Arduino sketch upload

This Arduino sketch controls a roboarm using PWM servos and an encoder.

Required Libraries

To compile and run this sketch, you need to install the following libraries:

- **Wire:** This library is a core Arduino library and is usually included with the Arduino IDE. It's used for I2C communication, which is often required by the `Adafruit_PWMServoDriver` library. You likely don't need to install it separately.

- **Adafruit PWM Servo Driver:** You can install this via the Arduino Library Manager (Sketch > Include Library > Manage Libraries...) by searching for "Adafruit PWM Servo Driver" by Adafruit and clicking "Install".

- **Encoder:** You can install this via the Arduino Library Manager by searching for "Encoder" by Paul Stoffregen (or one that matches your specific encoder library). Click "Install".

Installation Instructions

1. Open the `sketch_aug29a.ino` file in the Arduino IDE.

2. Install the required libraries as listed above:

    - Go to **Sketch > Include Library > Manage Libraries...**

    - Search for each library by name ("Adafruit PWM Servo Driver", "Encoder").

    - Find the correct library (verify the author if you know it, e.g., "Adafruit" for the PWM driver and "Paul Stoffregen" for the Encoder library is common).

    - Click the "Install" button for each library.

3. **Select the correct Arduino board and processor:**

    - Go to **Tools > Board** and select the type of Arduino board you are using (e.g., "Arduino Nano").

    - **If you are using an Arduino Nano and encounter issues during upload, go to Tools > Processor and try selecting "ATmega328P (Old Bootloader)".** This is a common fix for upload problems with some Arduino Nano boards.

4. Connect your Arduino board and the necessary hardware (PWM servo driver, encoder). Refer to your hardware documentation for connection details.

5. Upload the `sketch_aug29a.ino` sketch to your Arduino by clicking the "Upload" button (the right-arrow icon).

Hardware Connections

This sketch uses the following pin assignments:

- **Servos:** Connected to the PWM driver board on channels 0, 1, 2, and 3. The specific wiring between the Arduino and the PWM driver (likely I2C: SDA and SCL) is handled by the `Adafruit_PWMServoDriver` library. Refer to the Adafruit PWM Servo Driver documentation for wiring instructions.
- **Encoder:**
    - Pin A: Arduino digital pin 5
    - Pin B: Arduino digital pin 4
    - Button: Arduino digital pin 3 (connected with a pull-up resistor internally)

Usage

Once uploaded, the sketch allows you to control three servos (connected to PWM channels 0, 1, and 2) using the rotary encoder.

- Pressing the encoder button cycles through the selected servo (First, Second, Third).
- Rotating the encoder adjusts the angle of the currently selected servo.
- The sketch also listens for serial commands to control the servo angles:
    - `FI:angle,SE:angle,TH:angle,FO:angle` - Sets the angles for the First (FI), Second (SE), Third (TH), and Fourth (FO) servos. Angles should be integer values. For example: `FI:50,SE:100,TH:150,FO:90`
    - `GET_ANGLES` - Sends the current angles of the first three servos back to the serial monitor in the format: `angle1,angle2,angle3, 10`.

Note: The fourth servo (connected to PWM channel 3) is controlled separately via the serial command `FO:angle`.

Remember to open the Serial Monitor in the Arduino IDE (Tools > Serial Monitor) to send commands and see any output. Set the baud rate to 9600.