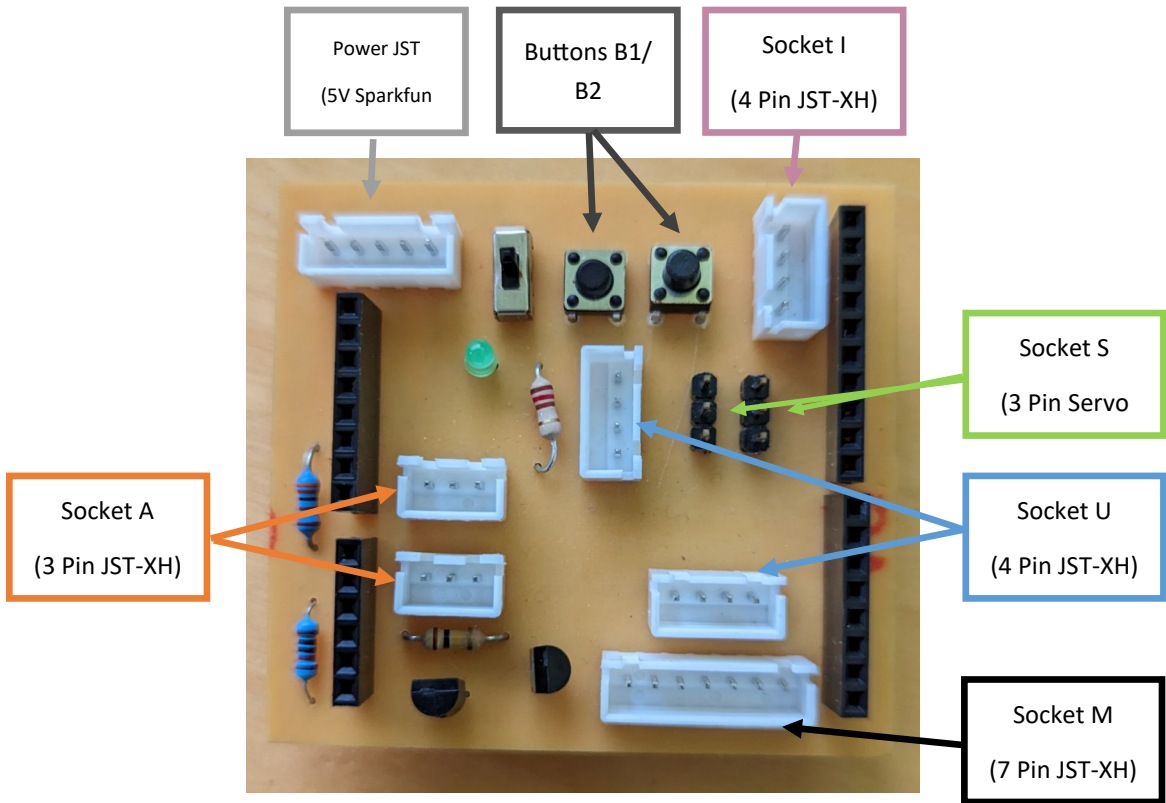


Wizibot Shield Vesc Control

It is possible to control the VESC controllers using the Wizibot shield and the seven pin motor socket. To do this we will crimp the two wires going into the VESC controllers so that they plug into the correct pins on the motor socket, this socket is labelled as socket M in the diagram below.



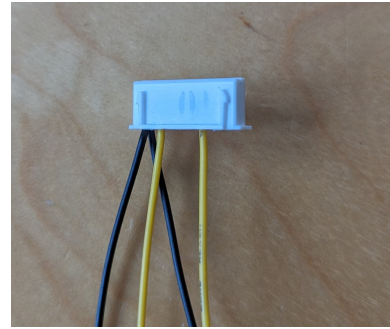
If we check the Wizibot Shield data sheet that can be found on NOW we can see that socket M has two PWM pins from the Arduino. Arduino pin ‘3~’ which can be found on the second pin of the seven pin socket and Arduino pin ‘5~’ which can be found on the fifth pin of the seven pin socket. See the table below. You will also notice that we have a ground (Gnd) pin as the first pin on the socket, both VESC’s will need to use this pin to have a common ground with the Arduino.

