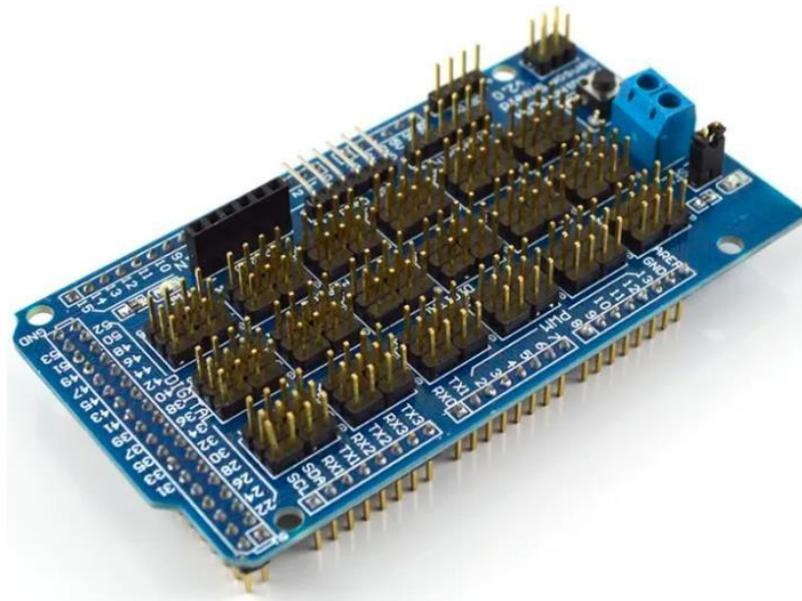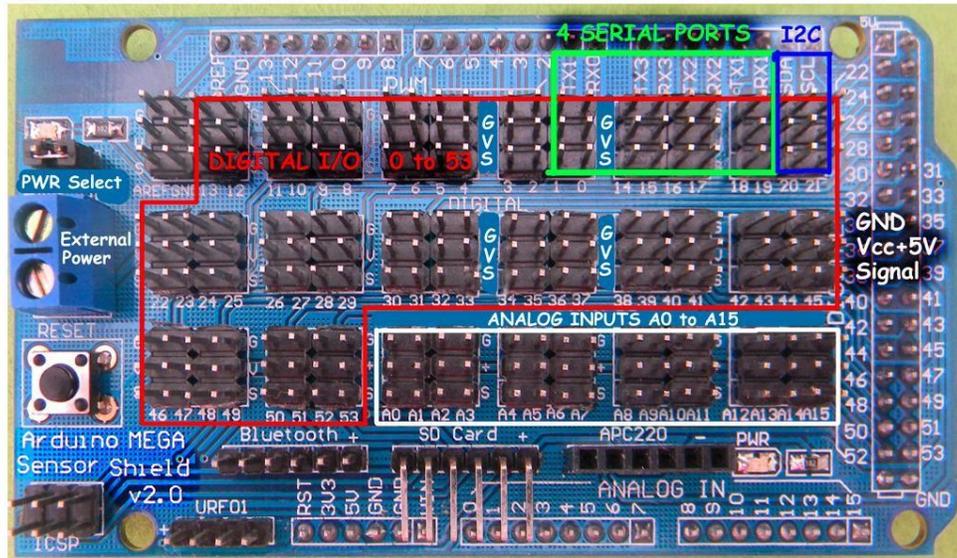# Sensor Shield For Arduino Mega

The Mega sensor shield v2.0 allows you to hoop up the sensors directly to Arduino Mega 1280, Arduino Mega 2560 or Arduino Mega ADK without the use of the breadboard.

It also expand the Mega with Bluetooth module communication interface ,SD card module communication interface, APC220 radio-frequency module communication interface, RB URF v1.1 ultrasonic sensor interface and ICSP interface. easy to use for extension.

FEATURES:

- The open-source IDE can be downloaded for free (currently for Mac OS X, Windows and Linux)
- Sensor Shield allows you to connect to various modules like sensors, servos, relays, buttons, potentiometers
- Pinout all of the Arduino digital and analog interface
- Support I2C interface
- Support 32 Servo Motor Drive Shield interface
- Support Bluetooth module communication interface
- Support SD card module communication interface
- Support APC220 wireless RF modules communication interface
- Support LCD Serial and Parallel interface
- Support kind of interfaces and can be fully compatible with Arduino Mega boards
- Size: 10cm x 5.5cm

SCHEMATIC DIAGRAM:

- The Arduino MEGA has many more I/O pins (54 Digital pins and 16 Analog pins)than a standard Arduino.
- This shield also has connectors specifically for some external devices like an SD Card, Radio communications (Bluetooth and others).
- It also has an option to power the "V" pins on all the Digital I/O 3-pin groups from an external power supply instead of the Arduino +5V. This is good for large numbers of servos etc. The "Analog" 3-pin groups still use the Arduino +5V which is better from an electrical noise perspective.
  This version has two options of +5V supply to all the "V" pins:

- Jumper on: +5 comes from the Arduino. Should be limited to about 300 ma
- Jumper off: +5 (or other appropriate voltage) comes from an external supply connected to the blue terminal strip. External power Ground must also be connected to the blue terminal strip.

