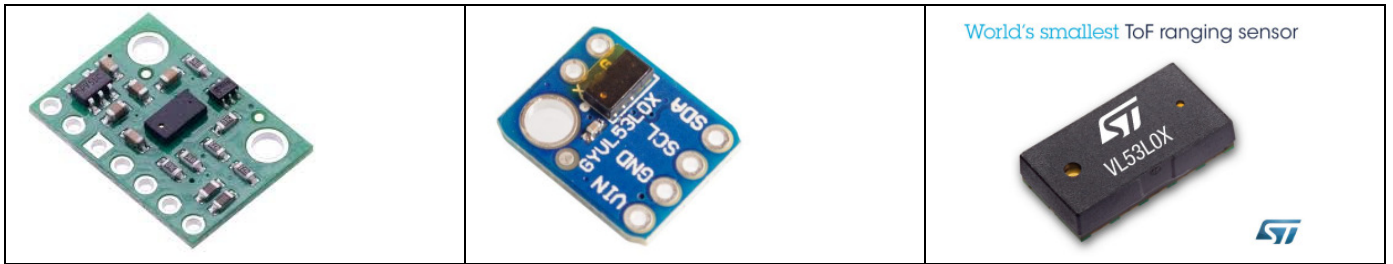


## VL53L0X distance sensor



On se procure facilement un module VL53L0X (10-20USD).

La doc de ST se réduit à une description générale et les specs donnent les timings I2C sans parler des registre internes.

<http://www.st.com/en/imaging-and-photonics-solutions/vl53l0x.html>

On trouve un librairie Pololu et on peut obtenir l'API de STI en s'inscrivant.

Le forum <https://groups.google.com/forum/#!topic/diyrovers/lc7NUZYuJOg>

a crée beaucoup d'essais et commentaires, pare exemple la justification de ST:

VL53L0X is a complex device. Registers description is not possible for this device due to complexity. It contains hundred of registers with inter-dependance and not straight forward content. Then, the choice has been to not provide a register list, but instead develop an friendly API. (commentaire "unfriendly!").

Ted Meyer a proposé fin 2016 un programme Arduino, que je vois à différents endroits en cherchant "vl53L0x Meyer".

J'ai essayé de répondre au forum google, sans succes:

Thanks Ted, I loaded you program and I did some reverse engineering with my scope. Amazing to see it works after initializing a single register with a 0x01!

I looked at registers 0 to 32=0x20

VLstart reg 0 I read 0x00 reg 1 I read 0x01

reg 2 to 17 I read 0x00 for all

reg 17=0x13 I read 0x00 VL53L0X\_REG\_RESULT\_INTERRUPT\_STATUS

reg 18=0x14 I read 0x01 VL53L0X\_REG\_RESULT\_RANGE\_STATUS

reg 19 I read 0x40

reg 20 I read 0x5d variable DeviceRangeStatusInternal?

reg 21 I read 0x60

reg 22 I read 0xbb at 80cm, decreases with distance

reg 23 I read 0c00

reg 24 I read 0xFF if distance is <15cm

reg 25 I read 0xFF if distance is <15cm

reg 26 I read 0x00 if distance is >50cm does not seem linear below

reg 27 vary with distance

reg 28 I read always 0x00

reg 29 I read ~0x02 for 2cm ~0x3d for 2m

**reg 30 0 below 20cm 0x50 for 1m 0x0F for ~3m**

**reg 31 increase from 0 to FF every ~20cm**

reg 32-35 I read 0x00 for all

My striped down test software is

```
void loop(){
  write_byte_data_at(START, 0x01); // maybe could go in the setup
  // no delay, no test
  read_block_data_at(26,6); // I changed to check from 0--31
}
```

Distance is read at location 30,31, about 1mm per unit

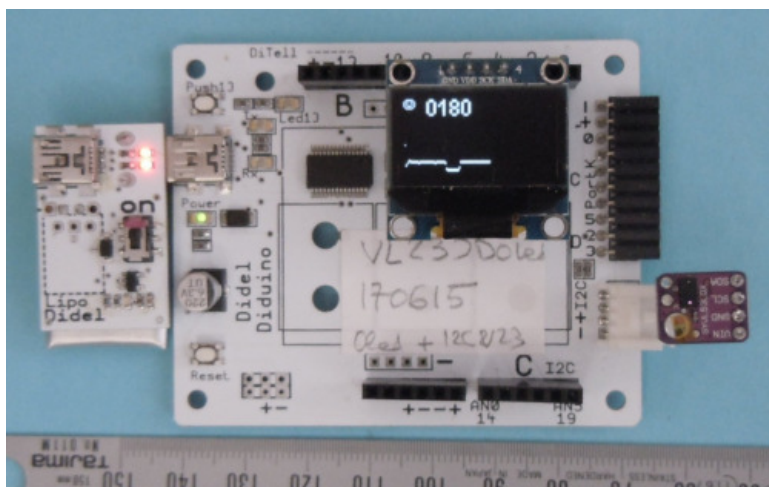
With Oled display

```
//VL53JD VL53L0X oled 3k3 170615
#define VL53 0x29 // 0x52 adr 7 bits = 0x29
#define aadd VL53*2

#define START 0x00 // write 01

byte buf[32];
#include "TwI2C.h"
#include "Tell.h"
#include "oledI2Cbb.h"
#include "oledPix.h"
void setup() {
  SetupI2C();
  SetupI2Cbb();
  SetupOledPix();
  bitSet (DDRC,3);
}
#define s1On bitSet (PORTC,3);
#define s1off bitClear (PORTC,3);
int dist; byte x;
void loop() {
  TwWriteByteAt(START, 0x01);
  s1On;
  TwReadBlkAtFrom(26,7); // dernier pas lu??
  s1off;
  // dist = (buf[4]<<8)+buf[5];
  dist = TwReadWordAt(30);
  Tell (dist);
  LiCol(0,0); Sprite(smile); // top
  LiCol(1,20);BigDec9999(dist);
  DDot (x,64-dist/16);
  if (x++==128) {x=0; Clear();}

  delay(100);
}
```



jd11015 provisoire