PiGo™

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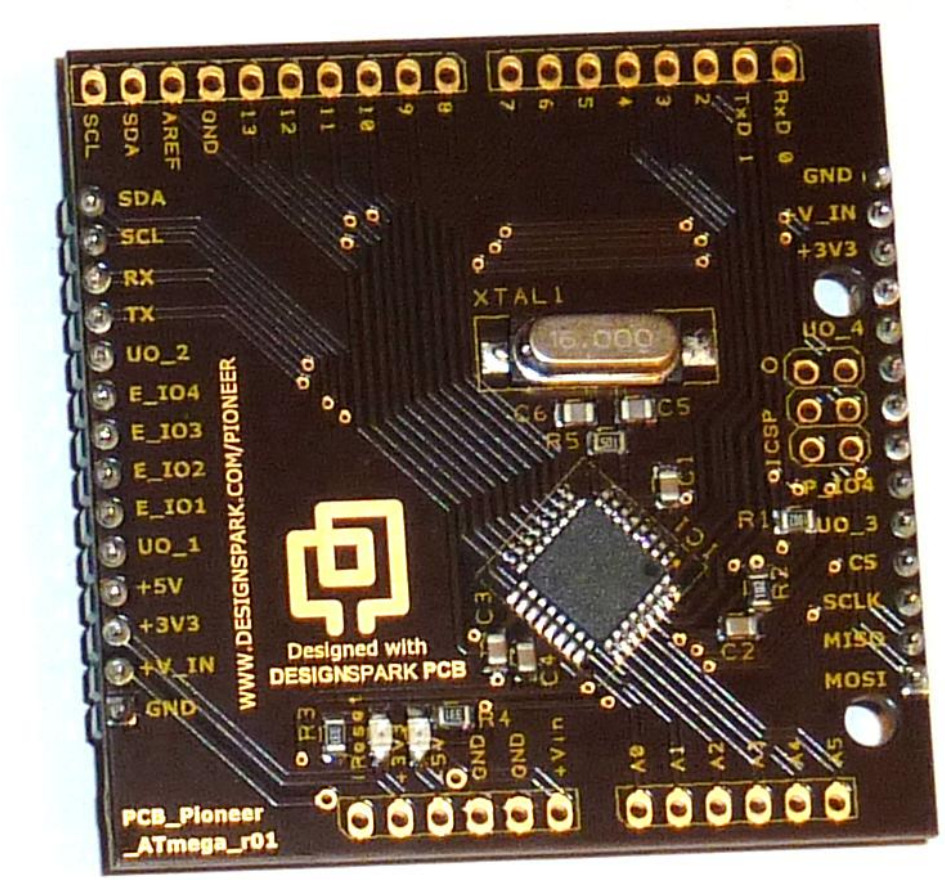
Modular Expansion System for Raspberry Pi

