BATCH :1

DAY :5 LAB REPORT

WATER QUALITY DETECTION USING RASPBERRY PI PICO W AND TURBIDITY SENSOR

OBJECTIVE :

To detect the water quality value by using the NTU value

Components used :

i. **Raspberry pi pico w**
ii. **Turbidity sensor**
iii. **Female connector**
iv. **Usb cable**

Software used : thonny app

Block diagram :

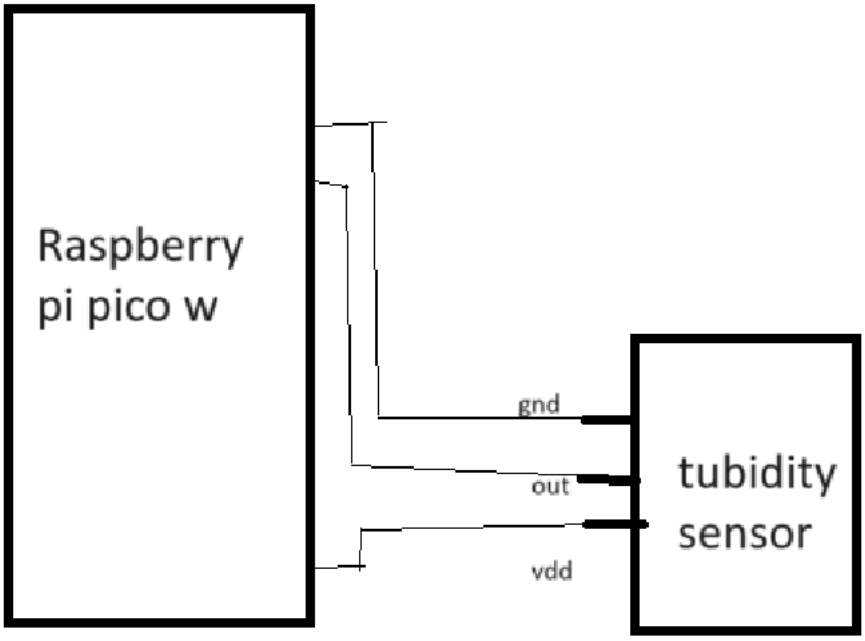

Fig: block diagram

Code:

```
from machine import ADC, Pin
import time
# Initialize the ADC (Analog to Digital Converter) on Pin A0
sensor_pin = ADC(Pin(26))  # GPIO26 corresponds to ADC0

# Configure the serial communication (UART0)
uart = machine.UART(0, baudrate=9600)

def setup():
    uart.init(9600, bits=8, parity=None, stop=1)

def loop():
    while True:
        # Read the sensor value
        sensor_value = sensor_pin.read_u16()  # 16-bit ADC read
        # Convert to voltage (assuming a reference voltage of 3.3V)
        voltage = sensor_value * (3.3 / 65535)  # 65535 is the max value for 16-bit ADC

        # Print the voltage to the serial monitor
        uart.write("Sensor Output (V):\n")
        uart.write("{:.2f}\n\n".format(voltage))

        # Delay for 1 second
        time.sleep(1)

# Run the setup function once
setup()
# Enter the loop function
loop()
```

