CiLab
Creative Idea Lab

CILAB IMU SENSOR

User Guide

17th, Nov, 2017

1 IMU OVERVIEW

The Cilab IMU was designed with multi-sensor fusion which works underwater. It includes a typical Inertial Measurement Unit (IMU), Barometer unit and thermometer. it could be incorporated into underwater systems which utilize the IMU raw data to determine current poses and navigate underwater, and use pressure and temperature sensor to determine underwater depth and water temperature. Communication is enabled via I2C to various devices.

Arduino based program is provided to read raw data from sensors and send out the IMU, pressure, temperature information through serial port.

The Cilab IMU GUI allows user to visualize the real time IMU sensor data and view the virtual IMU sensor through an Arduino board. Arduino communicate with IMU sensor via I2C and transfer real time data to PC through serial commination.

Product components

IMU Board

Arduino

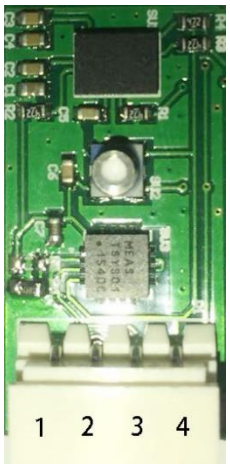
Dupont Line

USB Cable

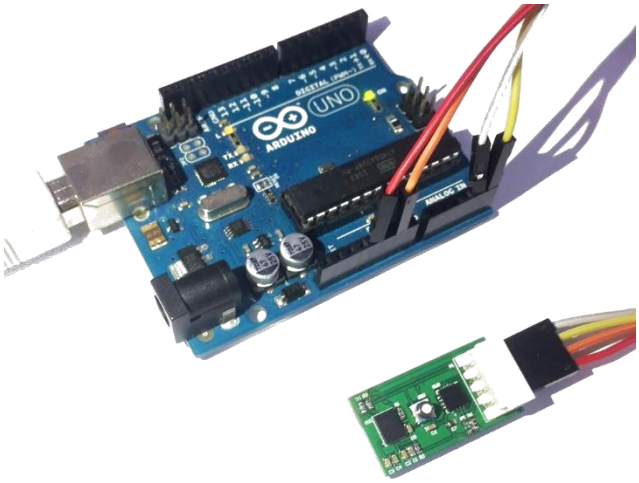
2 CONNECTION:

1. Connect the IMU board with arduino as shown below
2. Connect arduino with PC with USB cable.

- Pin 1 <======> 3.3V
- Pin 2 <======> GND
- Pin 3 <======> SCL
- Pin 4 <======> SDA



