SparkFun LSM9DS1 IMU

We use two (2) SparkFun LSM9DS1 IMUs, each is fixed to one of the two (2) Arducam Sony IMX219 camera modules.

SparkFun provides a Hookup Guide for the SparkFun LSM9DS1 IMU.

Arduino IDE

We use the SparkFun LSM9DS1 Library.

Open Arduino IDE
$: sudo arduino
> Select Sketch>Include Library>Manage Libraries…
> Select **Sparkfun LSM9DS1 IMU**
> Click **2.0.0** Install
$: sudo chmod -R +666 /opt/SparkFun_RedBoard_Turbo

An already downloaded copy of the SparkFun LSM9DS1 library (used by installation script and Dockerfile) can be found here:
sw/SparkFun_RedBoard_Turbo/SparkFun_LSM9DS1_IMU/
SparkFun_LSM9DS1_Arduino_Library-master.zip

The library is installed under
/opt/SparkFun_RedBoard_Turbo/Arduino/libraries/**SparkFun_LSM9DS1_IMU**.

Read IMU

We communicate with the SparkFun LSM9DS1 IMUs over **I2C**, with the **left** one (seen from the inside) using the default **addresses 0x6B** (acc/gyr) and **0x1E** (mag) and the **right one** using the alternative addresses **0x6A** and **0x1C**.

Read IMU

$: sudo cp -r sw/SparkFun_RedBoard_Turbo/SparkFun_LSM9DS1_IMU/**read_imu_camera** /opt/SparkFun_RedBoard_Turbo/Arduino
$: sudo chmod -R +666 /opt/SparkFun_RedBoard_Turbo

Arduino IDE
$: arduino
> File>Sketchbook>**read_imu_camera**
> Click Serial Monitor icon

> Select 115200 baud
> Click Upload icon (until flash is successful)

> Change I2C address to alternative addresses in read_imu_camera.ino: imu.begin(0x6A, 0x1C)
> Click Upload icon (until flash is successful)

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Linear Acceleration [g]: 0.01/-1.01/-0.10, Angular Rate [dps]: 0.01/1.66/-2.13, Magnetic Field [gauss]: -0.68/1.34/0.19

Script

Run as part of the Sensor Suite installation script
sw/NVIDIA_Jetson_Xavier_NX/Scripts$ bash **install-7-Sensor_Suite.sh**

Dockerfile

Part of the Sensor Suite Dockerfile
sw/NVIDIA_Jetson_Xavier_NX/Docker/**Dockerfile-7-Sensor_Suite**