6DOF IMU 2 click

6DOF IMU 2 click is a mikroBUS™ add-on board with Bosch's BMI160 low power inertial measurement unit (IMU). The BMI160 is capable of precise acceleration and angular rate (gyroscopic) measurement.

The IMU consists of a state-of-the-art 3-axis, low-g accelerometer, and a low-power 3-axis gyroscope, designed for 6-axis and 9-axis applications. The BTI160 also includes built-in power management unit (PMU) for advanced power management and power-saving modes, as well as allocated FIFO buffer of 1024 bytes for handling external sensor data.

6DOF IMU 2 click communicates with the target MCU through the I2C or SPI bus (user-selectable), with additional functionality provided by the INT pin (for enhanced autonomous motion detection).

The board is designed to use a 3.3 power supply only.

Technical Specifications

Applications

Game controllers, remote controls and pointing devices.

Key features

Interrupts for motion detection
I2C and SPI Interface
3.3V power supply

Key Benefits

Capable of handling external sensor data
Very small footprint
Android Lollipop compatible
Very low-power consumption

mikroBUS™ is specially designed pinout standard with SPI, I2C, Analog, UART, Interrupt, PWM, Reset and Power

Features and usage notes

3.3V Power supply
2.5 × 3.0 × 0.83 mm 3 LGA package
Integrated 1024 byte FIFO buffer
Fast start-up mode
Additional secondary high speed interface for OIS applications
Hardware sensor time-stamps for accurate sensor data fusion
Motion detection and tap or double tap sensing
I2C and SPI interfaces
Very low power consumption: typ. 925 µA

Programming

Code snippet demonstrates initialization of the 6DOF IMU 2, reading gyro and accel data, and printing them out on TFT.

```
 1 void main()
 2 {
3
 4    Display_Init();
 5    I2C1_Init();
 6    dof6_hal_init(BMI160_I2C_ADDRESS );
 7    dof6_sensor_config(accel_normal , gyro_normal);
8
 9    while (1)
10    {
11        acc_x=dof6_get_acc_x();
12        acc_y=dof6_get_acc_y();
13        acc_z=dof6_get_acc_z();
14        gyro_x=dof6_get_gyr_x();
15        gyro_y=dof6_get_gyr_y();
16        gyro_z=dof6_get_gyr_z();
17        display_data();
18        Delay_ms(50);
19    }
20 }
```

Code examples that demonstrate the usage of 6DOF IMU 2 click with MikroElektronika hardware, written for mikroC for ARM, FT90 and PIC is available on Libstock.

> MIKROE-2337
> 6DOF IMU 2 click

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