SPLDuino User Guide

V03

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http://helloapps.azurewebsites.net

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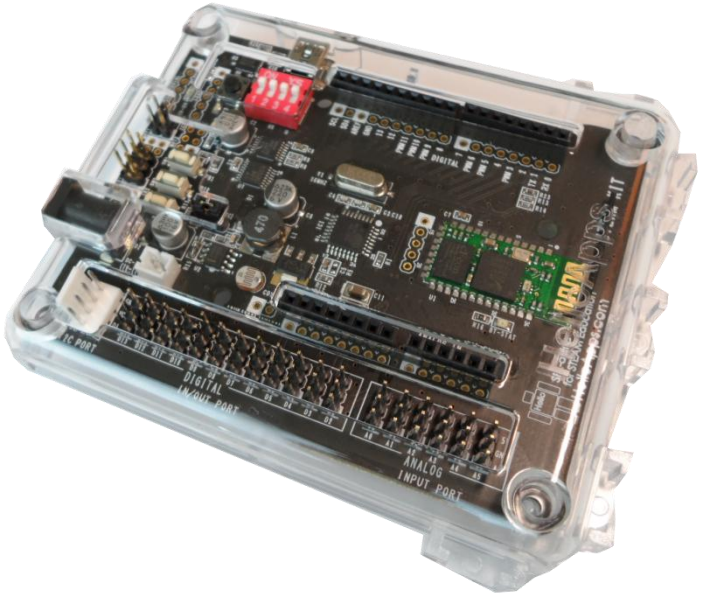
HelloApps Co., Ltd.