We can utilise these three pins to connect to the two Vesc controllers. Each VESC requires one PWM pin each

Socket Type M (Motor) - From the Datasheet

Socket	JST (Arduino)						Power	Notes
Motor	1	2	3	4	5	6	External 5V Regulator	Used for the de- signed Bug bot mo- tor board
	Gn	3~	2	5V	5~	4		
	d					5V*		
	Pin 3 – Motor A Speed							
						Pin 2 – Motor A Direction		
						Pin 4 – Motor B Direction		

Step One—Crimping the Vesc control cables



The first thing you will need is a cable to connect both the VESC controllers to the seven pin motor socket. Each vesc controller needs a ground connection and a PWM signal wire. This wire is used to set the speed on the VESC controller and will need to be connected to an Arduino PWM (~) signal pin.

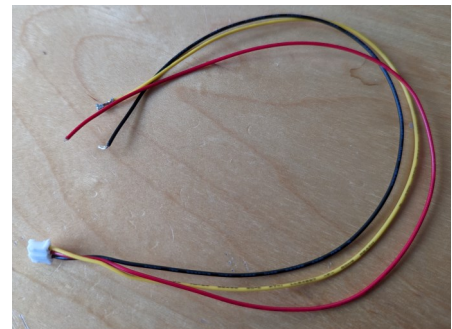
Step One

Take two VESC controller cables (from your kit). Each wire will have a red, black and yellow wire in a three pin connector as shown on the right.

The red wire is a 5 VOLT POWER SUPPLY from the VESC. We wont be using this. You can either remove the wire from the connector using tweezers or you can simply tape it away to one side using electrical tape. PLEASE DON'T CUT THIS WIRE, you may need it in the future.

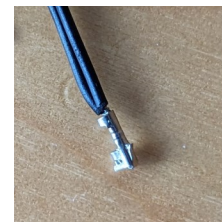
The black wire is GROUND. We will connect this wire to the ground pin on the seven pin connector. The seven pin connector only has one ground pin so we will need to join the two ground cables from both Vescs together to create a common ground.

The yellow wire is the signal wire that will receive the PWM signal to set the speed of the motor on the VESC. This will connect to one of the two PWM pins on the seven pin connector.



Step Two

Twist the two black wires together and crimp them into a crimp connector



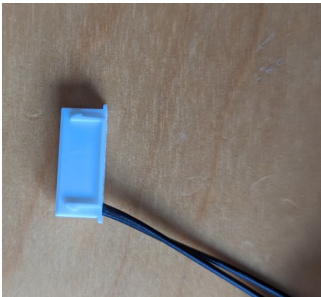
Step Three.

Crimp the two yellow wires ready to connect them to the socket

Step Four

Take a seven pin connector and place it so that the two tabs are facing upwards away from the surface of the desk

Insert the black ground wire(s) into the first socket on the left. Remember to ensure the small tab on the crimp conector ‘Clicks’ into the hole.



Step Five

Take a look at the pin out for the seven pin motor socket. You will see that the socket has two PWM (~) pins. The second wire is connected to pin 3 on the Arduino and the fifth wire is connected to pin 5 on the Arduino. We will therefore need to connect the yellow wires to these pins

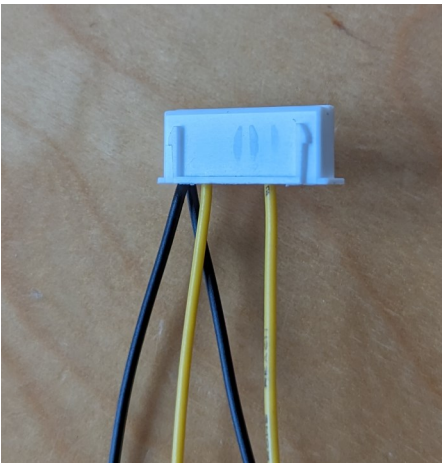
Socket	JST (<i>Arduino</i>)							Power	Notes
Motor	1	2	3	4	5	6	7	External 5V Regulator	Used for the de- signed Bug bot mo- tor board
	Gnd	3~	2	5V	5~	4	5V*		
	Pin 3 – Motor A Speed								
	Pin 2 – Motor A Direction								
	Pin 4 – Motor B Direction								

