1. **Device. Acceleration Sensor Module**

Description:

The acceleration sensor module collects acceleration signal data in 3 directions to provide data for evaluating road quality. The acceleration sensor is connected with the power supply module to obtain power. And it is connected with the control module to transmit the collected data. The model of our acceleration sensor is MPU-6050, which not only includes 3-axis acceleration sensor, but also integrates 3-axis gyroscope and can communicates with MCU through IIC interface.

图形用户界面, 应用程序

描述已自动生成Block Diagram:

Pin Out and Signal Description:

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| --- | --- | --- |
| Pin Number | Pin Name | Pin Description |
| 1 | CLKIN | Optional external reference clock input. Connect to GND if unused. |
| 6 | AUX\_DA | I2C master serial data, for connecting to external sensors |
| 7 | AUX\_CL | I2C master serial clock, for connecting to external sensors |
| 8 | VLOGIC | Digital I/O supply voltage |
| 9 | AD0 | I2C Slave Address LSB (AD0) |
| 10 | REGOUT | Regulator filter capacitor connection |
| 11 | FSYNC | Frame synchronization digital input. Connect to GND if unused. |
| 12 | INT | Interrupt digital output (totem pole or open-drain) |
| 13 | VDD | Power supply voltage and Digital I/O supply voltage |
| 18 | GND | Power supply ground |
| 19,21 | RESV | Reserved. Do not connect. |
| 20 | CPOUT | Charge pump capacitor connection |
| 22 | RESV | Reserved. Do not connect. |
| 23 | SCL | I2C serial clock (SCL) |
| 24 | SDA | I2C serial data (SDA) |
| 2,3,4,5,14,  15,16,17 | NC | Not internally connected. May be used for PCB trace routing. |

Requirement & Verification:

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| --- | --- |
| Requirement | Verification |
| Control the temperature between 0 ℃ and 40 ℃ to ensure the performance of the sensor and the accuracy of measurement. | Use the temperature sensor included in the MPU-6050 to monitor whether the temperature is within the range. |
| Make sure there is enough pin space to connect the module | In the process of circuit design, consider the distribution of the pin connection between the sensor module and other modules. |