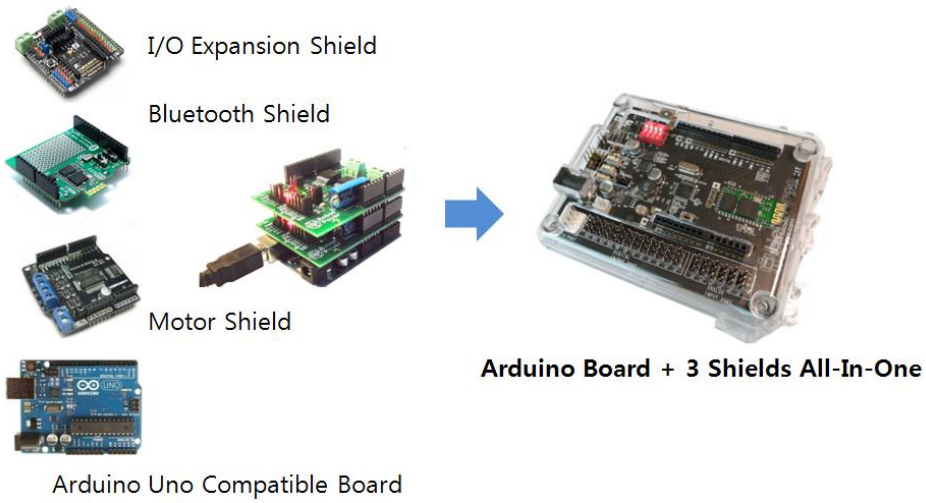
1. SPLDuino

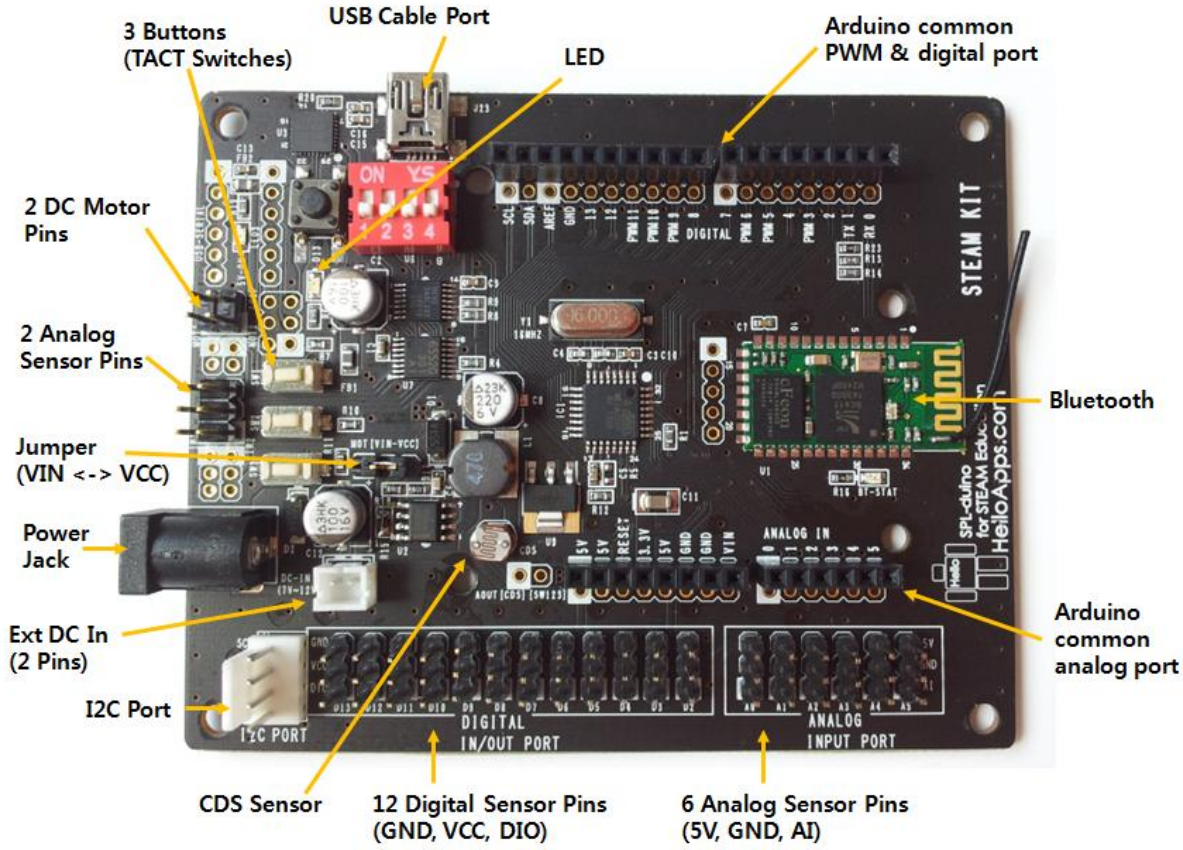
1.1 SPLDuino All-In-one Board

Available direct sensor connections without bread-board



All-In-One board for 3 shields (Bluetooth Shield + Motor Shield + IO Shield)





Features:

- Provides plastic transparent case
- CDS sensor equipped
- 3 Button sensor (3 TACT Switches) equipped
- Support Android based App (Search "SPL-Duino" from google play)

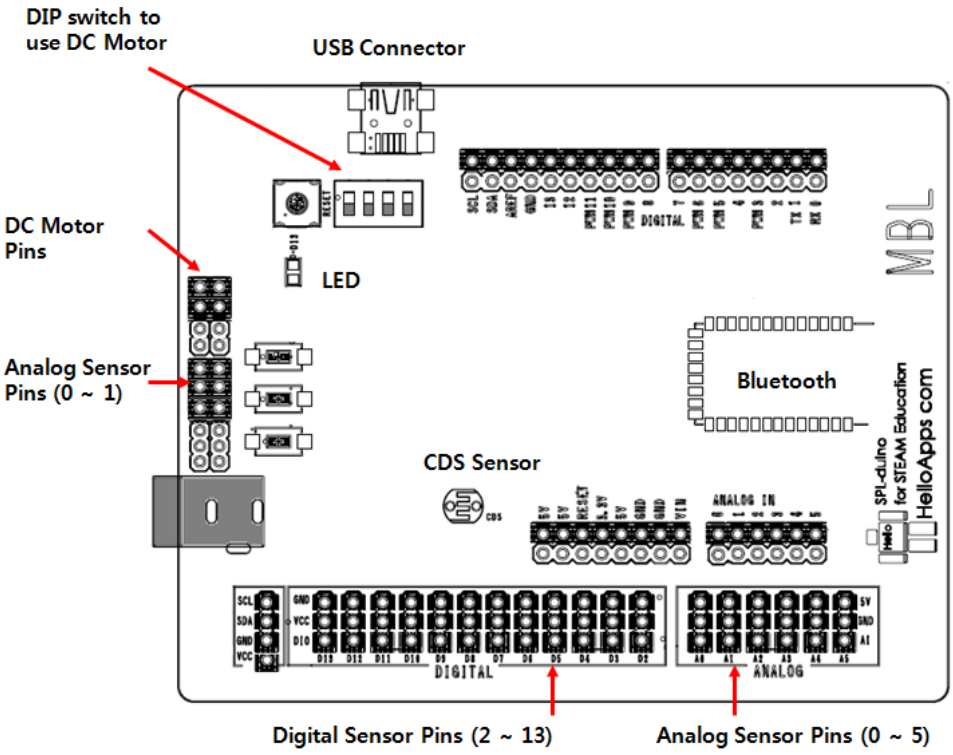
Specification:

- ATmega328 microcontroller
- Input voltage : 7-12V
- 14 Digital I/O Pins (6 PWM outputs)
- 6 Analog Inputs

- 2 DC Motor Pins
- 1 I2C Pins
- 32k Flash Memory
- 16Mhz Clock Speed
- Serial Baud rate : 115200
- Bluetooth PIN Number : 0000

S/W Supports:

- Support Arduino Sketch
- Support AVR C++
- SPL (Simple Programming Language)



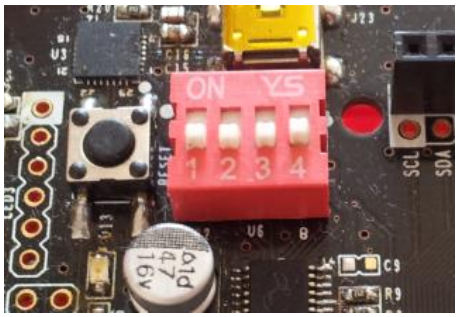
1.2 Install USB Driver

- Open below web page:
  - http://helloapps.azurewebsites.net/splduino/

- Download USB driver by click "CP210xVCP_USB_Drivers" download link.

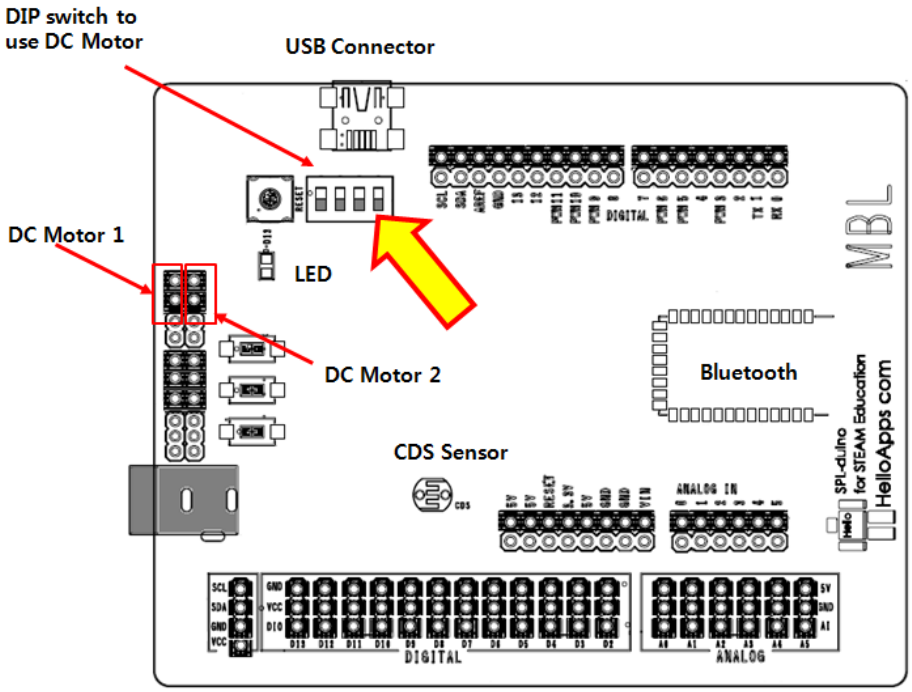
1.3 How to use DIP switch

If you want to use DC motor pin, you need to change DIP switch. In default, DIP switches are set all off as shown in below.



