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Project 9 - Orientation Sensor Data Over Bluetooth

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Requirements

Using the Adafruit Absolute Orientation sensor connected to an Arduino and hooked into our Pi from the previous project, use a bluetooth connection to send the stream of IMU data to a remote machine.

Design

The hardware implementation from the last project remains unchanged, the only difference is in the configuration and how the serial data is displayed, over bluetooth this time.

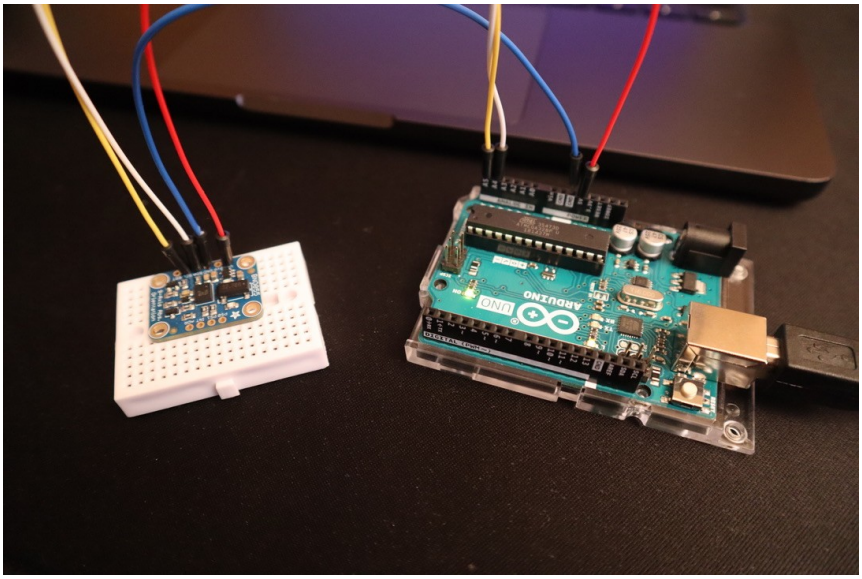

Figure 1. The Adafruit BNO055 connected to a Pi Uno

Implementation

*Remotely connect to **the pi** over wifi*

$ ssh user@IP

Activate bluetooth power and connect to a nearby device (e.g. laptop by MAC address)

$ bluetoothctl

$ power on; agent on; pairable on; discoverable on;

$ pair (MAC address)

> verify code

$ connect (MAC address)

The bluetooth connection is now established.

Establishing a serial connection was not possible through the cli, but I was able to install blueman

$ sudo apt install blueman

Using the desktop environment on the Pi, I was able to use blueman-manager to establish a serial connection by right clicking my device and starting a serial connection on /dev/rfcomm0

*Now we need to open the serial output on the **host machine** using tty or other connection type such as:*

$ screen /dev/cu.Bluetooth-Incoming-Port -s 9600

The screen establishes and output from the serial connection displays.

Demo

The screen command worked once and I was never able to get it to connect on camera… I will continue to try and update this document with a video demonstrating serial transmission over bluetooth from the Pi to a remote device.

References

https://www.hackster.io/kamaluddinkhan/using-the-on-board-bluetooth-on-the-pi-4-for-communication-a9708e

https://github.com/blueman-project/blueman