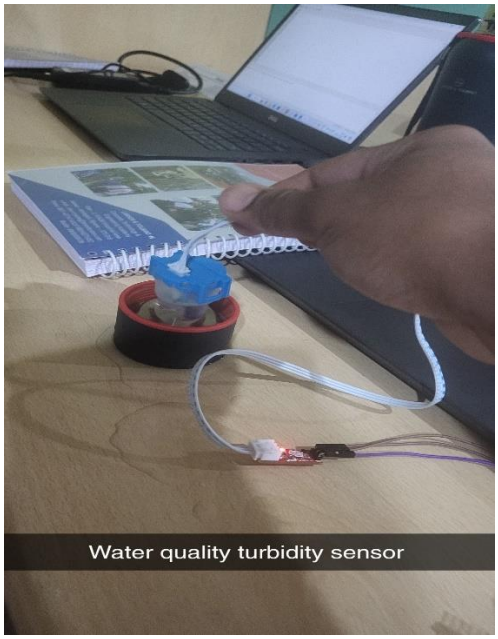

Fig : turbidity detection

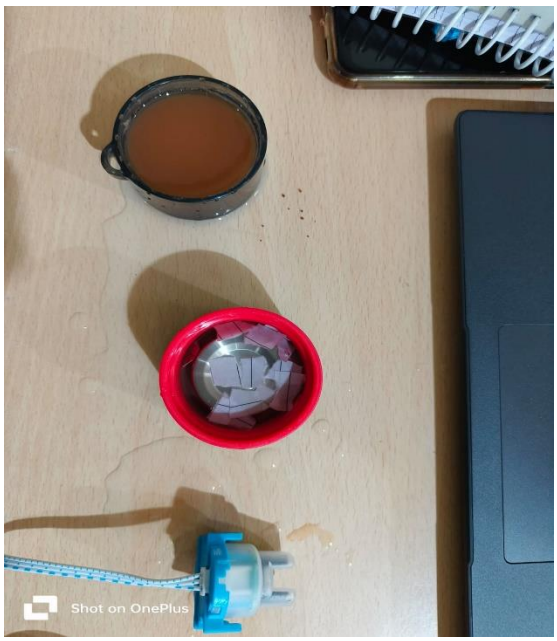

fig: different quality of water

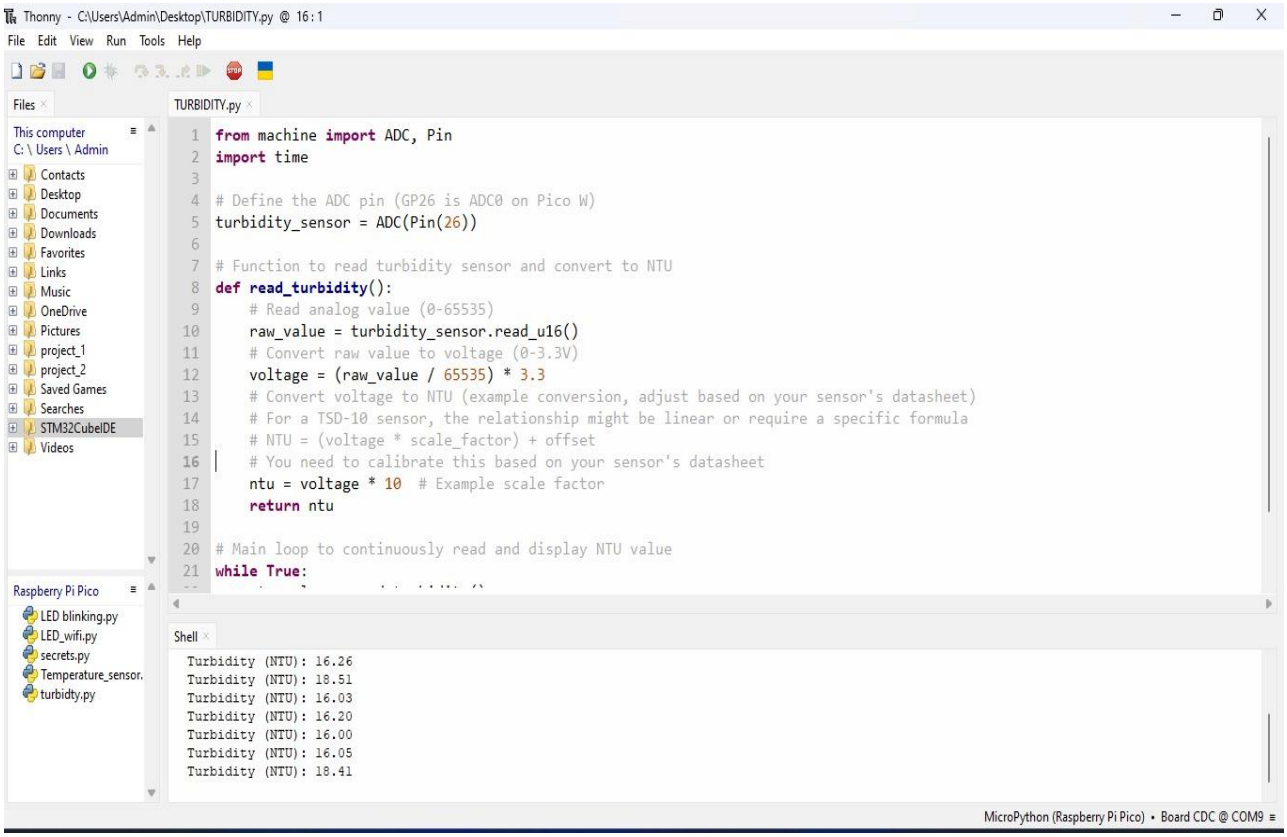

Fig: Result of turbidity detection of different water quality