  - Using an external supply allows more current than the Arduino or Mega can supply, such as current for control of many servos or relays, and other attached devices. Usually this is +5V because most external devices require it. It is possible to use +6 volts if ALL the attached devices are the same such as Servos with that rating.
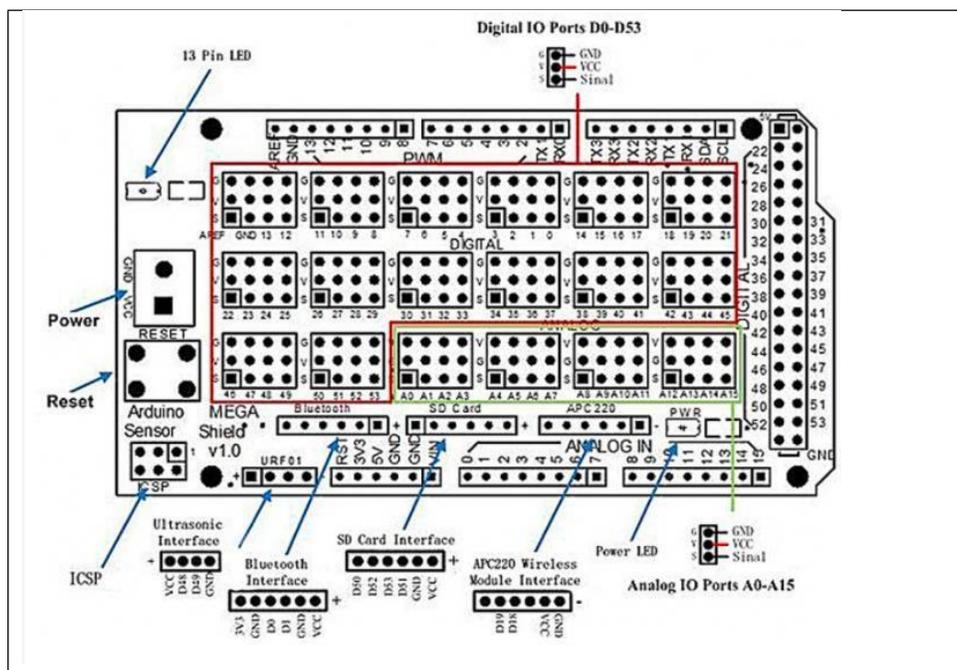
Dedicated Connectors (pins left to right, top to bottom, per above picture)

- ICSP: RST, D52/SCK, D50/MISO, GND, D51/MOSI, 5V
- Bluetooth: 3V3, GND, D0/RX0, D1/TX0, GND, 5V
- SD Card: D50/MISO, D52/SCK, D53/SS, D51/MOSI, 5V, GND
- APC220 (Wireless): --, D19/RX1, D18/TX1, --, 5V, GND
- URF01 (ultrasonic): 5V, D48, D49, GND

PIN DIAGRAM:

- Each Port has 3 pins which are connected to (Ground), (Vcc + 5 V) and (Signal). Cables normally are color coded so it know the right way to plug them in:

Pins	Color
Ground	Black
Voltage	Red
Signal	White/Yellow

- **DIGITAL I/O PINS 0 to 13:**

  These are available in the rows outlined in red above. They connect with cables to Electronic Bricks and other INPUT DEVICES and OUTPUT DEVICES.

- **ANALOG INPUT PINS A0 to A5:**

  These are available in the row outlined in white above, AND on the black "Latched" connectors labeled "Analog 0" to "Analog 5". They also connect with cables to Electronic Bricks and other input devices.

- **COMMUNICATIONS PORT:**

This connector can go to external Bricks or other devices that have more complex Communications Protocols to work with Arduino. Examples are GPS receivers, Ethernet interfaces, and other complex devices. These are 4-pin connectors.

Either SERIAL COMMUNICATIONS (COM) or "I squared C" (often written as I2C or IIC) are supported on V4. The two select jumper blocks shown above are moved to select one or the other. On V5 there are separate connectors for SERIAL and I2C Communications.