STSW-IMG034

Data brief

Ultralow power (ULP) application programming interface (API) for the VL53L4CD Time-of-Flight sensor

Product status link
STSW-IMG034

Features

- Ultralow power (ULP) consumption, down to 55 µA (with 2v8 power supply) at 1 Hz ranging frequency
- Embedded on-chip processing
- Programmable interrupt threshold to wake up the host
- Available settings in API for application tuning (distance threshold, macro-period...)
- ULP API can be used as standalone or with the VL53L4CD ultra lite driver (ULD)
- Several examples of code showing how to use the ULP API
- Complete kit including GUI, driver, and user manual

Description

To achieve the lowest power consumption possible, the ULP driver effectively allows the VL53L4CD sensor to become a proximity detector. It does so using Time-of-Flight (ToF) technology. In such cases, the settings and ranging flows of the sensor are especially designed to reduce power consumption. For example, the current consumption is reduced to 55 µA at 1 Hz ranging frequency, with a 2V8 power supply. All the processing is fully embedded into the sensor firmware. In addition, the sensor does not output traditional data such as signal, spad nb, etc. The implemented mechanism raises an interrupt to the host when a target is detected in the field of view (FoV).

The VL53L4CD can also be configured in its traditional ranging mode using the bare driver (STSW-IMG026). In this mode, the sensor provides very accurate distance measurements from only 1 mm up to 1300 mm. A new generation laser emitter with 18° FoV improves performances under ambient light, with ranging speed up to 100 Hz.

Both drivers (ULP and standard) can be used independently or together. When used together, the VL53L4CD acts as a low-power proximity detector, then it becomes an accurate ranging sensor when an interrupt is raised.

Applications of this ULP driver are numerous: battery operated devices, user detection, system activation, touchless switch and more.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
27-Sep-2022	1	Initial release

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