Arduino module

User manual

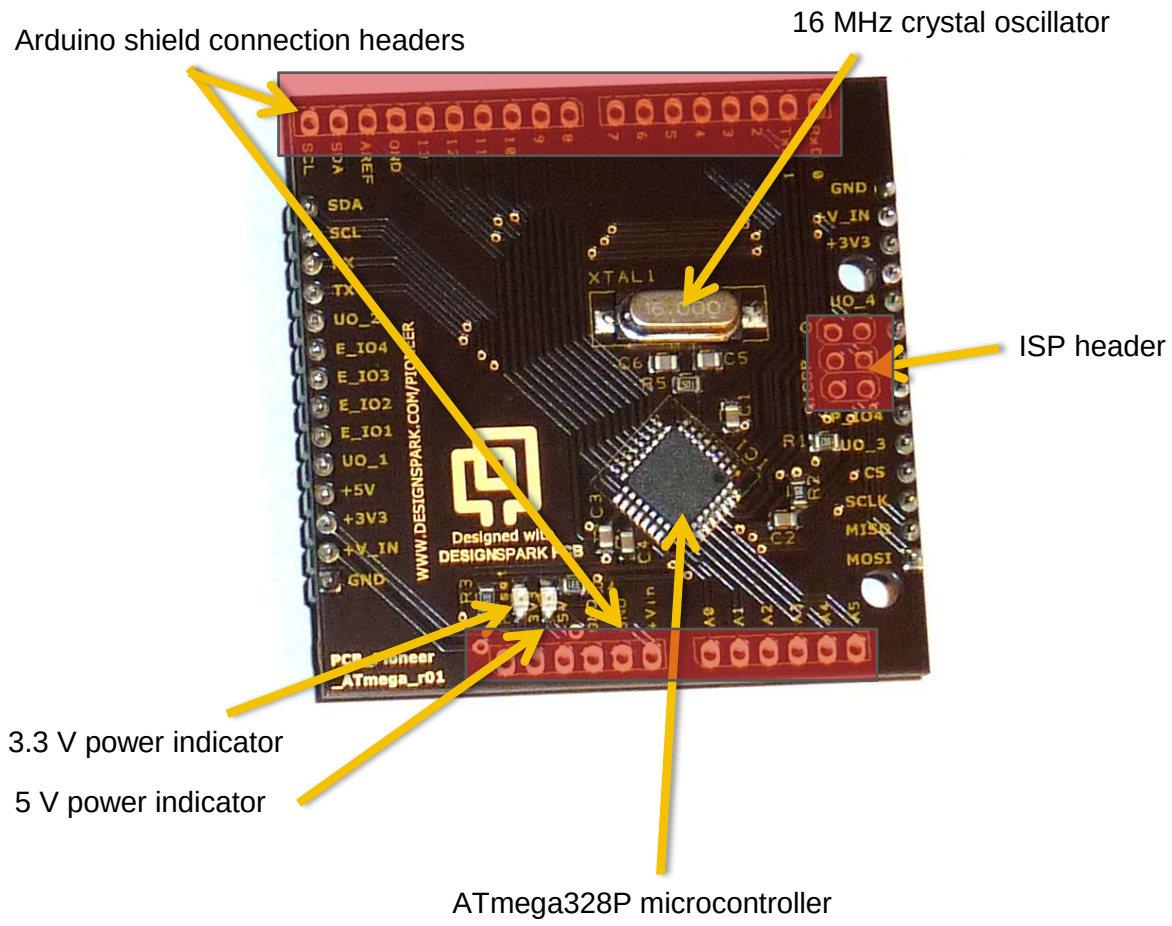


Overview

PiGo Arduino module is a module that can be attached to any of the PiGo module sockets (A, B, C or D). The PiGo Arduino module is Arduino-compatible host with ATmega328P microcontroller and Arduino shield connection headers. PiGo Arduino module is connected via I2C, SPI buses and UART to the Raspberry Pi.

Architecture and physical specification

PiGo Arduino module layout



Electrical specifications

PiGo Arduino module is powered from all available power supply voltages (3.3 V, 5V and V_{IN}), provided by the PiGo base board and uses voltage level translators on communication lines with the Raspberry board due to Raspberry being 5V-intolerant.

Using Arduino IDE from Raspberry

Important: Arduino bootloader must be installed to ATmega microcontroller on the PiGo Arduino module prior usage of the Arduino IDE.

Install Arduino IDE using the following command in the system console

```
sudo apt-get install arduino
```

In order for Arduino IDE to detect RX and TX lines of the Raspberry board being connected to PiGo Arduino module, the Raspberry's serial port device /dev/ttyAMA0 must be linked to a new device named /dev/ttyS0. This must be done on every start of the system or included in the startup script.

```
sudo ln /dev/ttyAMA0 /dev/ttyS0
```

Then, start Arduino IDE and select /dev/ttyS0 under Tools->Serial Port select.

Module connectors

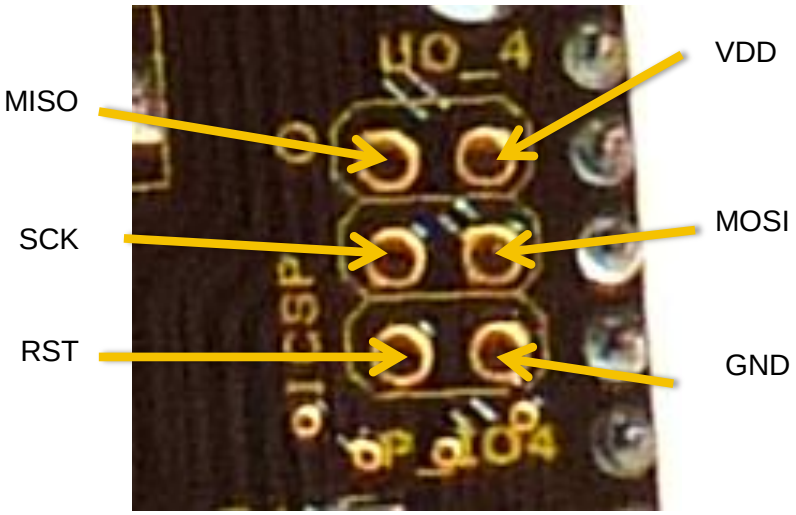
PiGo motor module can be attached to any of the PiGo module sockets (A, B, C or D). It has the following connections:

Left socket			Right socket
Pi_{SDA}	SDA	Power Supply ground	GND
Pi_{SCL}	SCL	Raspberry DC power supply	V_{IN}
Pi_{RX}	RX	3.3 V power supply	$V_{3.3\ V}$
Pi_{TX}	TX	$V_{5\ V}$ power supply	$V_{5\ V}$
$U_{IO2A/B/C/D}$	NC	NC	$U_{IO3A/B/C/D}$
EXT10/12/14/16	NC	DTR (RST)	$P_{IO1A/B/C/D}$
EXT9/11/13/15	NC	NC	$P_{IO2A/B/C/D}$
EXT2/4/6/8	NC	NC	$P_{IO3A/B/C/D}$
EXT1/3/5/7	NC	NC	$P_{IO4A/B/C/D}$
$U_{IO1A/B/C/D}$	NC	NC	$U_{IO4A/B/C/D}$
$V_{5\ V}$	Same as $V_{5\ V}$ right	SPI CS (RB2)	$CS_{A/B/C/D}$
$V_{3.3\ V}$	Same as $V_{3.3}$ V right	SPI SCLK	Pi_{SCLK}
V_{IN}	Same as V_{IN} right	SPI MISO	Pi_{MISO}
GND	Same as GND right	SPI MOSI	Pi_{MOSI}

Note: NC stands for Not Connected – this signal is not used by the module.

ISP header

There is a standard ISP header located on the PiGo Arduino module with the following pinout:



Module usage

PiGo Arduino board can be used to combine the low-level operations of the Arduino board (communicating with and driving different peripherals) with high-level operations done by the Raspberry (user interface, network connectivity, storage, …).

Frequently asked questions

None yet

Module schematics