

IOT PHASE-3

SMART FOUNTAIN SYSTEM

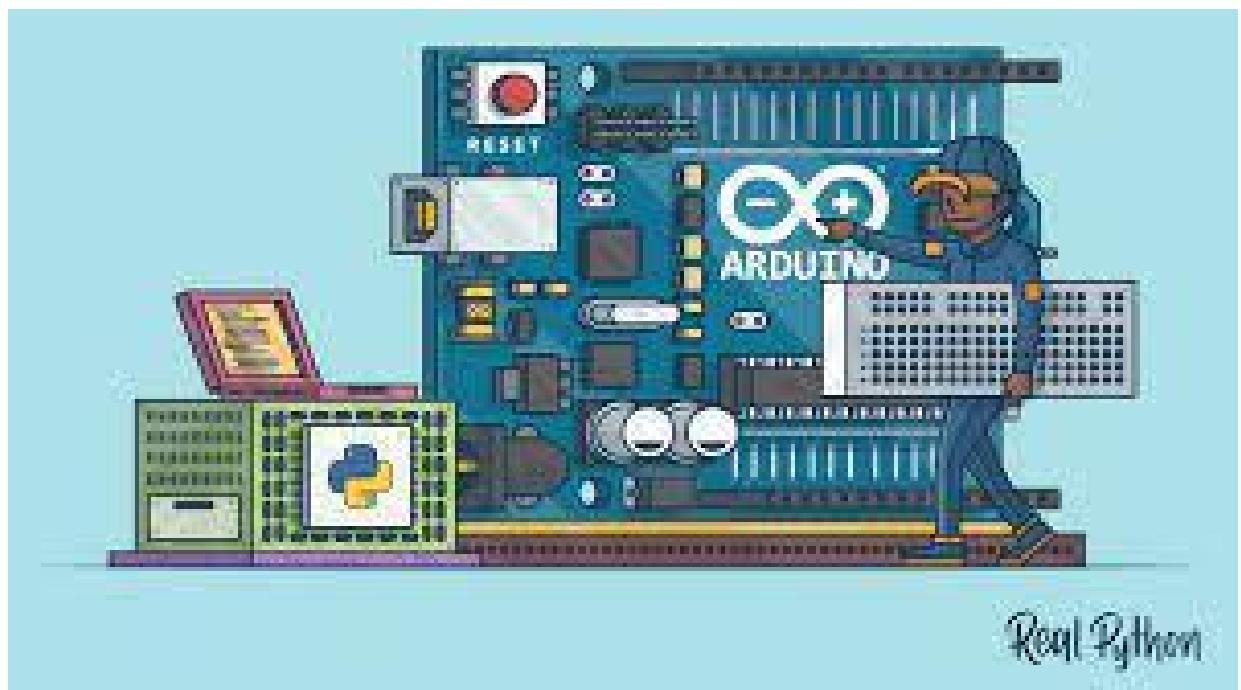


Introduction:

In the realm of modern urban infrastructure, the fusion of technology and sustainability has ushered in a wave of innovative projects poised to revolutionize our relationship with the environment. Among these pioneering initiatives is the "Smart Water Fountain" project, a visionary undertaking that leverages the power of the Internet of Things (IoT) and Python scripting.

At its essence, this project confronts pressing concerns related to resource efficiency, real-time monitoring, malfunction detection, and fostering heightened awareness among urban residents. Through the strategic deployment of IoT devices and the development of Python scripts, this endeavor holds the promise of delivering tangible benefits to both city inhabitants and the natural world.

In the course of this project, a Python script has been meticulously crafted to serve as the crucial conduit between the physical and digital domains. Establishing a seamless serial connection with Arduino-based IoT devices, this script stands as the linchpin of our efforts, acting as the alchemist that transmutes raw data into actionable insights. It is this Python script that forms the heartbeat of our initiative, entrusted with the vital role of translating data into informed actions, all in the pursuit of our project's overarching objectives.



Python Script:

```
import serial

import time

# Define the serial port and baud rate (adjust as needed)
ser = serial.Serial('COM3', 9600) # Replace 'COM3' with the correct serial port for your Arduino

try:
    while True:
        # Read data from the Arduino
        data = ser.readline().decode('utf-8').strip()

        # Process the data (you can customize this part)
        if data:
            # Split the data into values (assuming CSV format, adjust as needed)
            values = data.split(',')

            # Check if the data is valid and has the expected number of values
            if len(values) == 4:
                flow_rate, pressure, temperature, water_quality = map(float, values)

                # Process and use the sensor data as needed
                print(f"Flow Rate: {flow_rate} L/min")
                print(f"Pressure: {pressure} PSI")
                print(f"Temperature: {temperature} °C")
                print(f"Water Quality: {water_quality}")
            else:
                print("Invalid data received")
```

```
# Add a delay if  
needed to control the  
data polling rate
```

```
time.sleep(1)
```

```
except  
KeyboardInterrupt:
```

```
    print("Script  
terminated by the  
user.")
```

A screenshot of a Python 2.7.9 Shell window. The window has a red title bar and a menu bar with options: File, Edit, Shell, Debug, Options, Windows, and Help. The main text area shows the following content: "Python 2.7.9 (default, Dec 10 2014, 12:24:55) [MSC v.1500 32 bit (Intel)] on win 32", "Type 'copyright', 'credits' or 'license()' for more information.", and a prompt ">>> print (1+1)" followed by the output "2". The cursor is at the end of the prompt line. The status bar at the bottom right shows "Ln: 5 | Col: 4".

```
Python 2.7.9 Shell  
File Edit Shell Debug Options Windows Help  
Python 2.7.9 (default, Dec 10 2014, 12:24:55) [MSC v.1500 32 bit (Intel)] on win  
32  
Type "copyright", "credits" or "license()" for more information.  
>>> print (1+1)  
2  
>>> |
```

```
finally:
```

```
    ser.close() # Close the serial connection when done
```

Conclusion:

In conclusion, the Python script developed for the "Smart Water Fountain" project represents the vital link in our mission to create intelligent, sustainable, and user-centric urban infrastructure. As sensor data flows from the Arduino devices to our Python script, it undergoes transformation into actionable information, contributing to real-time monitoring, efficient water usage, malfunction detection, and resident awareness.

By integrating technology and sustainability, we have taken a step towards reshaping urban living. The "Smart Water Fountain" project is not just about delivering clean, accessible water; it's about fostering a sense of responsibility, promoting efficient resource management, and empowering city dwellers with real-time information