

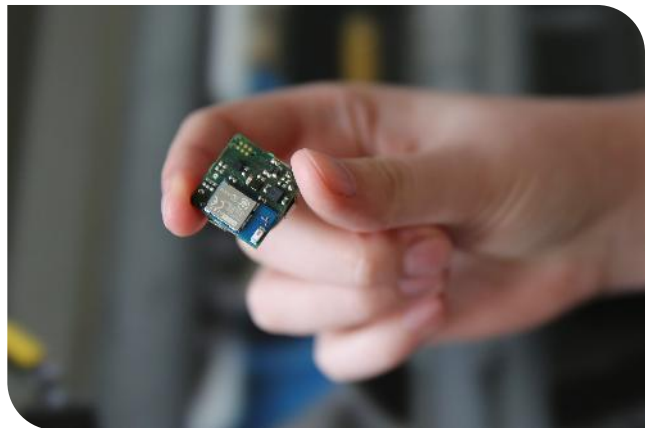
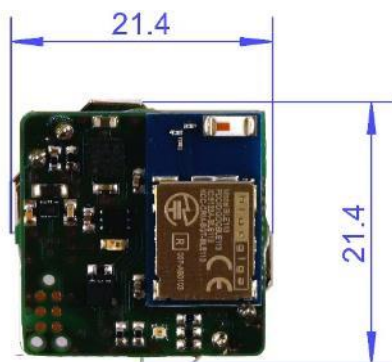
bPart: Bluetooth Low Energy Sensor Particle

General Description

The bPart is a highly integrated Bluetooth Low Energy sensor node. It includes several sensors, battery, processing unit and wireless transceiver in a volume of less than 1cm³. In addition a multicolor RGB-led is included for user feedback, as well an infrared led for camera assisted tracking.

The use of Bluetooth LE, onboard power-conversion and low-power sleep modes enables runtimes of several years. In contrast to other established low-power wireless communication standards, it is supported on nearly all modern desktop and mobile operating systems, facilitating the connection to existing software.

The small size and energy consumption make the bPart suitable for long-term monitoring applications, where existing equipment needs to be retrofitted with unobtrusive sensors. Sensor modalities include acceleration in all three axes, ambient light level and ambient air temperature. This is supported by configurable sampling and transmission intervals.



Characteristics



General:

Bluetooth Low Energy Smart Device
Transmission range >10m indoors
Small size 21.4mm x 21.4mm x 7.2mm
MEMS sensors, infrared and RGB leds

Operation:

Standard CR2023 lithium coin cell
Runtime up to several years
Configurable sampling interval
Maximum supported rate 100Hz*

3-axes accelerometer:

$\pm 2g/\pm 4g/\pm 8g/\pm 16g$ selectable fullscale
Sensitivity down to 1mg
Low power motion detection

Ambient light sensor:

Wide range from 0.045 to 188,000Lux
Automatic gain selection
Near human eye response

Temperature sensor:

Measures ambient air temperature
Sensitivity of 1°C