An Overview of the Components in the Kit

SPECIFICATION SUMMARY OF THE KIT COMPONENTS TO BE USED

Component List Overview

The kit includes the following major components

- Vilros RPI Zero 2 W Kit

- M5Stack Core 2

- ArduCam

- AHT20, GY521 (MPU 6050), INMP441, VL53L0X, BMI 160, APDS-9960

- 64GB and 32GB MicroSD Cards

- Jumper wires and prototyping board

Raspberry Pi Zero 2 W Kit

▪A Raspberry Pi Zero 2 W with power supply, case and some other components.

Fig: Velros RPi Zero 2 W starter kit

M5Stack Core 2

- An ESP32 based development board with various integrated sensors, microphone, speaker and display

- Wi-Fi and BLE connectivity

Fig: M5Stack Core 2

ArduCam

- 5MP OV5647 Camera module for Raspberry Pi

Fig: ArduCam

AHT20 (Temperature & Humidity Sensor)

- Digital temperature and humidity sensor

- Communication Interface: I2C

- Power Supply: 2.3V to 5V
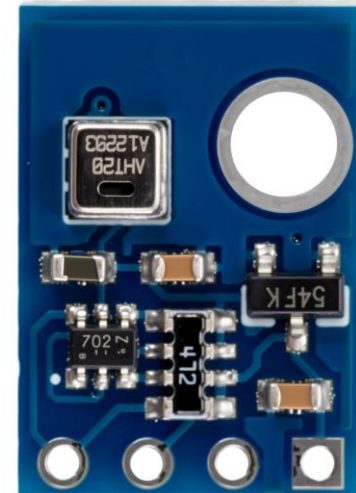
- Accuracy:
  - Temperature: ±0.3°C
  - Humidity: ±3% RH

Fig: AHT20

MPU6050 (3-axis accelerometer and 3-axis gyroscope)

- 6-axis motion sensor

- Sensor Range:
    - Accelerometer: ±2g, ±4g, ±8g, ±16g
    - Gyroscope: ±125°/s, ±250°/s, ±500°/s, ±1000°/s, ±2000°/s

- Communication Interface: I2C
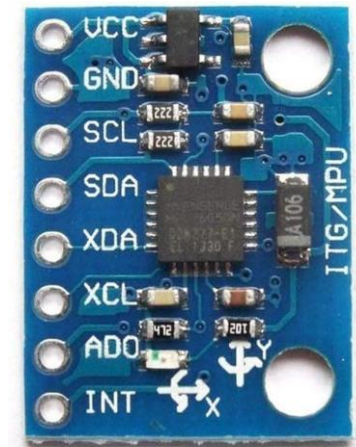
- Operating Voltage: 2.375V to 3.46V

Fig: BMI 160

INMP441 (MEMS Microphone)

- Omni directional digital microphone

- High signal-to-noise ratio (SNR) : > 65 dB

- Communication Interface: I2S (Inter-IC Sound)

- Power Supply: 1.8V to 3.6V

Fig: INMP441

VL53L0X (Time-of-Flight Distance Sensor)

- Accurate distance measurement using laser light

- Communication Interface: I2C

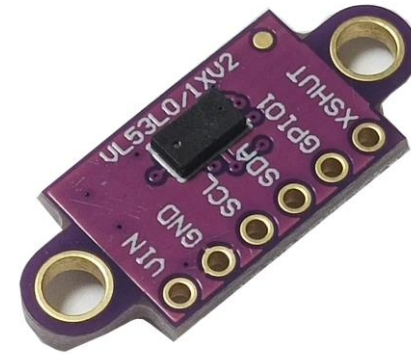- Power Supply: 2.6V to 3.5V

- Measurement Range: 30 mm to 2 meters

Fig: VL53L0X

BMI160 (3-axis accelerometer and 3-axis gyroscope)

▪6-axis motion sensor

▪Sensor Range:
  ▪ Accelerometer: ±2g, ±4g, ±8g, ±16g
  ▪ Gyroscope: ±125°/s, ±250°/s, ±500°/s, ±1000°/s, ±2000°/s

▪Communication Interface: I2C and SPI interface options
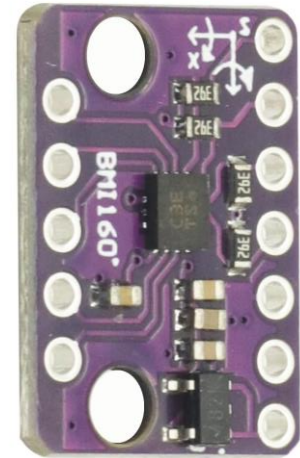
▪Operating Voltage: 1.8V to 3.6V

Fig: BMI 160

APDS-9960 (Ambient Light, Proximity, RGB, and Gesture Sensor)

- Multi-function sensor (light, proximity, RGB, gesture)

- Integrated ambient light, proximity, and gesture detection

- Provides data for color, light intensity, and gestures

- Communication Interface: I2C
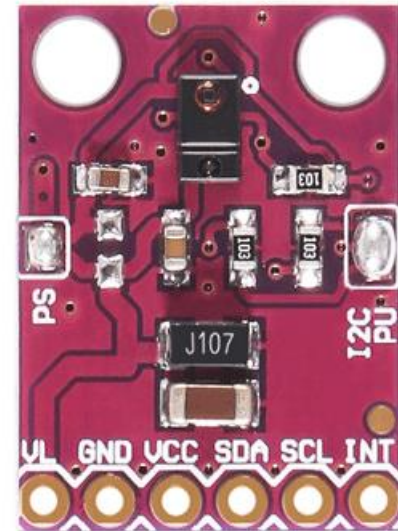
- Power Supply: 2.4V to 3.6V

Fig: APDS-9960

Jumper Wires and Micro SD Cards

- Male to Male jumpers

- Male to Female jumpers

- Female to Female jumpers

- A 64GB SD card to be used with RPI

- A 32GB SD card to be used with M5Stack

Thank You

Any Questions?