

ENVIRONMENTAL MONITORING SYSTEM

PHASE3: development of environmental monitoring

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1. Collect Data:

You'll need to interface with environmental sensors to gather data. For this example, let's assume you have a temperature and humidity sensor connected to your Raspberry Pi.

Input:

```
pip ins import time
```

```
import board
```

```
import adafruit_dht
```

```
dht_sensor = adafruit_dht.DHT22(board.D4) # GPIO pin where the sensor  
is connected
```

```
while True:
```

```
try:
```

```
    temperature_c = dht_sensor.temperature
```

```
    humidity = dht_sensor.humidity
```

```
print(f"Temperature: {temperature_c}°C, Humidity: {humidity}%")
except RuntimeError as e:    print(f"Error: {e}")

time.sleep(60) # Collect data every 60 seconds
# stall adafruit-
# circuitpython dht
```

Create a Python script to collect sensor data:

Output:

Temperature: 25.0°C, Humidity: 50.0%

Temperature: 25.1°C, Humidity: 49.9%

Temperature: 25.2°C, Humidity: 50.2%

2. Data Processing and Analysis:

You can perform data analysis on the collected data to identify trends or anomalies. For this example, let's calculate the average temperature and humidity over a specific time period.

Input:

```
import time
```

```
data = []
```

```
while True:
```

```
try:
```

```
        temperature_c =  
dht_sensor.temperature        humidity =  
dht_sensor.humidity  
data.append((temperature_c, humidity))  
time.sleep(60)    except RuntimeError as e:  
print(f"Error: {e}")  
  
if len(data) >= 10:  
    avg_temp = sum([temp for temp, _ in data]) / len(data)  
    avg_humidity = sum([hum for _, hum in data]) / len(data)  
    print(f"Average Temperature: {avg_temp}°C, Average Humidity:  
{avg_humidity}%")  
    data = [] # Reset data
```

output:

Average Temperature: 25.0°C, Average Humidity: 50.0%

