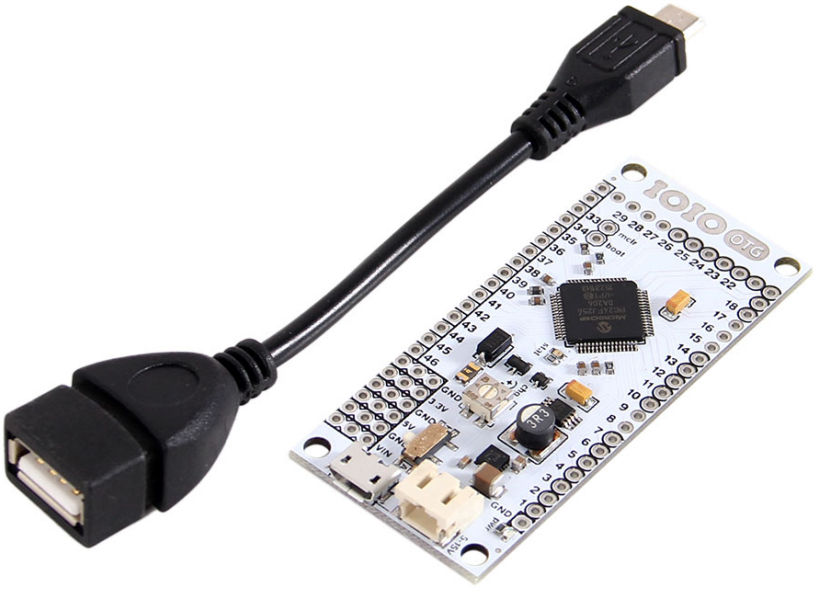
Microcontroller Board for Arduino IOIO OTG



Description:

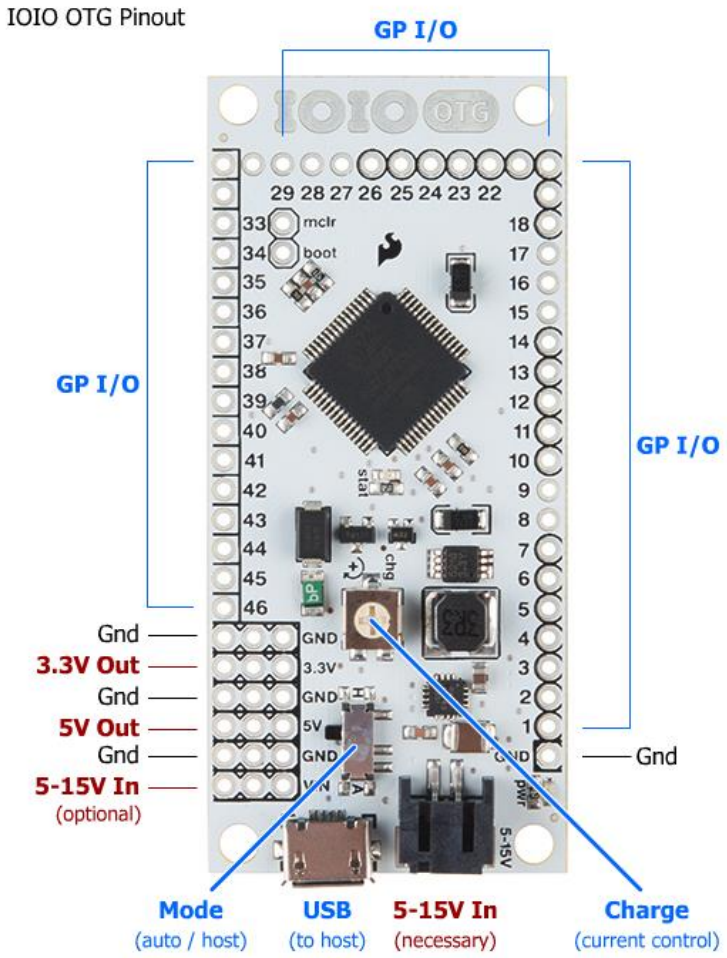
Are you a Java developer looking to add advanced hardware I/O capabilities to your Android or PC application? Well then the IOIO-OTG is for you! The IOIO-OTG (pronounced “yo-yo-O-T-G”) is a development board specially designed to do just that. It features a PIC microcontroller which acts like a bridge that connects an app on your PC or Android device to low-level peripherals like GPIO, PWM, ADC, I^2C, SPI, and UART. An app-level library helps you write control code for these low level peripherals in the same way you’d write any other Java app!

