S4A EDU
Controller

Battery+ **6V - 9V** **USB**
Battery− **Input** **Mini-B**

A7 is the battery monitor
A6 is a solder tab on the rear

Power
Switch

Reset
Button

V+ Select
+Bat / +5V

S4A Functions

Analog input — A5
Analog input — A4
Analog input — A3
Analog input — A2
Analog input — A1
Analog input — A0

S4A Functions

Digital input	D2
Digital input	D3
Cont. Rot. Servo	D4
Cont. Rot. Servo	D7
Standard Servo	D8
Analog out (PWM)	D9
Digital output	D12
Digital output	D13

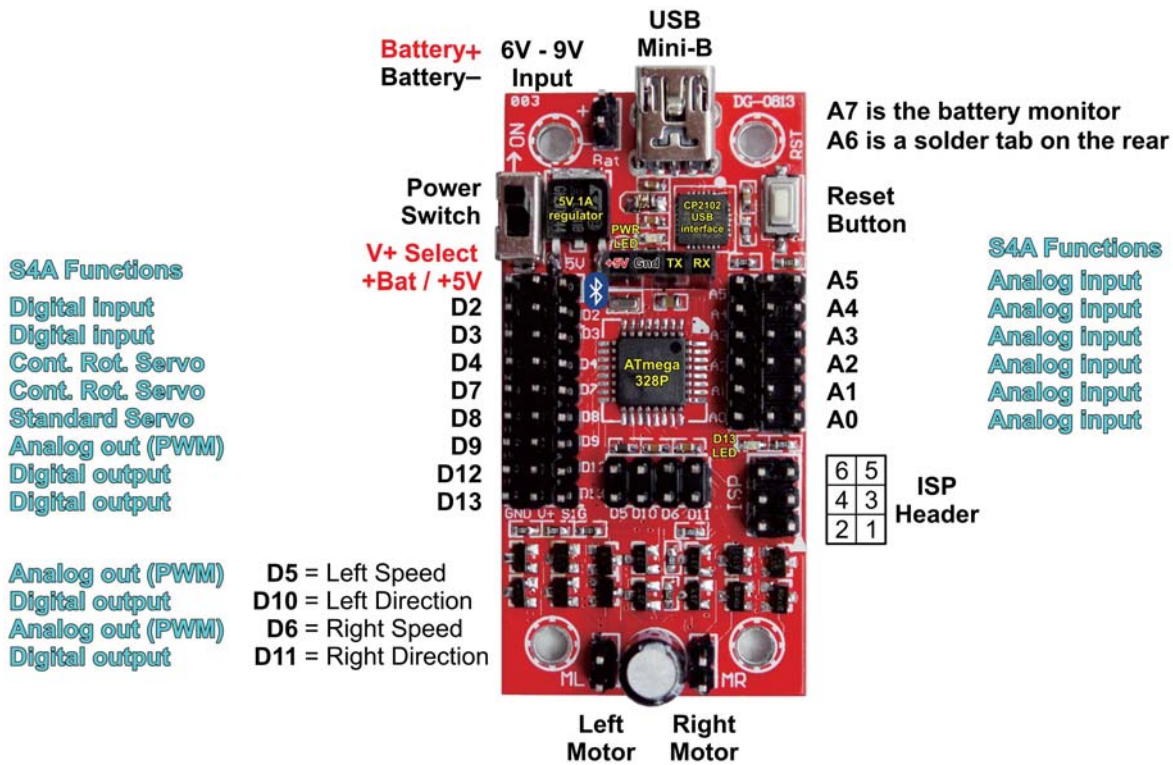|	
Analog out (PWM)	**D5** = Left Speed
Digital output	**D10** = Left Direction
Analog out (PWM)	**D6** = Right Speed
Digital output	**D11** = Right Direction

ISP Header
6 5
4 3
2 1

Left Motor   Right Motor

The S4A EDU controller is a compact, Arduino compatible board with built in dual motor drivers. Each motor output is rated for 2.5 Amps. If the motor drivers are not required then they can be disconnected by removing 4 jumpers. This allows pins D5, D6, D10 and D11 to be used for other purposes.

Most I/O pins are broken out with servo compatible 3 pin headers that can be used to supply power to your servos and sensors. The +V pins on the digital pins can be either +5V for powering digital sensors or connected directly to the battery for powering servos. The +V for the analog inputs is always +5V.

A communications header provides power and direct access to the processors RX and TX pins. This is ideal for connecting a Bluetooth, GPS or LCD module with a serial interface.