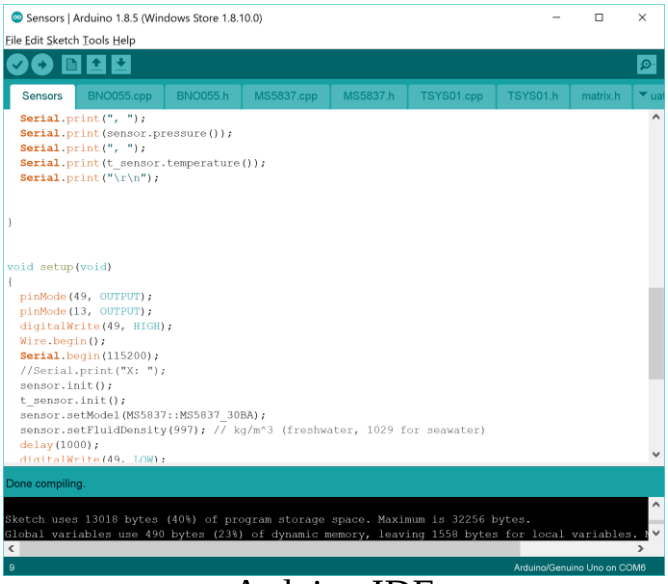
IMU Pin map



Connection

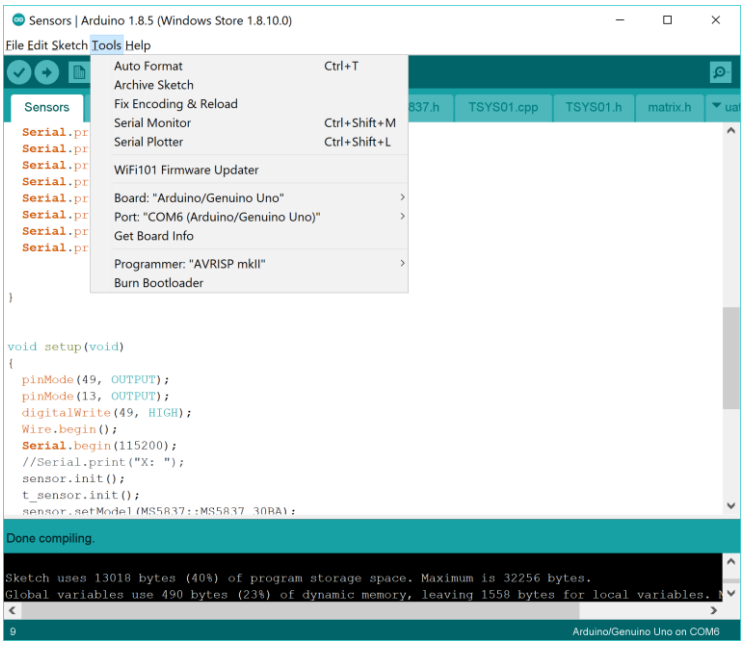
3 READ DATA FROM SENSOR

Load the program with Arduino IDE, verify and upload it to Arduino board.



Arduino IDE

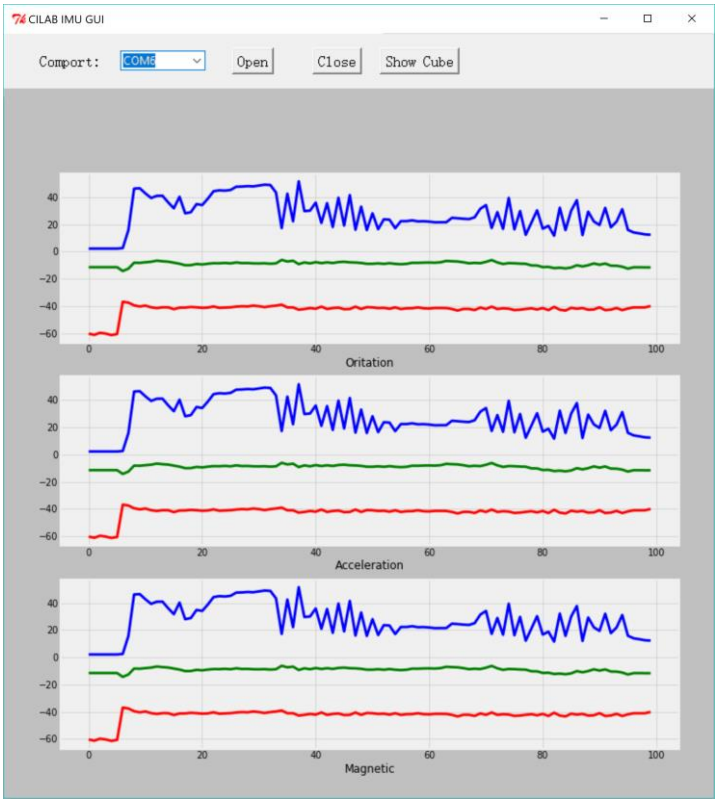
Open serial monitor, the received data will be shown in the windows.



Serial Monitor

4 GUI GUIDE

1. Choose com port.
2. Open the port with “Open”.
3. Click “show cube” to visualize orientation.



Plot data

Orientation