

Firmware for SensorTile enabling estimation of system autonomy

Applications & demonstrations	STSW-GPT001V1		
	BLE	USB Device	Audio PDM to PCM
Middleware	FatFs	Motion AR/CP/FA/FX/GR	Motion ID/PE/SD/TLVC
	Acoustic SL/BF	Blue Voice ADPCM	Meta Data Manager
Hardware Abstraction	STM32Cube Hardware Abstraction Layer (HAL)		
Hardware	STEVAL-GPT001V1	STEVAL-STLCS01V1	

Features

- Battery charge monitoring
- Solar panel input monitoring
- System autonomy estimation according to current input and output powers

Description

STSW-GPT001V1 is based on the [STSW-STLKT01](#) SensorTile kit software, featuring running and sleep modes as well.

Running mode calculates system autonomy on the basis of the sensed battery current, in particular on the average current consumption when the PV modules represent the available energy source.

The software shows the battery charge level, the average current consumption and the estimated overall system autonomy.

The solution optimizes the [SPV1050](#) MPPT accuracy, according to the solar irradiation, by monitoring the open circuit input voltage and acting on the input resistor partitioning.

The system automatically enters sleep mode low consumption state after one minute of inactivity. In this state, the microcontroller RTC remains active to count the time elapsed during the low power consumption mode.

Before and after sleep mode, battery charge measurement allows calculating the amount of charge stored during this time frame.

Product summary	
Firmware for SensorTile enabling estimation of system autonomy	STSW-GPT001V1
Thin-film solar smart watch based on SPV1050 energy harvester and battery charger	STEVAL-GPT001V1
Applications	Fitness Trackers

Revision history

Table 1. Document revision history

Date	Version	Changes
25-Jan-2021	1	Initial release.

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