The board will work with input voltages from 6V to 9V. Reverse polarity protection prevents damage if the battery is connected the wrong way.
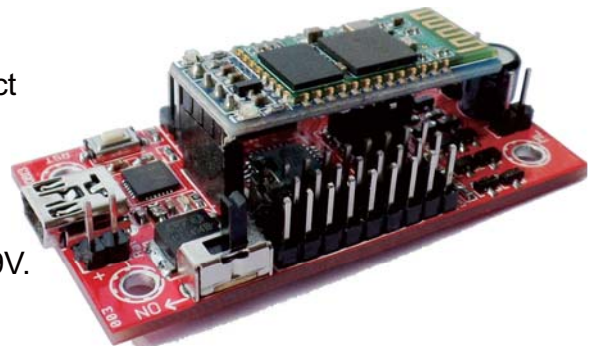
The pin configuration is compatible with S4A (Scratch for Arduino) V1.5 making this board an ideal choice for educators.

Scratch is a graphical language that allows young children to create programs by dragging blocks about on the screen. S4A is a variation that can interface with an Arduino board allowing a Scratch program to interact with the real world.
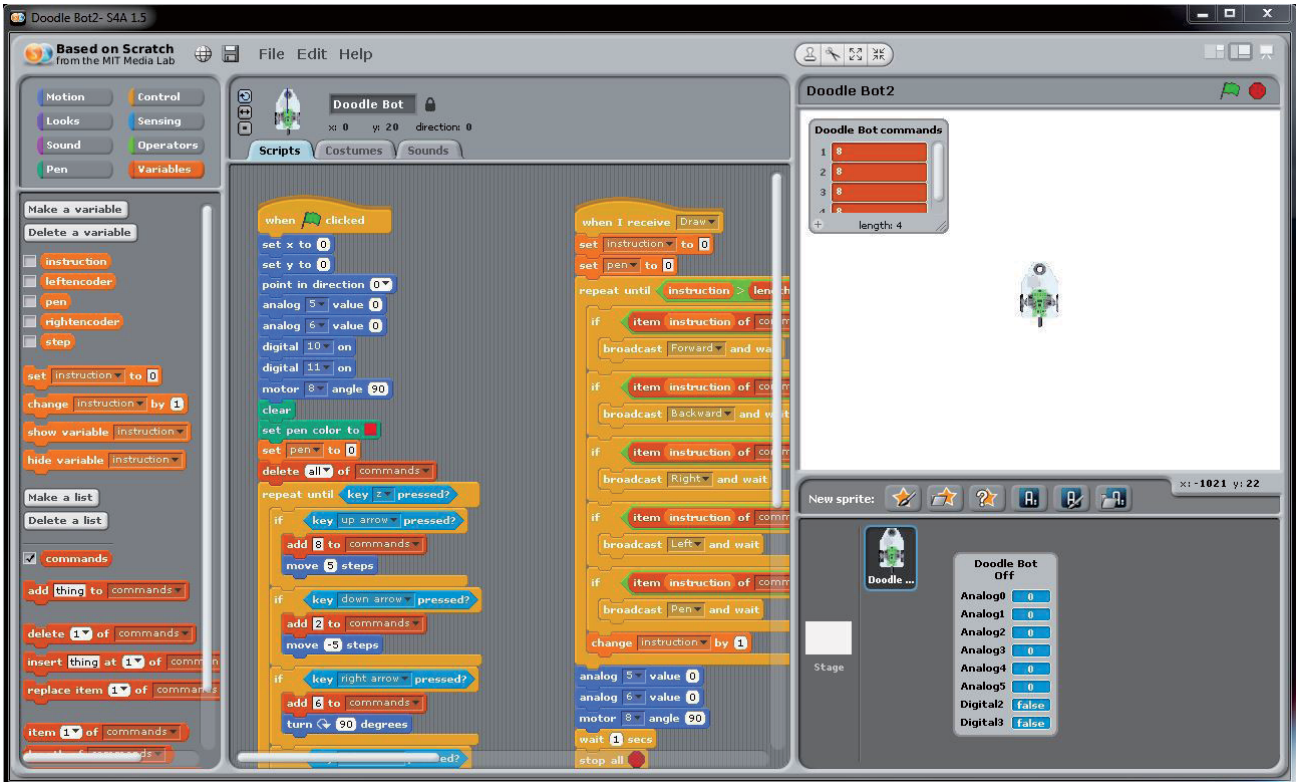
Features:

- Pin configuration is compatible with S4A (V1.5).
- Arduino Uno Bootloader.
- ATmega328P processor @ 16MHz with 32K FLASH, 2K SRAM and 1K EEPROM.
- Dual motor driver rated at 2.5A per motor.
- Motor controller pins can be isolated and used as standard digital and PWM pins.
- 6V - 9V operation with reverse polarity protection.
- Battery voltage monitor on A7.
- Serial Communications / Bluetooth header.
- CP2102 USB serial interface with Mini-B USB socket and 500mA PTC fuse.
- Built in power Switch and Reset button.
- Digital pins on servo compatible 3 pin headers with selectable voltage (+Bat. or +5V).
- Analog pins on servo compatible 3 pin headers with +5V and Gnd to power sensors.
- D13 and power LEDs.
- ISP header.
- Mounting holes are 50mm x 25mm (aprox. 2" x 1") can use 3mm or 1/8th screws.