Tested Simon’s GY80-IMU, fixed and tested ok on 2019 feb 4 by kh wong

1. Use Arduino-nano (AHRS\_9DOF\_test\_ok1.ino) to connect to the IMU
   1. For this ardhuino .ino file
   2. //2019 feb 4, khwong, make sure
   3. //The files Compass.ino, DCM.ino, Math.ino, Sensor.in are in the correct directory of this file (AHRS\_9DOF\_test\_ok1.ino). Or you receive “ not declared in this scope error message”
   4. In Sensor.ino
      1. Change the following:
      2. //#include <BMP085.h>
      3. //-->
      4. #include <Adafruit\_BMP085.h>
   5. Use arduno/skect/input library/input zip file, input library files from
      1. Adafruit-BMP085-Library-master.zip, l3g4200d-arduino-master.zip
      2. In the AHRS\_9DOF\_test\_ok1.ino Code ,
   6. Use processing (PC software “AHRS\_9DOF\_display3\_115200.pde”) to receive data from the IMU and display using OPENGL
   7. Make sure you are using the correct baud rate (115200 tested ok) , use windows/device manager to set up the baud rate.
2. Use AHRS\_9DOF\_display3\_115200.pde on PC to receive data from the IMU-arduno-nan and show the display onscreen
   1. For laptop-pc , set SERIAL\_PORT\_NUM =0;
   2. The code is hard coded to “COM6”, change to another one if needed, see line 115
      1. //serial = new Serial(this, portName, SERIAL\_PORT\_BAUD\_RATE);
      2. serial = new Serial(this, "COM6", SERIAL\_PORT\_BAUD\_RATE);
   3. Serial port bud rate tested 115200 ok, but lower it may work be more safe
   4. void ReadData() may cause a lot of problems, since it is the core of the algorithm, the following works, time delay is added, may remove alter after more test.
   5. The problem is this ReadData() may not return the correct data hence the 3d object remains still and not moving.

//////// ReadData() may cause problem, handle with care khw190204

/////the following is modified from Simon’s code is a working version///////

void ReadData() {

while (true) {

byte inBuffer[] = serial.readBytesUntil(10);

//println("test5");

delay(10); //needed otherwise it doesnt work

if (inBuffer != null) {

float[] nums = float(split(new String(inBuffer), ';'));

//if (nums.length == 6) //remove , otherwise cannot read data from IMU

{

if (-180 <= nums[0] && nums[0] <= 180) yaw = nums[0];

if (-180 <= nums[1] && nums[1] <= 180) pitch = nums[1];

if (-180 <= nums[2] && nums[2] <= 180) roll = nums[2];

//temperature = nums[3]; //this may hang the system

//pressure = nums[4];//this may hang the system

//altitude = nums[5];//this may hang the system

}

}

}

}

// IF THE SKETCH CRASHES OR HANGS ON STARTUP, MAKE SURE YOU ARE USING THE RIGHT SERIAL PORT:

// 1. Have a look at the Processing console output of this sketch.

// 2. Look for the serial port list and find the port you need (it's the same as in Arduino).

// 3. Set your port number here:

final static int SERIAL\_PORT\_NUM =0;

// 4. Try again.

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Dear Prof. Wong,

Attached files:

1. GY80-master.zip - arduino and processing demo programs

2. processing-2.1.2-windows32.zip - processing program installer

3. l3g4200d-arduino-master.zip - gyro accelerometer library

4. Adafruit-BMP085-Library-master.zip - barometer library

Best regards,

Simon

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Dear Prof. Wong,

The baud rate is sure 57600. Did you check the Device manager? Make sure the COM port of USB to serial module appear on the Device manager. If the COM port does not exist, it may be the driver of USB to serial module is not working. Please try to use the attached driver for the USB to serial module.

Best regards,

Simon

On 10/10/2018 9:38 PM, kh wong wrote:

> Dear Simon,

>

> Thanks for your reply, but it still cannot work even I tried different combination.

>

> SERIAL\_PORT\_NUM should be set to 1

>

> SERIAL\_PORT\_NUM should be set to 0

>

> baud rate

>

> final static int SERIAL\_PORT\_BAUD\_RATE = 115200;

>

> final static int SERIAL\_PORT\_BAUD\_RATE = 57600;

>

> final static int SERIAL\_PORT\_BAUD\_RATE = 9600;

>

>

> On 10/10/2018 1:06 PM, Simon Wong wrote:

>> Dear Prof. Wong,

>>

>> In the processing program the SERIAL\_PORT\_NUM should be set to 1 when using PC. It is because PC already has one COM port but on the notebook there is no COM port, so the SERIAL\_PORT\_NUM is set to 0 on notebook. Please refer to attached picture.

>>

>> Best regards,

>>

>> Simon

>>

>>

>> On 10/10/2018 10:45 AM, kh wong wrote:

>>> Dear Simon,

>>>

>>> Testing your code using another computer

>>>

>>> 1) downloaded and installed the driver for cp201x USB-serial-bridge, checked in windows-device manager it is at com5. It is ok.

>>>

>>> 2) copied the Univers-66.vlw into the AHRS\_9DOF\_display.pde directory, the programs runs ok

>>>

>>> But the 3D display is standing still and not moved. I tried reset the board and the computer and no change.

>>>

>>> So what is the problem?

>>>

>>>

>>>

>>> On 10/10/2018 7:53 AM, Simon Wong wrote:

>>>> Dear Prof. Wong,

>>>>

>>>> Attached file GY80-master.zip containing the program for mobile IMU.

>>>>

>>>> AHRS\_9DOF\_arduino -- program run on arduino

>>>>

>>>> AHRS\_9DOF\_processing -- processing program run on PC.

>>>>

>>>> The .jpg file showing the connection of IMU to arduino.

>>>>

>>>>

>>>> Best regards,

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>>>> Simon

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