

//SquidBee



SquidBee, the first open mote in the world.

Developed by Libelium

Notice:

- This document is just a **summary**, complete information, sources, schematics and examples can be downloaded from the URL's bellow.

URLs:

- SquidBee Project Wiki: <http://www.squidbee.org>
- Getting SquidBee: <http://squidbee.libelium.com>

Features:

- Arduino + XBee based module.
- Open source mote
- 9V battery power
- Easy programming (Arduino)
- 12 digital pin I/O
- 6 analog input pin
- 5 PWM analog output pin
- USB connection to PC (windows, linux and mac compatible)
- Wireless communication, XBee module based (ZigBee)
- Sensors
 - Temperature
 - Humidity
 - Lightness
 - Possibility to add news
- Networking topology Peer-to-peer, point-to-point, point-to-multipoint and mesh
- Addressing up to 65000 motes
- Module size 70 x 60 x 30 mm
- Enclosure size 120 x 65 x 40 mm

Technical specifications

Control module - Arduino

Processor speed	16 MHz
Flash (program) size	ATmega8 - 8kb ATmega168 - 16 kb
EEPROM	512 bytes
SRAM	1kb
Digital I / O	12
Analog I/O	6
Operating voltages	5 V - 12V

- More information www.arduino.cc

Wireless communication module

Power output	1 mW (up to 100 m) XBee 100 mW (up to 1000 m) XBee pro
RF data rate	250 kbps
Operating frequency	2.4 GHz
Operating voltages	5 V - 12V
Networking topology	Peer-to-peer, point-to-point, point-to-multipoint and mesh
Channel capacity	16 Direct Sequence Channels (software selectable)
Addressing	65,000 network addresses available for each channel

- More information www.maxstream.net

Sensors

- Temperature
- Humidity
- Light

Other sensors

Basic connection of analog sensor.

Resistive sensor → A resistor that changes its value with the magnitude to sense.

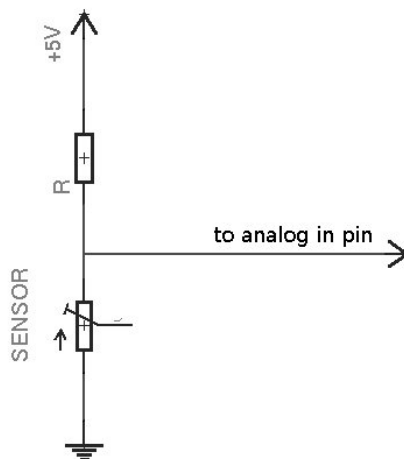


Fig 1. Connection for resistive sensor.

We call R pull-up resistor and it usually is 1 k Ω or 10 k Ω .

Analog sensor → Sensor witch output is an analog value, what means that it can get values from 0V to 5 V

We usually don't need pull-up resistor for this one and connect it directly to an analog in pin.

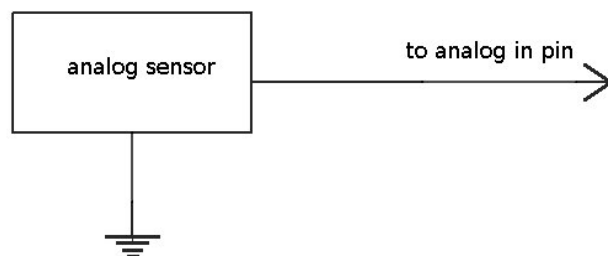


Fig 2. Connection for analog sensor without pull-up resistor.

Basic connection of digital sensor.

Digital sensor → Sensor witch output is a digital value 0 (0 V) or 1 (5 V).

If the sensor needs pull-up or pull-down resistor we connect a 1 k Ω or 10 k Ω resistor between 5 V (for pull-up) or 0 V (for pull-down).