In this mode (Off mode), you can use SPLDuino board as below:

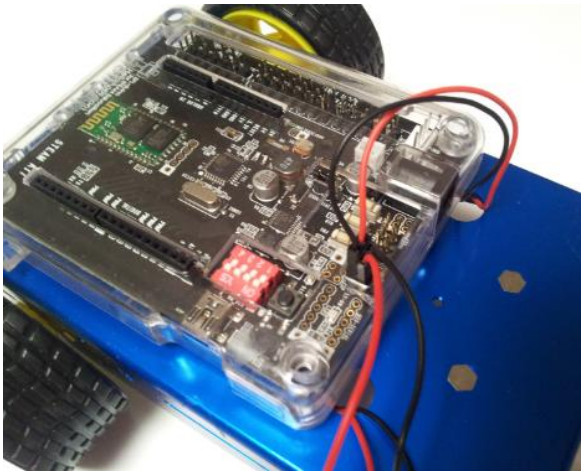
- You can use all digital and analog pins.
- You can't use DC motor pins.



If you set these DIP switch all ON, you can use SPLDuino board as below:

- You can't use digital pin 4 (Direction) and 7 (Direction).
- You can't use digital pin 5 (PWM) and 6 (PWM).
- You can use two DC motor pins (DC motor1 and motor2).

1.4 Example to use DC motor pins



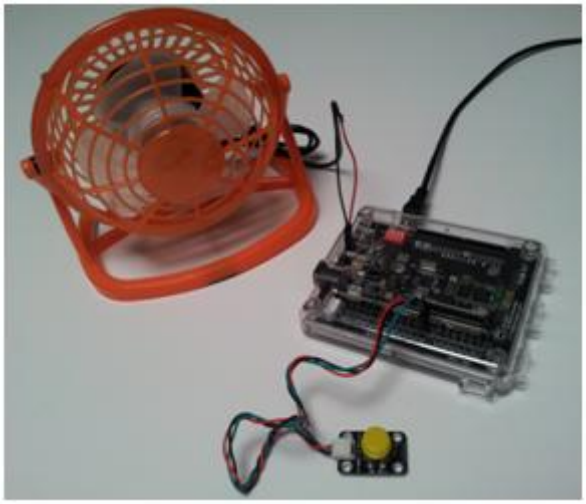
In order to use DC motor pins, you should set all DIP switch as ON. In this case, motor pins generate 0V ~ 5V power with PWM. Below codes shows how to use these two DC motor pins in order to control robot DC motors.

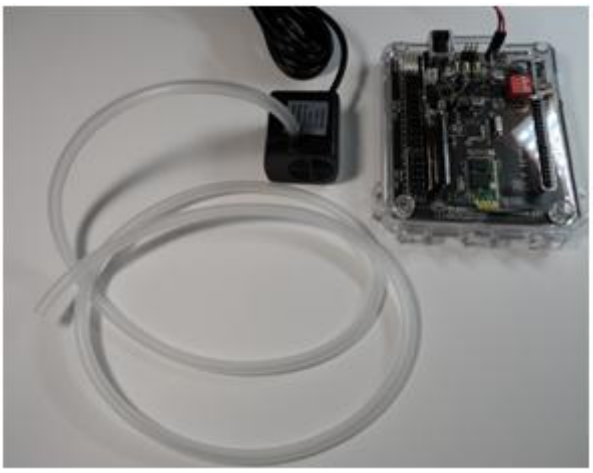
```
void Motor1Write(int power)
{
        int v = abs(power);

        if (v > 255)
                v = 255;

        if (power >= 0)
                digitalWrite(4, LOW);
        else
```

