

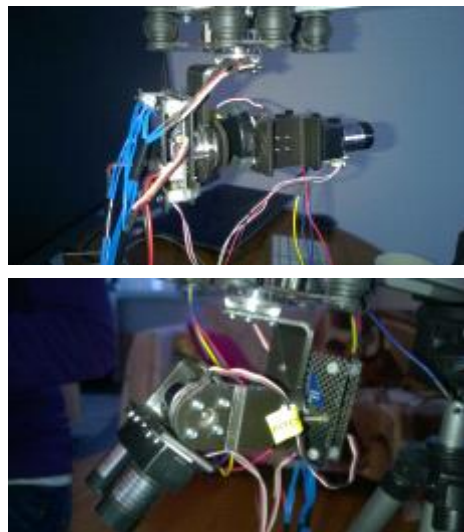
## LIDAR testing

Old configuration



16:20

New configuration



New configuration (without back balance) with holder



Testing data from LIDAR and we used PCL library tools for visualization part. PCL library tools needed PCL file for input: plain text with some specific header and X; Y; Z coordinates. No (0, 0, 0) NULL coordinates are allowed.

Text example:

# .PCD v0.7 - Point Cloud Data file format

VERSION 0.7

FIELDS x y z

SIZE 4 4 4

TYPE F F F

COUNT 1 1 1

WIDTH 10

HEIGHT 1

#VIEWPOINT 0 0 0 1 0 0

POINTS 3368

DATA ascii

338.6836 -90.7500 -93.9513

340.0884 -89.2205 -94.2101

343.3577 -88.1593 -94.9866

345.6882 -86.8309 -95.5042

351.7664 -86.4021 -97.0571

352.2140 -84.5591 -97.0571

351.7115 -82.4932 -96.7983

338.0154 -77.4159 -92.9160

51.8465 -11.5891 -14.2350

53.7940 -11.7290 -14.7527

It was also problematic to build the libraries and executables, but this helped for Visual Studio 2013:  
[http://www.pointclouds.org/documentation/tutorials/compiling\\_pcl\\_windows.php#compiling-pcl-windows](http://www.pointclouds.org/documentation/tutorials/compiling_pcl_windows.php#compiling-pcl-windows)  
<http://unrancyowen.com/?p=1255&lang=en>







19.05.2016 Proovisime uuest PCL

```
Arduino IDE 1.6.7
File Edit Sketch Tools Help

void setup() {
  // Serial baud rate should match with the rate, configured for the SimpleSAMC controller
  #define SERIAL_SPEED 115200

  // Delay between commands, ms
  #define SAMC_CMD_DELAY 20

  // For LIDAR sensor
  #define LIDAR_ADDR 0x62 // Default I2C Address of LIDAR-Lite.
  #define RegisterWrite 0x00 // Register to write to initiate ranging.
  #define ReadRegister 0x04 // Value to initiate ranging.
  #define RegisterHighLow 0x0f // Register to get both High and Low bytes in 1

  int reading = 0;

  // Initialize serial
  #define SERIAL_SPEED 115200
  #define SAMC_CMD_DELAY 20
  #define LIDAR_ADDR 0x62
  #define RegisterWrite 0x00
  #define ReadRegister 0x04
  #define RegisterHighLow 0x0f

  void setup() {
    Serial.begin(SERIAL_SPEED);
    SAMC_Demo_setup(Serial);
  }
}
```

C:\Program Files\PCL1.8.0\bin\pd\_viewer\_debug.exe raataukogu\_03\_80\_60.pcd

- uus\_test\_...
- fyysika\_...
- raatauko...
- New folder

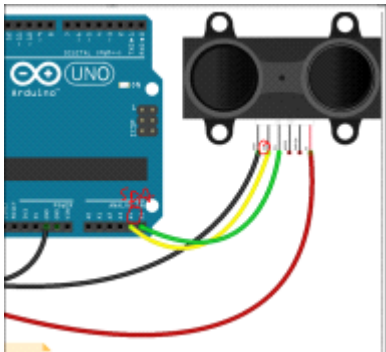
## LIDAR connections

1)

Gimbal Serial -  
 Gimbal RX -> Arduino TX (Serial2 baud115200),  
 Gimbal TX -> Arduino RX (Serial2 baud115200),  
 Gimbal GND -> Arduino GND

1)

LIDAR I2C, Arduino I2C (SDA -> SDA, SCL -> SCL)



Arduino Uno to LIDAR



## How To Visualize PLC

984 points - 1min with plain scan

command prompt C:\Program Files\PCL1.8.0\bin

pcl\_viewer\_debug.exe fail.pcd

C:\Program Files\PCL1.8.0\bin>pcl\_viewer\_debug.exe uus\_test\_deg\_pl\_4\_vagatapne.pcd

C:\Program Files\PCL 1.8.0\bin>pd\_viewer\_release.exe fyysika\_mets\_05\_80\_60.pcd. -opaque 0.8 -fc 220,220,220 -bc 30,30,30

C:\Program Files\PCL 1.8.0\bin>pd\_octree\_viewer\_release.exe fyysika\_mets\_05\_80\_60.pcd 0.001