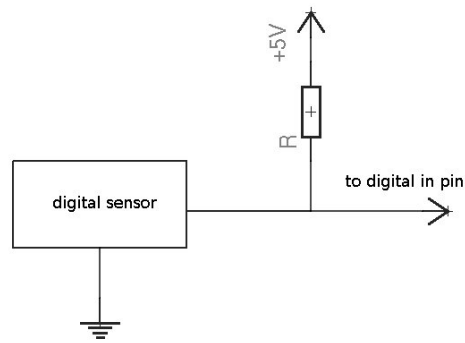


Fig 3. Connection for digital sensor with pull-up resistor.

If the sensor doesn't need pull-up or pull-down resistor we connect it directly to a digital in pin.

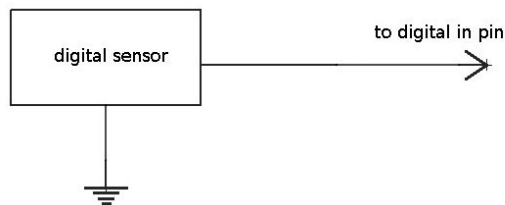


Fig 4. Connection for digital sensor.

Electronic Circuits

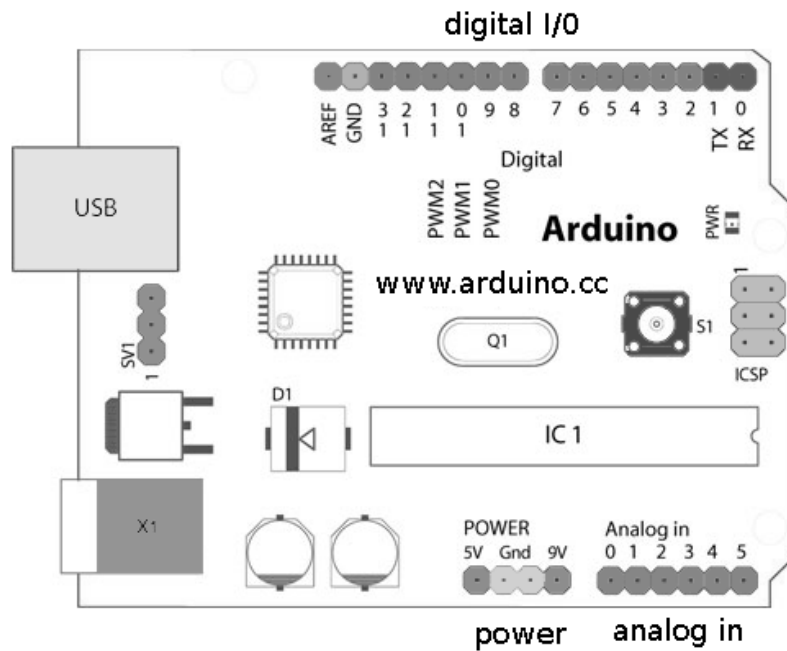


Fig 5. Arduino board.

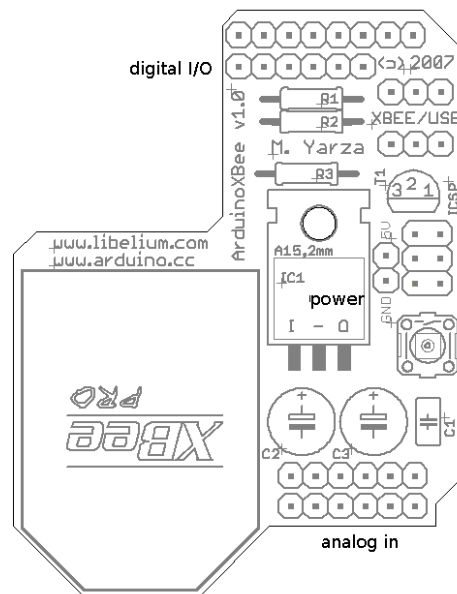


Fig 6. XBee shield.

To get the circuit schematics go to the Dowload section in: <http://www.squidbee.org>