What separates the IOIO-OTG from previous IOIO boards is the ability to leverage the USB On-The-Go specification to connect as a host *or* an accessory. There are several ways to connect the IOIO to your Java app. If the app is running on your Android device, the IOIO-OTG will act as a USB host and supply charging current to your device (meaning the IOIO-OTG will need its own power source). If your app is running on a Windows, Linux or OSX machine, the IOIO-OTG will assume device mode and present itself as a virtual serial port. When in device mode, the IOIO-OTG can be powered by the host! Connecting a USB Bluetooth dongle will cause the IOIO-OTG to show up as a Bluetooth serial connection so you can go wireless!

A switch on the board can be used to force the IOIO-OTG into host mode, but most of the time the board can be left in ‘auto’ mode and it will detect its role in the connection. We’re now shipping the IOIO-OTG board loaded with the V4.02 bootloader and the V5.06 application firmware. New application firmware is frequently released, and can be upgraded without needing a programmer using the IOIODude application. Additionally, this version of the IOIO-OTG has corrected the IC power failure issue due to the on-board switch voltage regulator failing as well as adding a missing decoupling cap on the AVIN pin. This new IOIO-OTG has fixed the problems that plagued the previous version making it a true vision of how the board is intended!

The board includes a JST connector for attaching a LiPo battery and there are several pin headers broken out for voltage and ground access. A trimpot on the board allows you to adjust the charge current used when the IOIO-OTG is acting as a host. A USB-A to micro-A OTG cable is included which will let you connect your android device to the micro-USB port on the board using the cable that came with your android device.

Schematic and Pin Description:



Feature	Details	Description
USB connector	micro-AB, female	Used to connect to host computer, an Android device or a Bluetooth dongle.
Power jack	2-pin JST, female	Used for power supply to the board. Voltage between 5–15 V should be supplied.
GND pins	10 pins	Ground connection.
VIN pins	3 pins	Used for outputting the supply voltage to your circuit, or as an alternative input to the power jack.
5V pins	3 pins	5V output from the on-board regulator, which can be used in your circuit.
3.3 V pins	3 pins	3.3 V from the on-board regulator, which can be used in your circuit.
I/O pins	46 pins	General purpose I/O pins. Some have special functions, such as ADC, Input Capture, UART, PWM, Comparator or for programming the PIC MCU (ICSP).
PWR LED	red	Lights when the IOIO is getting power.
STAT LED	yellow	General purpose on-board LED, under application control.
MCLR pin		Not normally used. Its purpose is for programming new bootloader firmware on the IOIO board.
BOOT pin		Special pin used for getting the IOIO into bootloader mode on power-up. Note that this pin is shared with the stat LED.

Charge current trimmer (CHG)		Adjusts the amount of current supplied on the VBUS line of the USB when acting as a USB host. Typically used in battery-powered application with Android to prevent the Android from draining the battery quickly. Turning in the (+) direction increases charge current.
Host switch		In "A" mode, the IOIO-OTG will detect whether it should act as host or as device automatically, according to whichever USB connector is plugged in (micro-A or micro-B). To support non-standard USB cables or adapters that use micro-B type, move the switch to the "H" position to force host mode.

Applications:

The IOIO hardware and software is entirely open source, and enabled the creation of hundreds of DIY robotic projects around the world.

The board has been featured in various learning kits, which aim to help students write Android applications that can interact with the external world.

Made in China