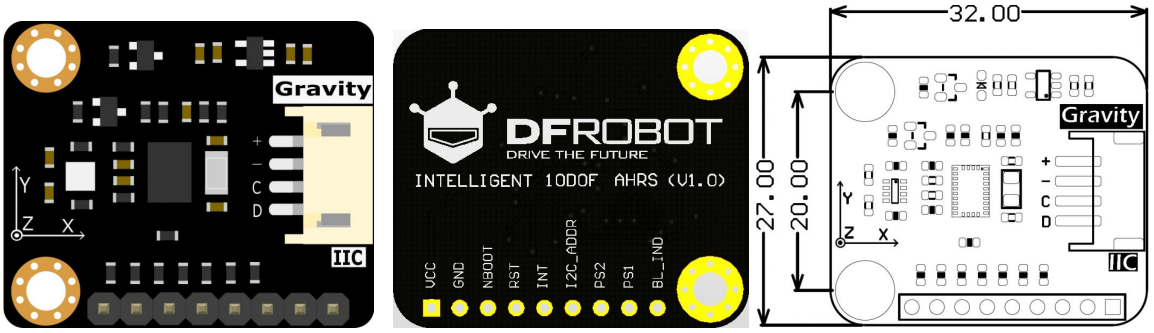
IMU



BNO055 is a new sensor IC for implementing an intelligent 9-axis Absolute Orientation Sensor. It is a system in package, integrating a triaxial 14-bit accelerometer, a triaxial 16-bit gyroscope, a triaxial geomagnetic sensor and a 32-bit microcontroller. At just 5.2 x 3.8 x 1.1 mm³, it is significantly smaller than comparable discrete or system-on-board solutions and also is the sensor-hub product of the smallest size that supports Windows 8.1 at present. BNO055 is able to provide not only single data of the three kinds of sensors(accelerometer/gyroscope/geomagnetic), but also fused data, such as quaternions, Euler angles or vectors. Besides, the built-in MCU frees the users from the complexities of algorithm processing, which provides application support in many aspects for smart phone, wearable device and so on.

BMP280 is an absolute barometric pressure sensor especially designed for mobile applications, which can realize the measurement of barometric pressure and temperature(the data can be converted into altitude through the specific formula). The sensor module is housed in an extremely compact package. It is based on Bosch's proven Piezo resistive pressure sensor technology featuring high accuracy and linearity as well as long term stability and high EMC robustness. Numerous device operation options offer highest flexibility to optimize the device regarding power consumption, resolution and filter performance.

Now, DFRobot is launching Gravity：BNO055 BMP280 intelligent 10DOF AHRS. This sensor module integrates BNO055 and BMP280 on one board to combine the two sensor into a 10DOF sensor module. The standard Gravity-I2C interface eases the integration process for customers, freeing them from the complexities of multivendor solutions so they can spend more time on product innovation, including novel applications such as wearable hardware. It is also the perfect choice for augmented reality, more immersive gaming, personal health and fitness, indoor navigation and any other application requiring context awareness.

Features

- BNO055:
    - Outputs fused sensor data: quaternions, euler angles, rotation vector, linear acceleration, gravity, heading.
    - 3 sensors in one device: 16-bit gyroscope, 14-bit accelerometer, geomagnetic sensor
    - Intelligent Power Management: normal, low power and suspend mode available
- BMP280：
    - Barometric pressure & Temperature sensor

Specification

- Operating Voltage: 3.3V~5V DC
- Operating Current: 5mA
- Gravity-I2C Interface
- BNO055 Accelerometer:
    - Acceleration ranges ±2g/±4g/±8g/±16
    - Low-pass filter bandwidths 1kHz~<8Hz
    - Operation modes: normal, suspend, low power, standby, deep suspend
    - On-chip interrupt control: motion-triggered interrupt-signal
- BNO055 Gyroscope:
    - Ranges switchable from ±125°/s~2000°/s
    - Low-pass filter bandwidths 523Hz~12Hz
    - Operation modes: normal, fast power up, deep suspend, suspend, advanced power save.
    - On-chip interrupt control: motion-triggered interrupt-signal
- BNO055 Geomagnetic:
    - Magnetic field range typical ±1300uT(x-,y-axis);±2500uT(z-axis)
    - Magnetic field resolution: ~0.3
    - Operating nodes: low power, regular, enhanced regular, high accuracy
    - Power modes: normal, sleep, suspend, force
- BMP280 Digital Pressure Sensor:
    - Pressure range: 300~1100hPa
    - Relative accuracy: ±0.12hPa（±1m）
    - Absolute accuracy: ±1hPa（±8.33m）
    - Temperature range: 0℃~65℃
    - Temperature resolution: 0.01℃
- Operating Temperature: -40~ 80℃
- Product Dimension: 32x27 mm/1.26x1.06”