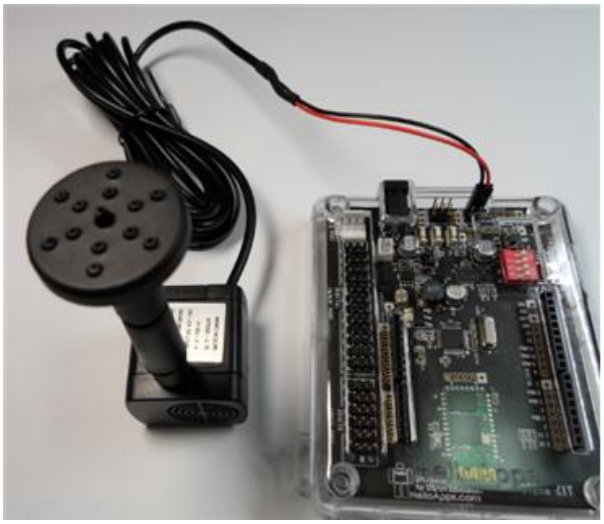
```
                digitalWrite(4, HIGH);


        analogWrite(5, v);
}

void Motor2Write(int power)
{
        int v = abs(power);

        if (v > 255)
                v = 255;

        if (power >= 0)
                digitalWrite(7, LOW);
        else
                digitalWrite(7, HIGH);

        analogWrite(6, v);
}
```

In above code, digital pin 4 and 7 are used to control direction (+ or – voltage). And digital pin 5 and 6 are used as power (PWM).

You can also use these motor pins to control small pan, light or motor pump.