Step Six

Insert one of the yellow wires into the socket at the second wire position

Step Seven

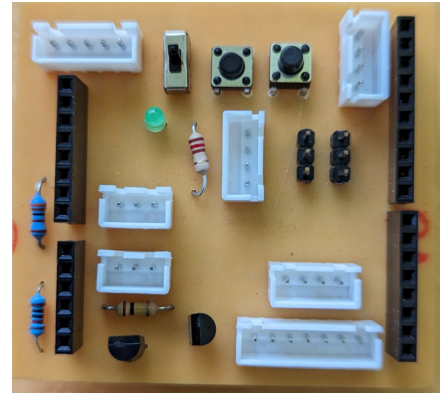
Insert the second yellow wire into the fifth wire hole on the socket



Step Eight

Your wire should look similar to the image on the right. You are now ready to plug the wire into the Wizibot shield

Step Two—Grabbing the Wizibot Vesc Controller Library



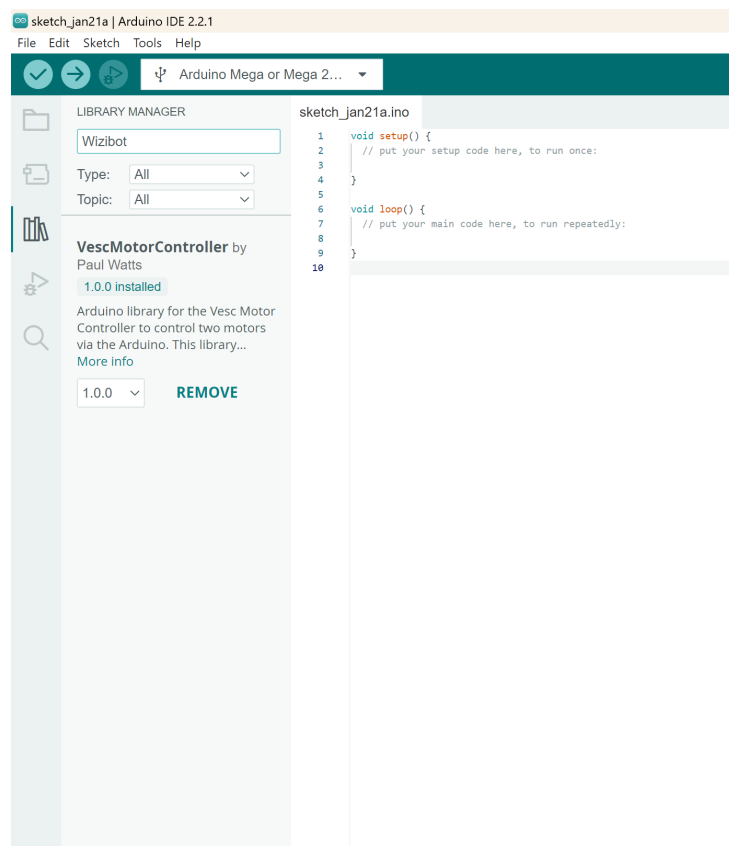
To help speed up your development I have developed a simple Arduino library to allow you to control the two Vesc controllers using the Wizibot shield. This library is available on the usual Arduino Library Manager, to find the library open the library manager tab and type 'Wizibot' into the search box. Install the library called 'VescMotorController'.

Once you have installed the library open the working example by going to file menu and finding the example that came with the library

File —> Examples —> VescMotorController —> Basic_demo

Before you run the example using your shield comment out the line below. (This is the code you would use if you weren't using the Wizibot shield)

```
_motorController.init(3, 5);
```



Run up the code and hopefully both motors will run the demo code.

Important

1. Make sure your motors are mounted off the surface of the desk so that they don't drive off.
2. Each VESC will need its own battery to power its respective motor

Advanced

The source code can be found on Github should you wish to modify this library

[PaulNTU/Wizibot_VescMotorController: Vesc motor controller for Arduino and the Wizibot Arduino Shield \(github.com\)](https://github.com/PaulNTU/Wizibot_VescMotorController)