Arduino and Xavier Communication Documentation

Overview

This document outlines the process of establishing communication between an Arduino and an NVIDIA Xavier platform using both USB and pin connections. It includes the Arduino code, steps for uploading the code, and commands for viewing data.

Arduino Code

```
void setup() {
  Serial.begin(115200); // Match baud rate
}

void loop() {
  // Check if data is available to read
  if (Serial.available() > 0) {
    char receivedChar = Serial.read(); // Read one character at a time
    Serial.print("Received: ");
    Serial.println(receivedChar); // Echo the character back
  }

  // Send data continuously while listening
  Serial.println("Sending: Hello from Arduino!"); // Send data
  delay(1000); // Adjust this delay based on your needs
}
```

Steps to Upload Code to Arduino

1. Open a terminal and grant permissions to the Arduino serial port:

   ```
   sudo chmod 666 /dev/ttyACM0
   ```

2. Upload the code using your preferred Arduino IDE or CLI.
3. **Important Notes:**
   - Ensure the baud rate in the code matches the rate used for communication (115200 in this example).
   - **Disconnect all wires connecting the Arduino and Xavier** before uploading the code, as active connections may block the upload process.

Communication Setup

1. Connection via USB

- **Steps:**
  1. Connect the Arduino to the Xavier using a USB cable.
  2. Grant permissions to the USB device:

```
sudo chmod 666 /dev/ttyACM0
```

3. To view data:
    - Data from Arduino to Xavier:

```
sudo screen /dev/ttyACM0 115200
```

    - Data from Xavier to Arduino: Use the Arduino Serial Monitor from your IDE.

2. Connection via Pins

- **Hardware Connections:**
    - Arduino TX pin → Xavier RX pin
    - Arduino RX pin → Xavier TX pin
    - Arduino GND → Xavier GND
    - Arduino VIN (5V) → Xavier 5V
- **Steps:**
    1. Grant permissions to the UART pins:

```
sudo chmod 666 /dev/ttyTHS0
```

    2. View data using the following command:

```
sudo screen /dev/ttyTHS0 115200
```

Key Notes

- **Baud Rate Consistency:** Ensure the baud rate matches across the Arduino code, Xavier terminal, and Serial Monitor.
- **Upload Caution:** Always disconnect the hardware connection before uploading code to the Arduino to avoid interference.
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