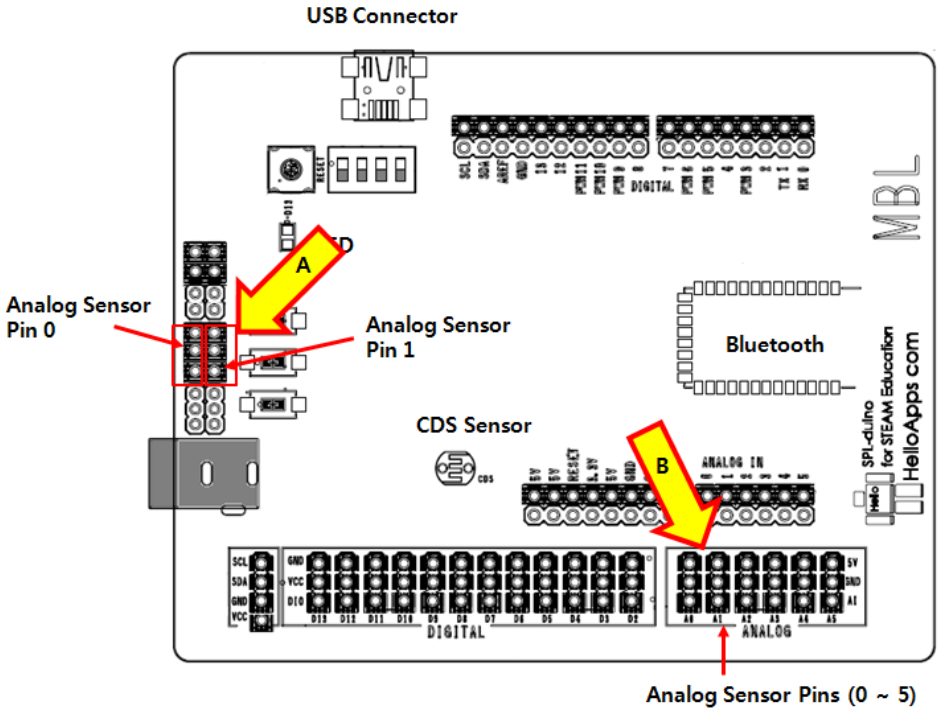






1.5 Analog Sensor Pins

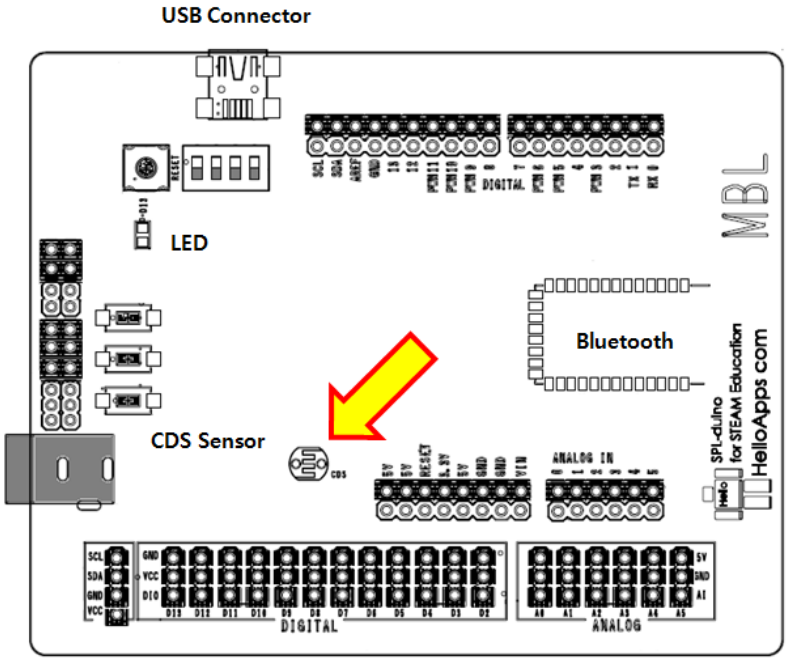
In SPLDuino board, there are two parts of analog sensor pins. These sensors pins share same pins.



Part A have analog pin 0 and 1. And part B has analog pin 0 ~ 5.

Part A's analog pin 0 is same with part B's analog pin 0. Just we made duplicated pins in order to user convenient.

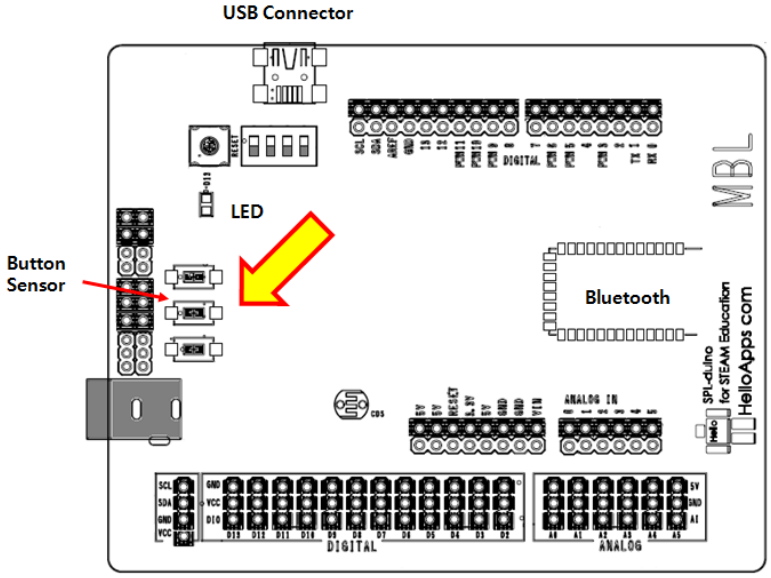
1.6 Access to CDS sensor



CDS sensor is connected to analog pin 6. To get CDS value, read from PIN 6.

```
int c = analogRead(6);
```

1.7 Access to Button sensor



3 buttons are connected to analog pin 7. To get input button value, read from PIN 7.

```
int b = analogRead(7);
```

If you print vale b with push one of buttons, you can see different value for each button.

2. Additional Information

HelloApps is going to provide more documents and samples soon. Please check HelloApps's home page later soon (Currently SPLDuino page is under construction)

- http://www.helloapps.com
- http://helloapps.azurewebsites.net
- Mail: splduino@gmail.com