, False

While GPIO.input(ECHO) == 0:

Pulse\_start = time.time()

While GPIO.input(ECHO) =1

Pulse\_end = time.time()

Pulse\_duration = pulse\_end – pulse\_start

Water\_level = pulse\_duration \* 17150 # Speed of sound = 34300 cm/s (in this case, it’s divided by 2)

# Read data from water quality sensor

Wq\_data = GPIO.input(WQ\_SENSOR\_PIN) # Replace with actual code to read water quality data

Print(“Water Level (in cm): {:.2f}”.format(water\_level))

Print(“Water Quality Data: {}”.format(wq\_data))

# Send data to the data-sharing platform and mobile app

Time.sleep(1) # Delay between readings

Except KeyboardInterrupt:

GPIO.cleanup()

Example Output :

Water Level (in cm): 15.50

Water Quality Data: 1

Water Level (in cm): 15.48

Water Quality Data: 0

Water Level (in cm): 15.52

Water Quality Data: 1

Water Level (in cm): 15.49

Water Quality Data: 0

Run the program:

Run the python script on your RASBERRY PI or IoT device and run it will monitoring water level and send data.