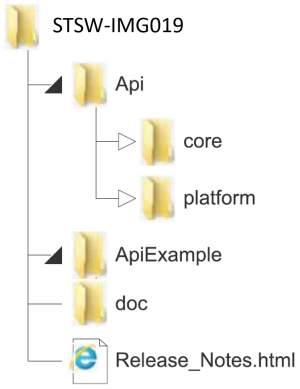
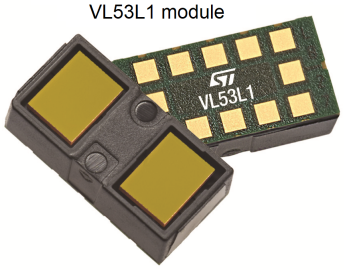
VL53L1 Time-of-Flight ranging sensor with programmable field of view and multi-object detection application programming interface (API)



VL53L1 module



Features

- VL53L1 API is source code written in C language
- API provides control over full range of features
- API is structured in a way it can be easily ported/compiled on any microcontroller platform
- A simple code example is provided which shows how to use the API to perform ranging measurements with the NUCLEO F401RE and X-NUCLEO-53L1A2 expansion board
- API documentation (.chm) provided

Description

The VL53L1 API is a set of C functions controlling the VL53L1 device (e.g. init and ranging) to enable the development of end-user applications. The API is structured in a way that it can be compiled on any kind of platform through a well isolated platform layer (mainly for low-level I2C access). One example code is provided to show how to use the API and perform ranging measurements.

The VL53L1 is a state-of-the-art, Time-of-Flight (ToF), laser-ranging, miniature sensor enhancing STMicroelectronics' FlightSense product family. Housed in a miniature and reflowable package, it integrates a SPAD (single photon avalanche diode) array, physical infrared filters and optics to achieve the best ranging performance in various ambient lighting conditions, with a wide range of cover windows.

Unlike conventional IR sensors, the VL53L1 uses ST's latest generation direct ToF technology which allows absolute distance measurement whatever the target color and reflectance. It provides accurate ranging above 8 m and can work at fast speeds (60 Hz), which makes it the fastest miniature ToF sensor on the market.

With patented algorithms and ingenious module construction, the VL53L1 is also able to detect different objects within a field-of-view with depth understanding at 60 Hz.

Scene browsing and multi-zone detection is now possible with the VL53L1, thanks to software customizable detection array for quicker "touch-to-focus" or mini depth-map use cases.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
29-Apr-2020	1	Initial release
15-Oct-2020	2	Accurate ranging is above 8 m (not 4 m)
15-Jul-2021	3	Remove reference to html version of API documentation

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