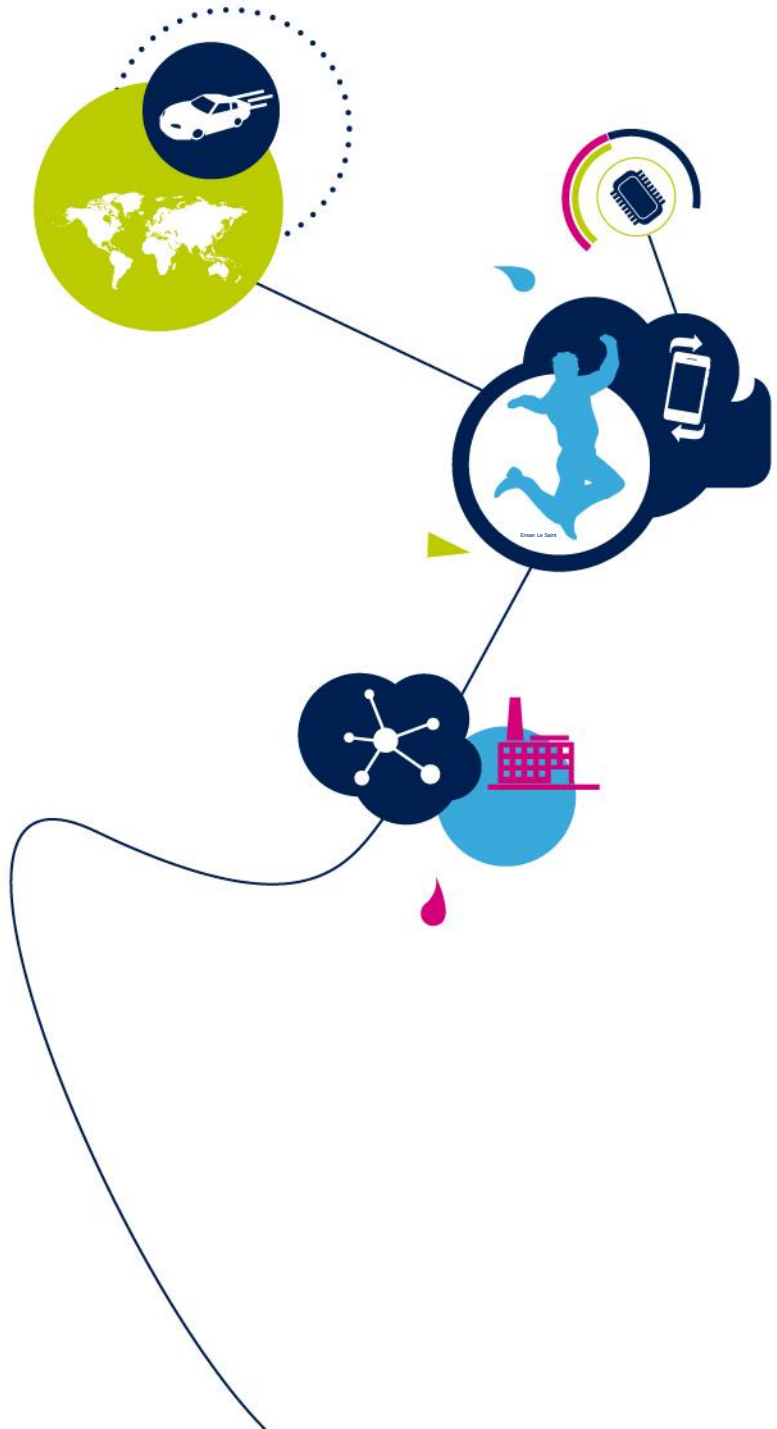
Optical Inertial AddOn

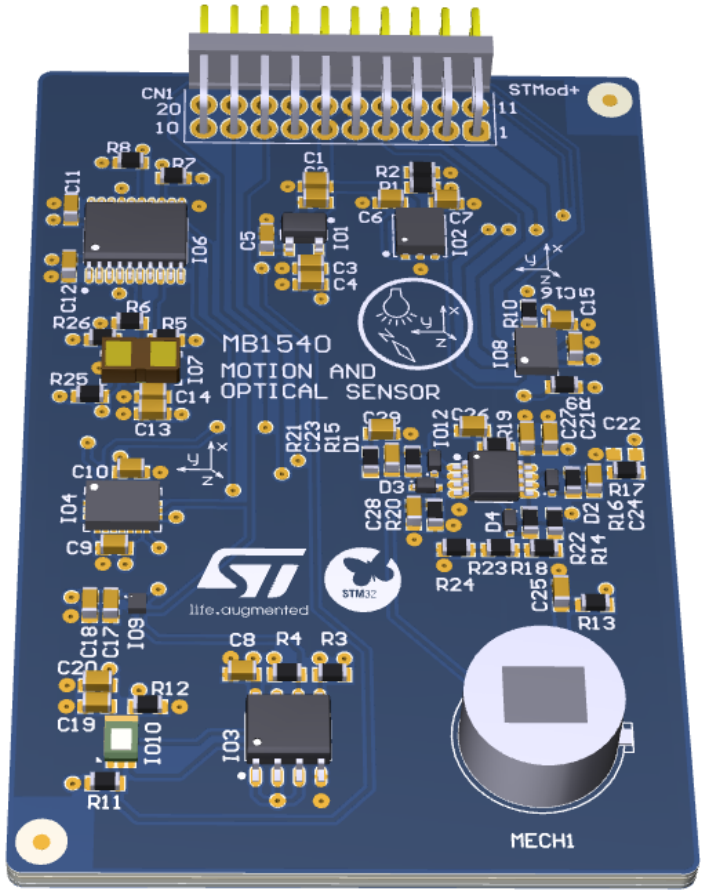
2nd Jan 2020

X slides, ~ X minutes



life.augmented

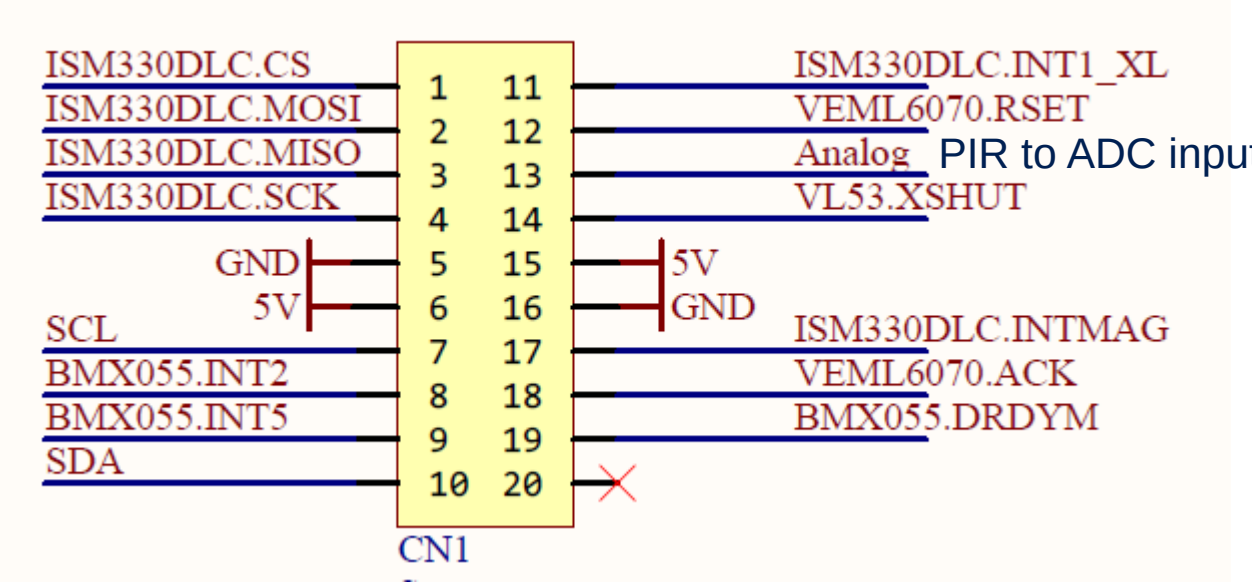
Optical and Motion Sensing



- Features:
  - 3m ToF (ST VL53L1CXV0FY, I2C)
  - Acc+Gyro+Mag (Bosch BMX055, I2C)
  - Acc+Gyro (ST ISM330DLCTR, SPI)
  - PIR* (IRA-S210ST01, Analog)
  - Ambiant Lux (OnSemi LV0104CS, I2C)
  - UV Index (Vishay VEML6070, I2C)
- Prototype
  - 50 pcs produced
- Plug and Play:
  - Int ID: B_OPTO_INERT_BOARD
  - String ID: "B_OPTO_INERT"

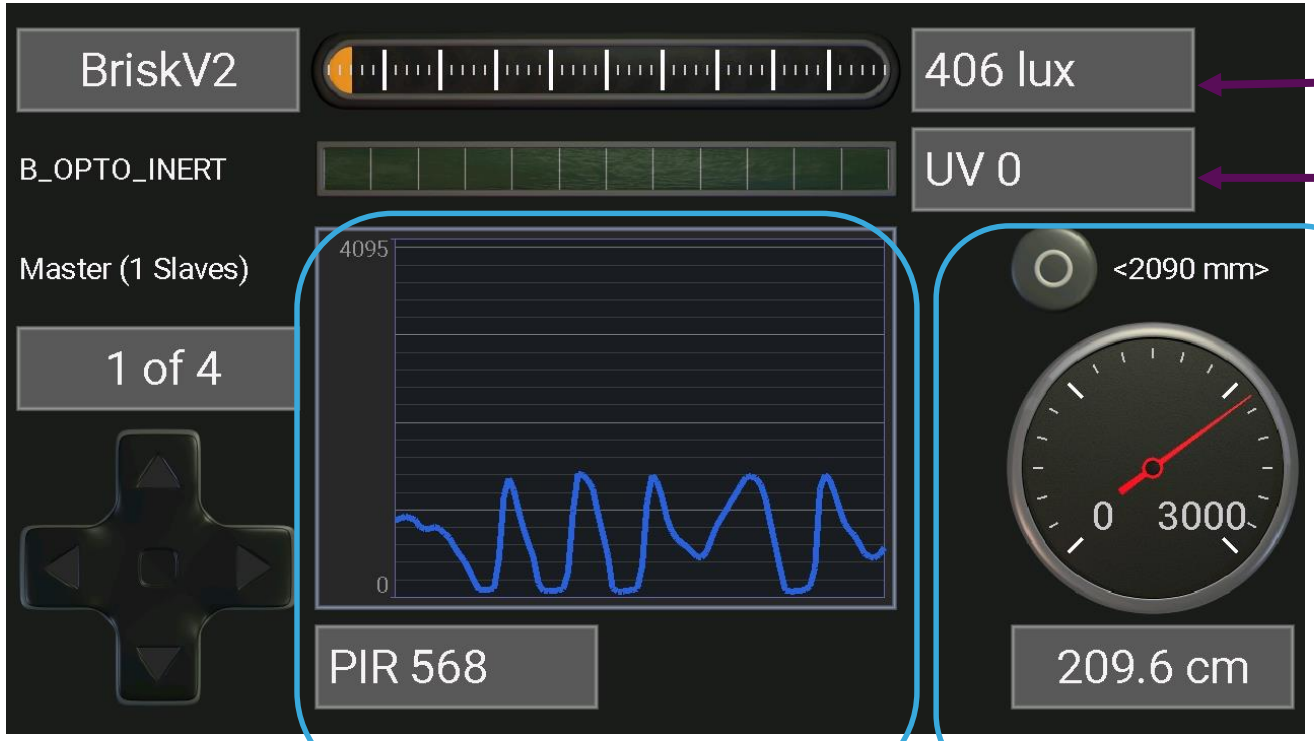
*PIR requires 2 resistors value change to function properly:
Replace and reduce R15 & R16 from 8.2 MOhm down to 1Mohm

life.augmented



PIR to ADC input

BTEL (Bluetooth electronics)



Lux

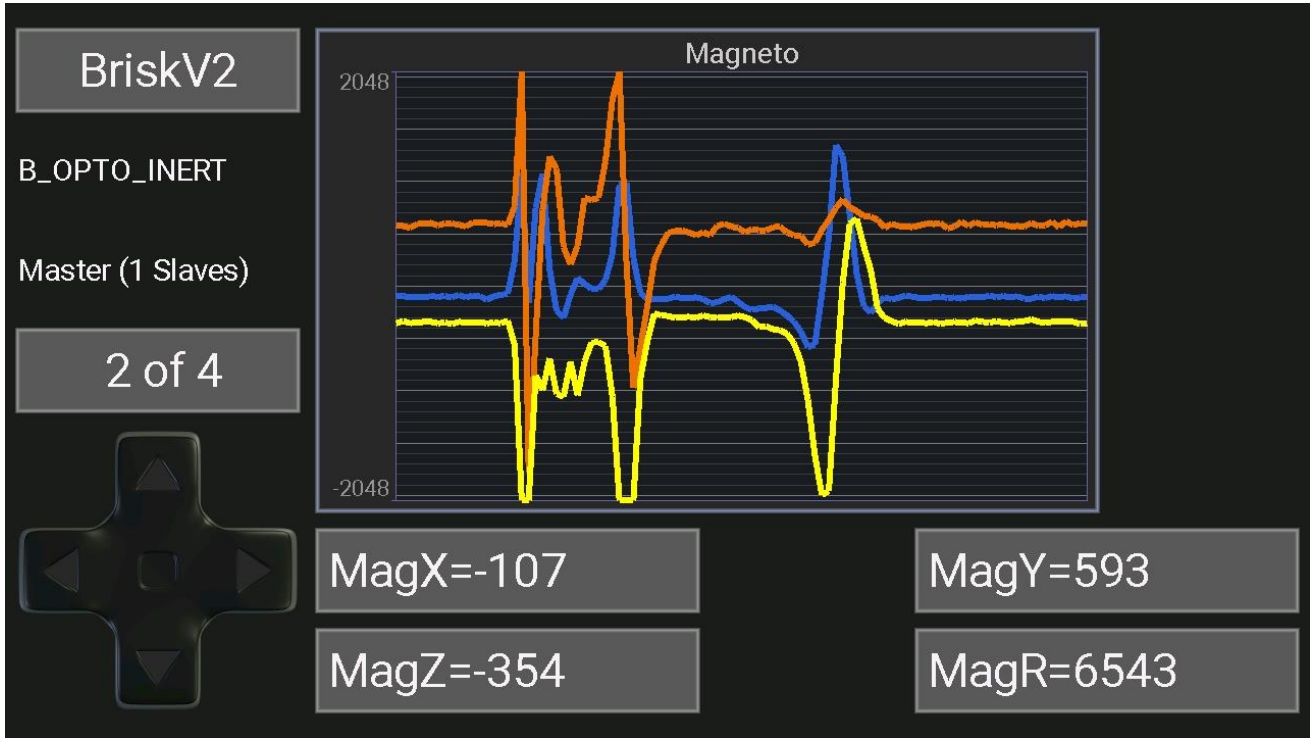
UV Index

Time of flight (~3m max)
Push (o) to calibrate 0 mm

PIR (analog input)

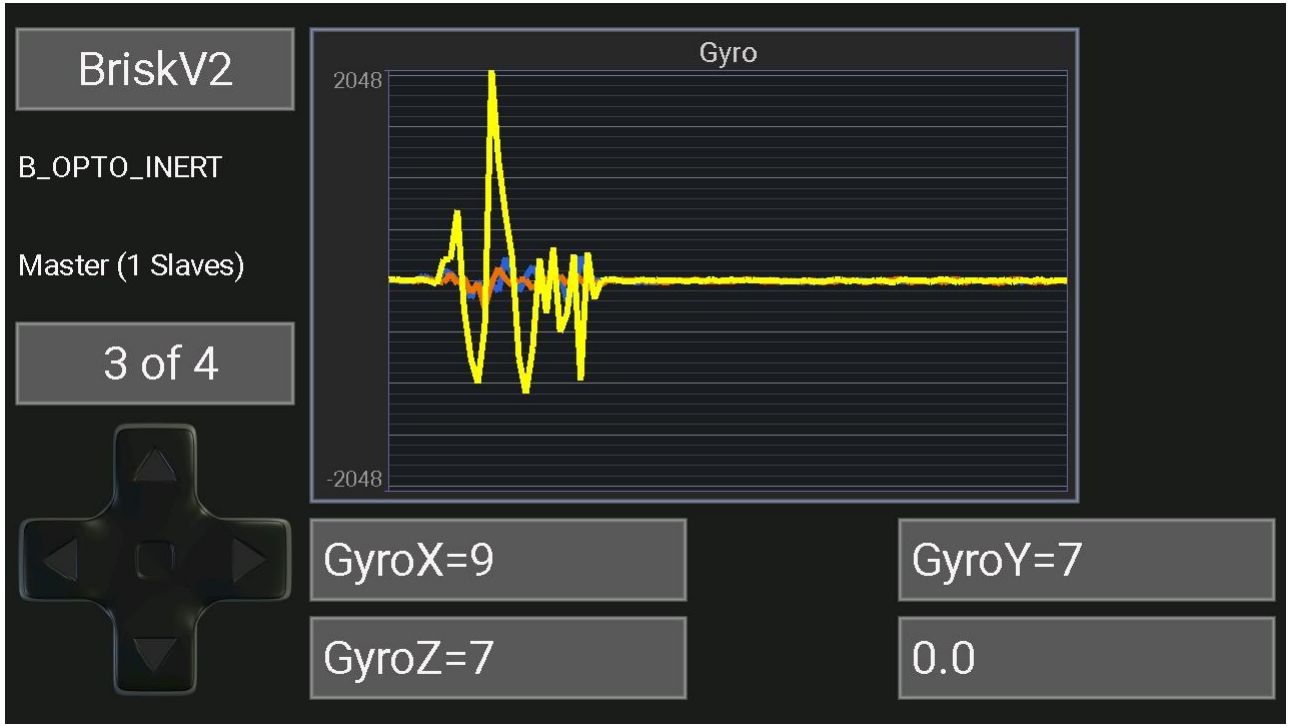
This is the optical sensors page
PIR may malfunction (requires 2 resistors values change to work)

BTEL (Bluetooth electronics)



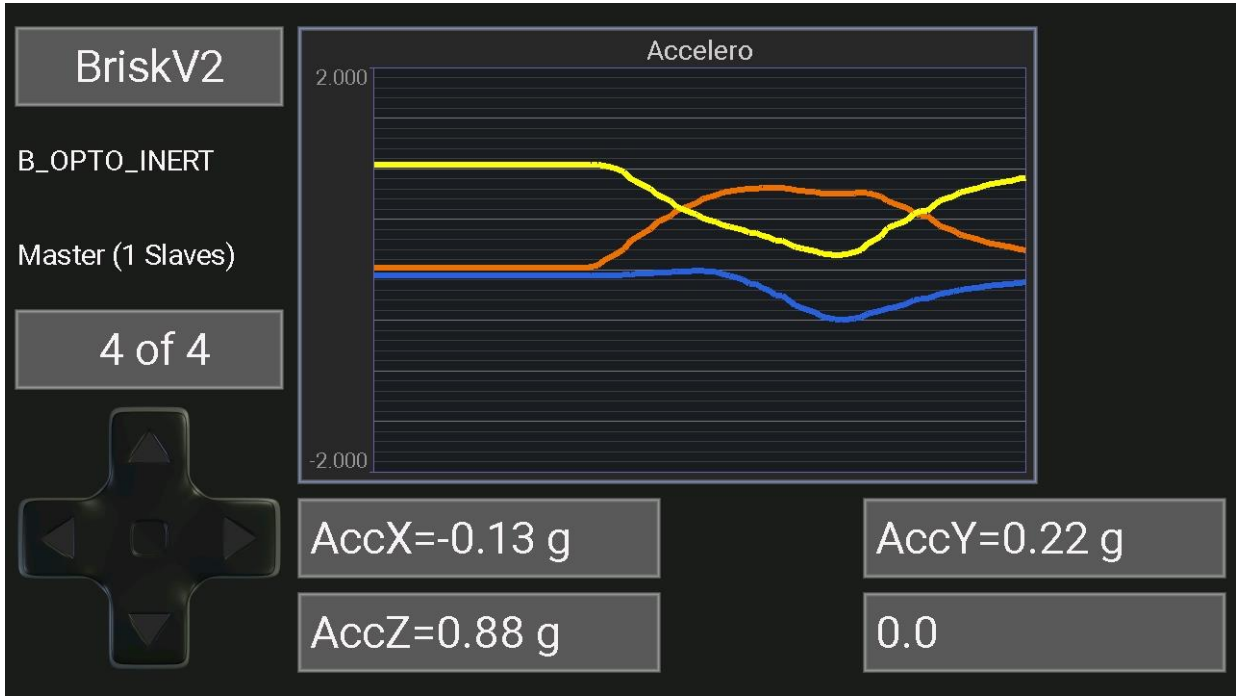
This shows Magneto by hovering magnet over the addon board (unit LSB)

BTEL (Bluetooth electronics)



This shows Gyroscope by shaking the board

BTEL (Bluetooth electronics)



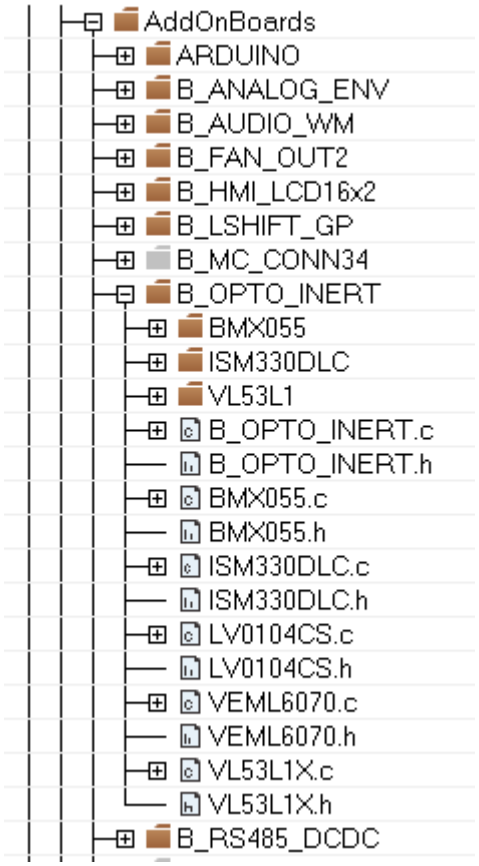
This shows accelerometer X, Y, Z in g unit by tilting the board

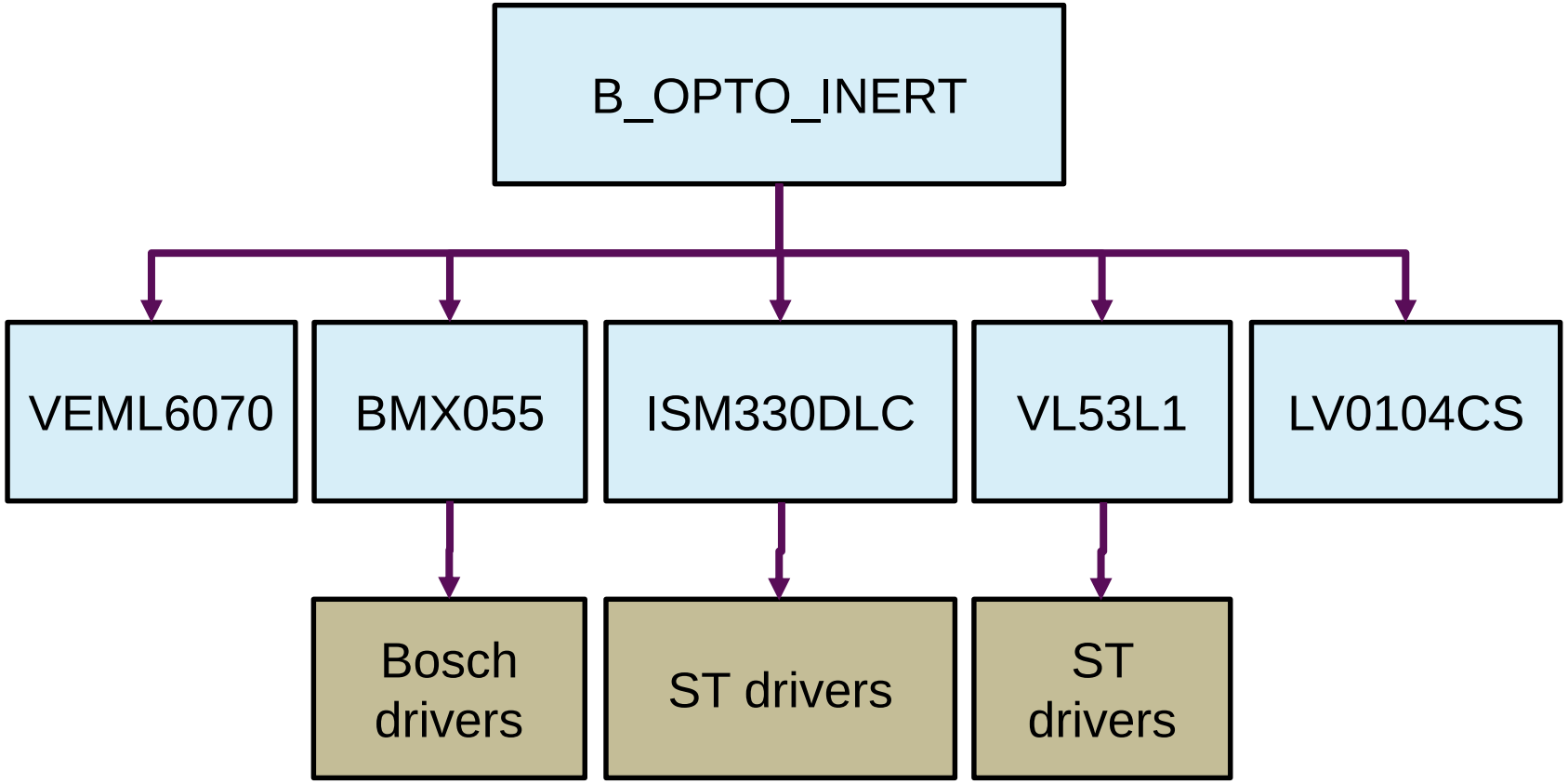
Sensor Add-on STMod+ pinout

ISM303DAC.CS	1		11	ISM303DAC.INT1_XL
ISM303DAC.MOSI	2		12	VEML6070.RSET
ISM303DAC.MISO	3		13	Murata Analog Signal 0-3.3V
ISM303DAC.SCK	4		14	VEML6070.GPIO1
GND	5		15	5V
5V	6		16	GND
SCL	7		17	ISM303DAC.INTMAG
BMX055.INT2	8		18	VEML6070.ACK
BMX055.INT5	9		19	BMX055.DRDYM
SDA	10		20	VL53L1X.XSHUTDOWN

EEPROM: I2C @ 0xAE/F and 0xBE/BF

SW Drivers





These drivers have their own versioning control