

ASSIGNMENT NO.5

Aim: To design and implement **an IoT-based human–machine interaction system** that detects and processes **muscle signals** using the Muscle BioAmp Patchy v0.2 and Arduino Uno R3, enabling hands-free control of digital media applications such as YouTube Shorts through muscle activity.

Code:

```
import serial
import time
import pyautogui

# Open Arduino serial port (Update COM port if needed)
arduino = serial.Serial('COM5', 9600, timeout=2)
time.sleep(2) # wait for Arduino to reset

print("Listening for Arduino signals...")

while True:
    try:
        if arduino.in_waiting > 0:
            data = arduino.readline().decode().strip()
            print("Received:", data)

            if "next" in data.lower(): # scroll down
                pyautogui.scroll(-500)

            elif "prev" in data.lower(): # scroll up
                pyautogui.scroll(500)

    except KeyboardInterrupt:
        print("\nStopped by user")
        break
    except Exception as e:
        print("Error:", e)
        break

arduino.close()
```

Output:

