

Smart-DPV Gateway



Assembling instructions

The Radio Gateway is the next version of our motor controller. With it, no need to have a computer connected with a USB cable to configure or change the settings on the controller. It acts as a wifi access point and any smart phone can be used, no special application needed, just use your usual web browser.

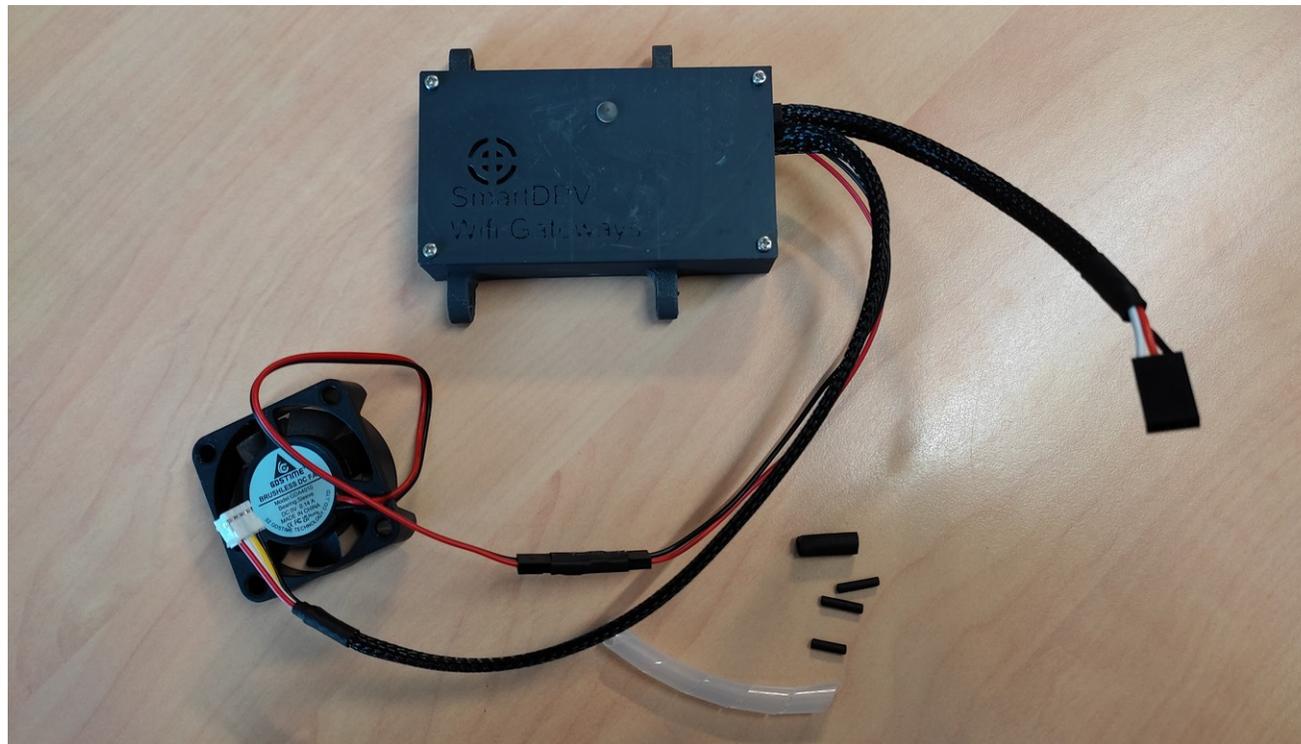
It comes in a small external box and needs no special tools to be installed.

You will need: a small Phillips screwdriver, small cutting pliers and a heat gun (or a soldering iron)

Inside the packet sent you will have the Gateway with its fan attached, 3 little heat-shrink tubes, a bigger one and a piece of spiral wrap.

The Gateway comes with a SD-card and is already configured for the scooter you specified.

The first part of the manual deals with the hardware setup, the second part is about parameters configurations.



DISCLAIMER

Smart-DPV is not responsible for any damage you might do to the controller during the assembling process.

We have tested this procedure and believe that anyone with minimum skills can achieve this without problems.

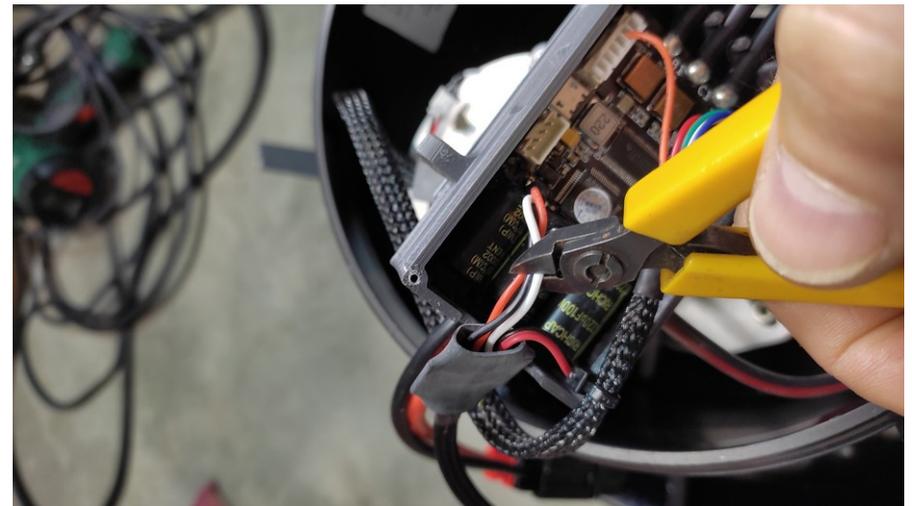
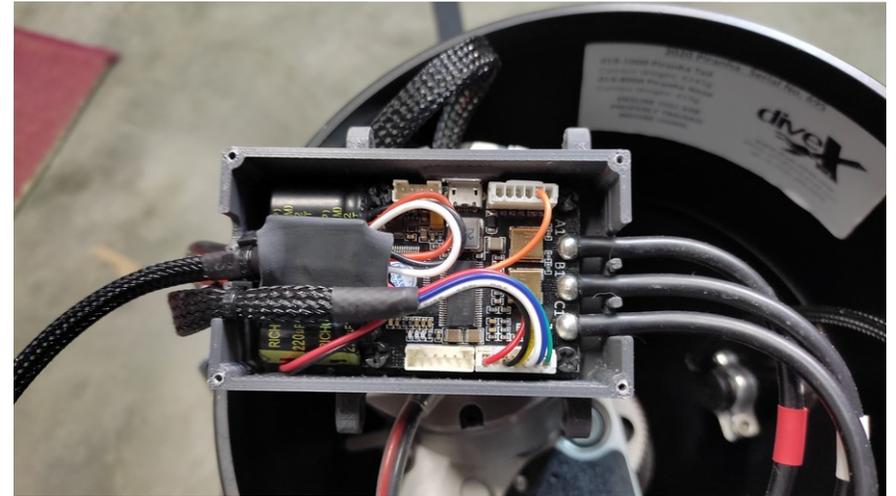
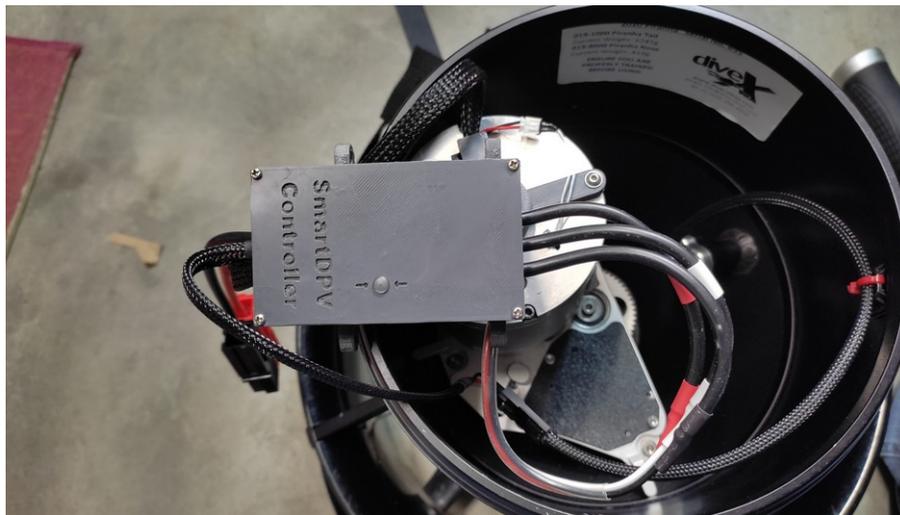
If you feel you won't be able to do it, please ask a friend.

If you have any question or doubt, please contact us, we will be happy to help you.

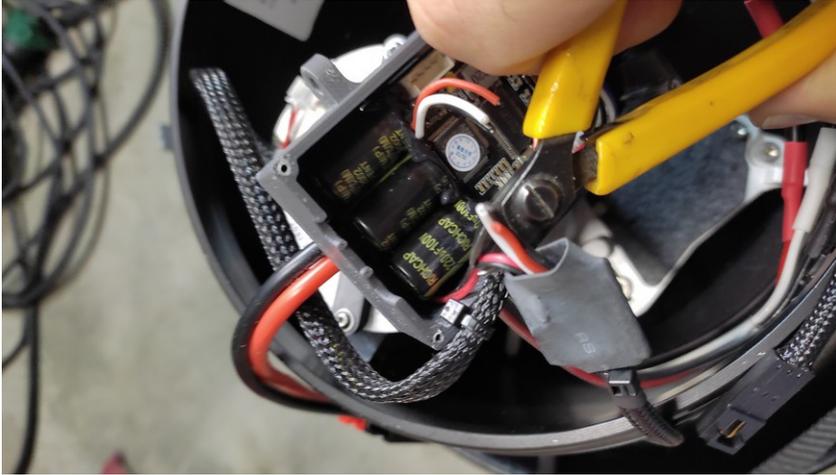
- Open the box. On older models (top) it is glued with tape, on newer models there are 4 screws.



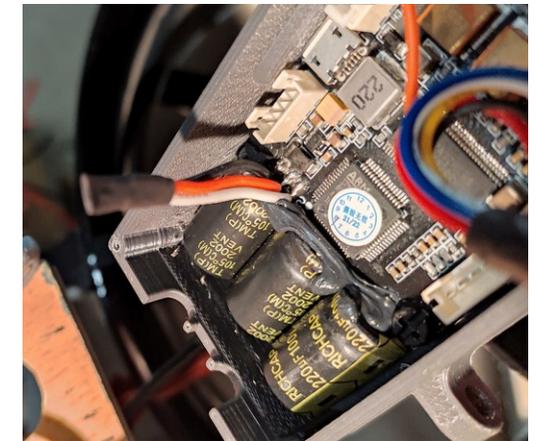
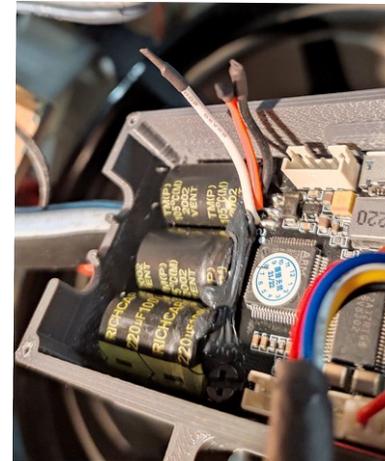
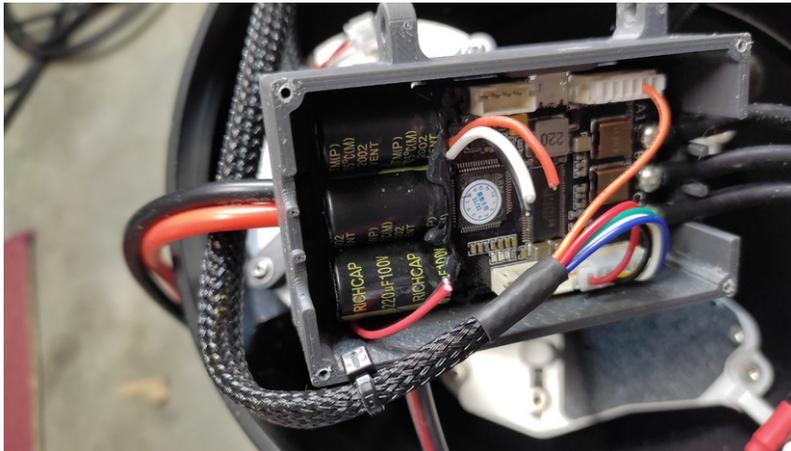
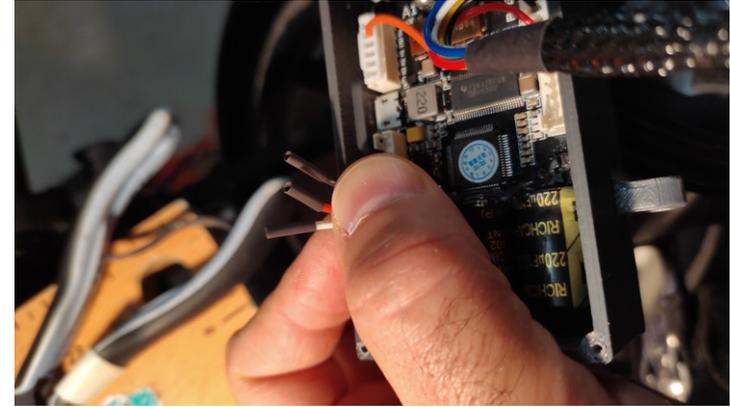
- With a small cutting pliers cut the three trigger wires (red, black, white). Here with the ACS but it's the same without ACS.



- Cut the two fan wires if you have the ACS fitted



- Protect the 3 trigger cables with the small heat-shrink tubes. Put the bigger tube on top. You can replace the tubes by some electrical tape

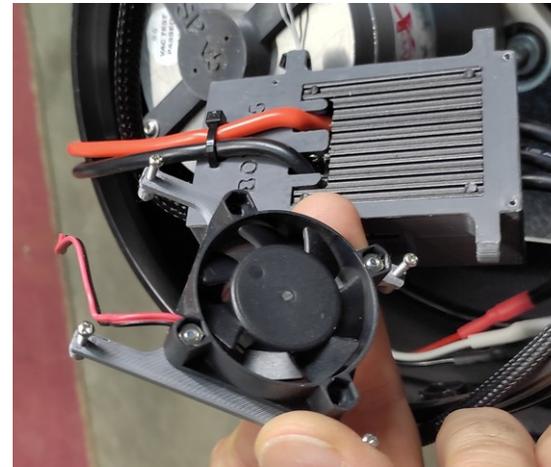
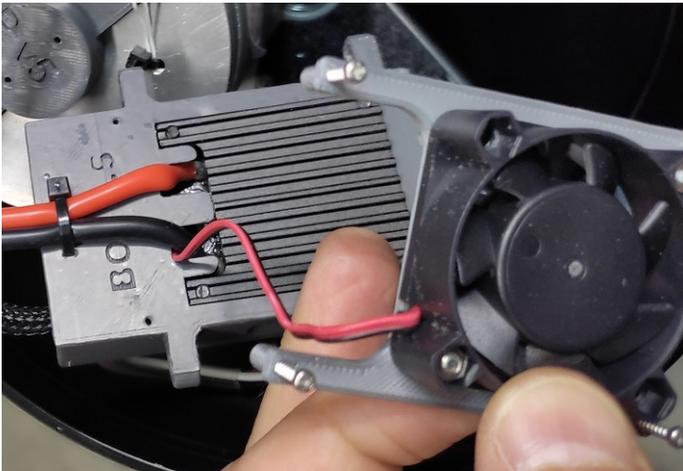
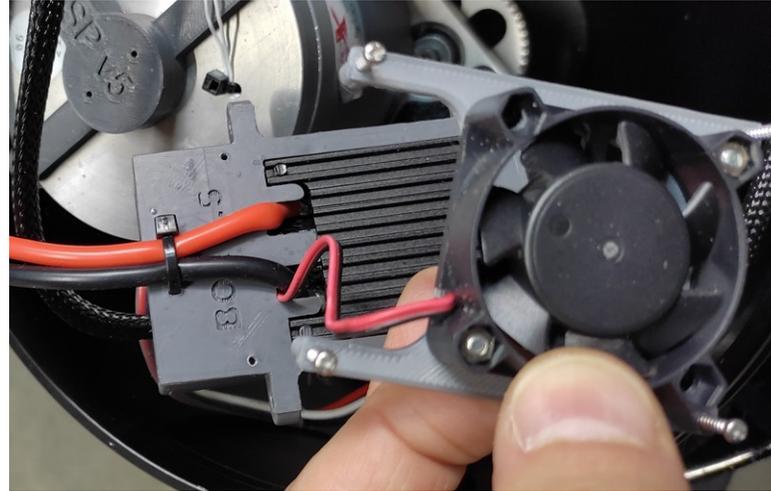


If this steps are out of your skills you can omit them and leave the cable, just don't use it.

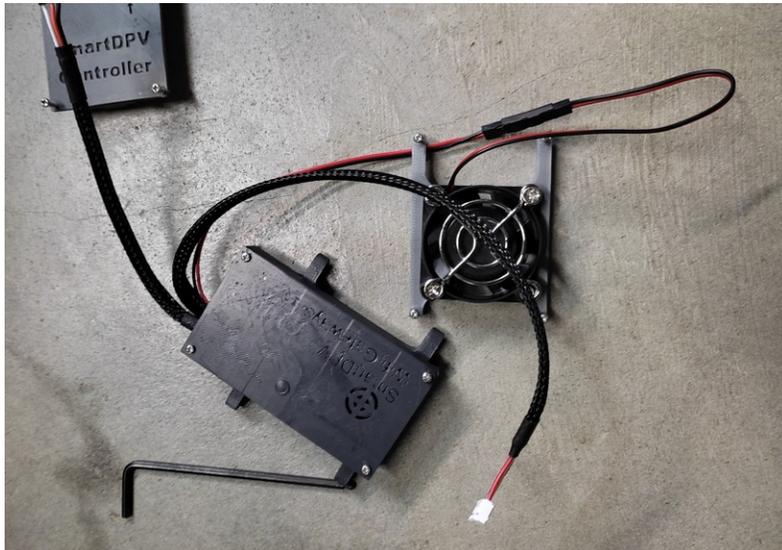
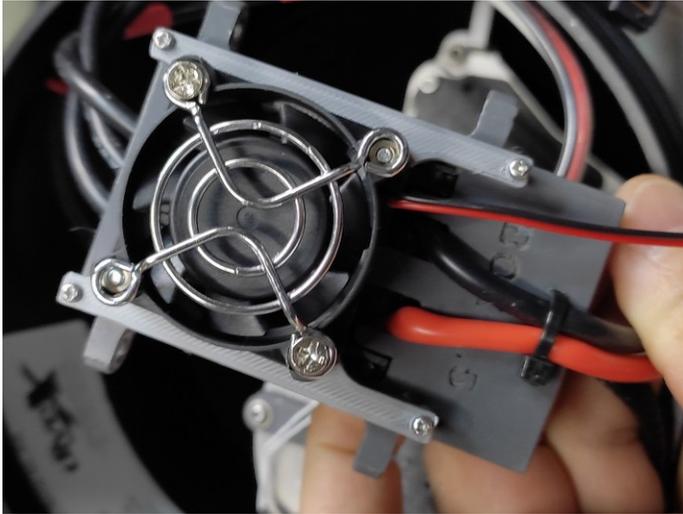
- Remove the fan (you may need to remove the fan plate)



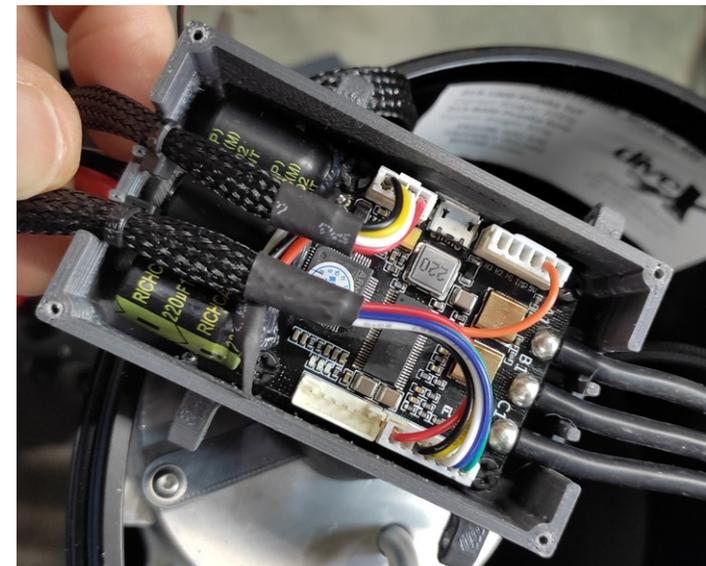
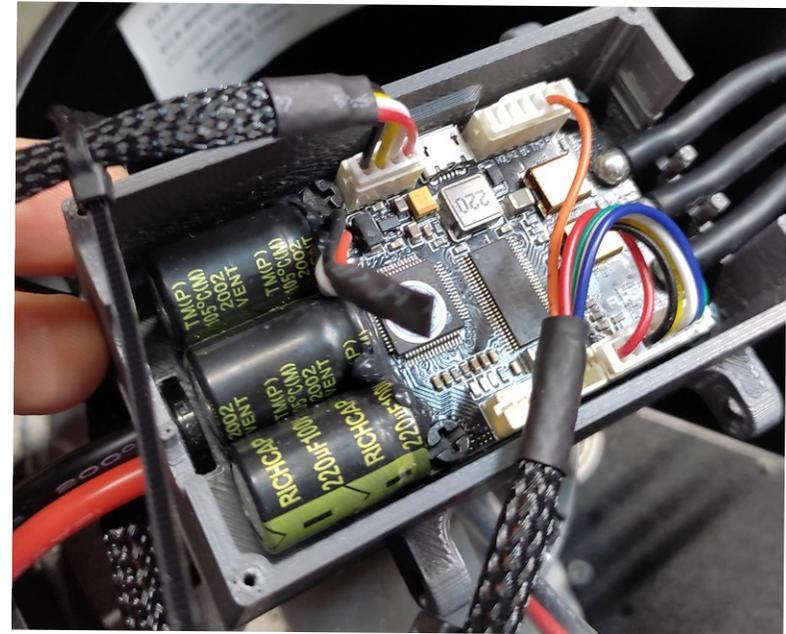
- Pull on the fan wires or cut them if it's too hard



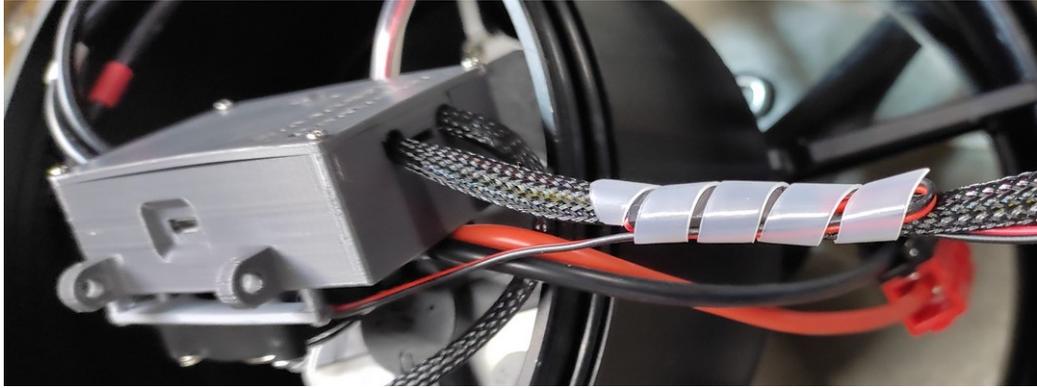
- Mount the provided fan on the plate, put back the protection grid



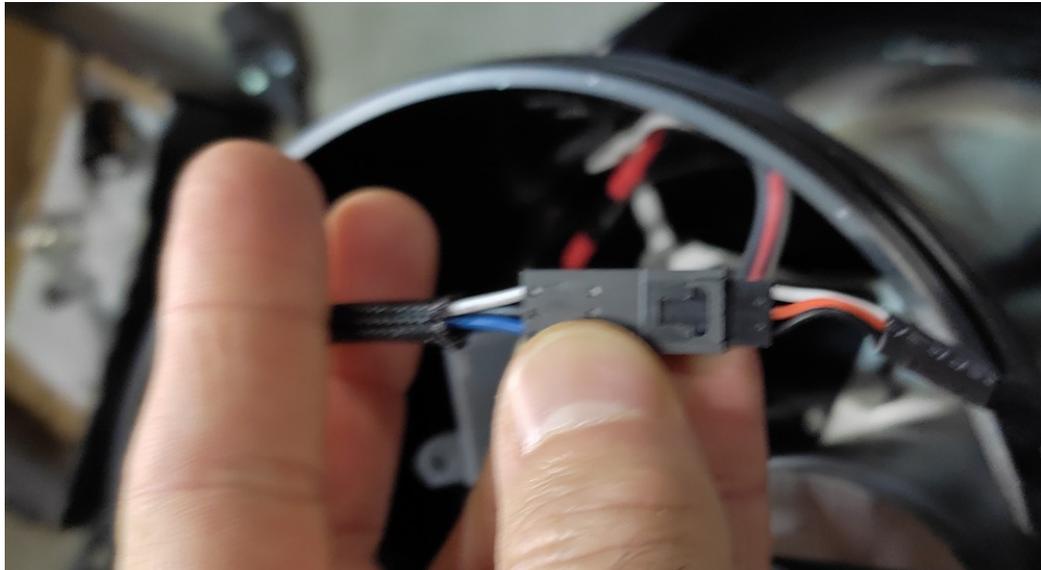
- Connect the 4 pins connector on the controller board



- Close the box and secure the fan cable



- Reconnect the trigger connector, white on white



- The old trigger cable, the fan and the ACS board must be properly disposed.
- The hardware installation is done, now it's time to setup the gateway but before, the controller must be flashed to a new firmware. Insert the SD-Card into your computer and you will find a directory named **VESC** with two files, **SmartDPV_FW_Vesc4_5.3.sfw** and **SmartDPV_FW_Vesc6_5.3.sfw**.

If you have a Smart-DPV controller V1 then copy the file **SmartDPV_FW_Vesc4_5.3.sfw** in the root directory of the card. Insert the card into the Gateway, connect the battery and wait for a few minutes for the process to complete, then unplug and plug the power.

- Alternatively, you can use the Desktop application to flash the controller :
 - copy the ***SmartDPV_FW_Vesc4_5.3.sfw*** from the SD-Card to your computer and rename it to ***SmartDPV_FW_Vesc4_5.3.sfw.bin***
 - Launch the Desktop application and connect the controller.
 - Go to the firmware tab and select the ***SmartDPV_FW_Vesc4_5.3.sfw.bin*** to upload to the controller.
 - The controller will disconnect and you will be able to reconnect it shortly after
 - An error message should appear warning you that the firmware version is not recognized by the Desktop application. This is a good sign that the firmware is correctly flashed.
You can check that the new firmware has version 5.3 on the screen

- Once power is on, the Gateway will play a little tune and a Wifi network will show on your phone/computer : **SmartDPV_XXXX** (it can be later renamed).
- On your phone : connect to this Wifi network and you can start configuring the Gateway.
- On your computer : enter this URL in your browser, <http://192.168.4.1/>, and you will see this page.

The screenshot shows the SmartDPV web dashboard. At the top, there is a navigation menu with 'SmartDPV', 'Dashboard', 'Setup', 'Motor', 'SD Card', and 'System'. On the right side of the header, there are status indicators for 'Wifi', 'Vesc', 'Piranha', and 'SD Card'. A prominent red warning banner at the top center states: 'Motor is not properly configured : please click on "Setup Motor" button.' with a blue 'Fix it' button. Below the warning, there are three main data panels: 'Battery', 'Motor', and 'Controller'. Each panel lists various metrics with their units. At the bottom of the dashboard, there is a 'Position sensor diagnosis' section with a toggle switch and a progress bar. The footer contains the copyright notice '© 2021 SmartDPV' and a 'Back to top' link.

Battery		
Voltage	-	V
Instant Current	-	Ah
Total Current	-	A
Total Power	-	W

Motor		
Temperature	-	°C
Instant Current	-	A
RPM	-	rpm

Controller		
Temperature	-	°C
Speed	-	
Throttle	-	%
Duty Cycle	-	%

Position sensor diagnosis

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- If you click on the Position Sensor Diagnosis button then you will see a progression bar moving when you rotate the propeller. Click once more to stop.
- If there are any error messages they will show up in a pink box.
- Battery, Motor and Controller parameters will show if the communication with the controller is OK.
- When everything is configured, all the labels in the upper right corner will become green

The screenshot shows the SmartDPV dashboard interface. At the top, there is a navigation bar with 'SmartDPV', 'Dashboard', 'Setup', 'Motor', 'SD Card', and 'System'. On the right side of the navigation bar, there are status indicators for 'Wifi', 'Vesc', 'Piranha', and 'SD Card'. Below the navigation bar, a pink error message box states: 'Motor is not properly configured : please click on "Setup Motor" button.' with a 'Fix it' button. The main content area is divided into three columns: 'Battery', 'Motor', and 'Controller'. Each column contains a list of parameters and their units. Below these columns, there is a 'Position sensor diagnosis' section with a toggle switch and a progress bar. At the bottom of the dashboard, there is a copyright notice '© 2021 SmartDPV' and a 'Back to top' link.

SmartDPV Dashboard Setup Motor SD Card System Wifi Vesc Piranha SD Card

• Motor is not properly configured : please click on "Setup Motor" button. [Fix it](#)

Battery		Motor		Controller	
Voltage	- V	Temperature	- °C	Temperature	- °C
Instant Current	- Ah	Instant Current	- A	Speed	-
Total Current	- A	RPM	- rpm	Throttle	- %
Total Power	- W			Duty Cycle	- %

Position sensor diagnosis

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- The next step is the Position Sensor Calibration. Just click on Start Calibration, take your hands off the propeller and wait for completion.
- Click on Save to store the calibration.

SmartDPV Dashboard Setup **Motor** SD Card System Wifi Vesc Piranha SD Card

• Motor is not calibrated. Please launch the calibration process. [Fix it](#)

[Reload settings](#) [Save](#) [Setup motor](#)

Battery

Battery Slow Start	<input type="text" value="10,00"/>	Battery Cutoff	<input type="text" value="8,00"/>
Battery Min Voltage	<input type="text" value="8,00"/>	Battery Max Voltage	<input type="text" value="57,00"/>
Battery Charged Voltage	<input type="text" value="42,00"/>		
Battery settings helper	<input type="text" value="Select a battery type"/>	Apply	

Temperature

Motor temp. slow	<input type="text" value="75,00"/>	Motor temp. stop	<input type="text" value="90,00"/>
Controller temp. slow	<input type="text" value="85,00"/>	Controller temp. stop	<input type="text" value="100,00"/>

Motor

Motor direction Invert

Position sensor

[Start calibration](#) Offset Ratio Invert

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- If everything is OK then the error message should disappear and you can then select the battery type you are using.
- Click on Save to store setting.
- If your battery is not listed then you can enter manually the parameters. All parameters are explained on the support page at www.smart-dpv.com

The screenshot displays the SmartDPV web interface with the following elements:

- Navigation Bar:** SmartDPV | Dashboard | Setup | Motor | SD Card | System. Status indicators: Wifi, Vesc, Piranha, SD Card.
- Buttons:** Reload settings (teal), Save (blue), Setup motor (green).
- Battery Section:**
 - Battery Slow Start: 31,00
 - Battery Cutoff: 30,00
 - Battery Min Voltage: 8,00
 - Battery Max Voltage: 50,00
 - Battery Charged Voltage: 42,00
 - Battery settings helper: Select a battery type (dropdown)
 - Apply (blue button)
- Temperature Section:**
 - Motor temp. slow: 75,00
 - Motor temp. stop: 90,00
 - Controller temp. slow: 85,00
 - Controller temp. stop: 100,00
- Motor Section:**
 - Motor direction: Invert
- Position sensor Section:**
 - Start calibration (blue button)
 - Offset: 164,80
 - Ratio: 4,00
 - Invert
- Footer:** © 2021 SmartDPV | [Back to top](#)

- In the Setup page you can choose to rename the Wifi name, connect to your home network and set the real-time clock.
- You can also check that communication with the controller is OK

The screenshot shows the SmartDPV Setup page. At the top, there is a navigation bar with 'SmartDPV', 'Dashboard', 'Setup', 'Motor', 'SD Card', and 'System'. On the right, there are status indicators for 'Wifi', 'Vesc', 'Piranha', and 'SD Card'. A red notification banner at the top center states: 'Motor is not calibrated. Please launch the calibration process. Fix it'. Below this, there are two main panels: 'Gateway RF' and 'Controller'.

Gateway RF Panel:

serial	94B555A33974
firmware	1.3.2
web interface	1.3.2
controller compatibility	5.3
Wifi Hotspot Name	SmartDPV_7439
Wifi SSID / PWD	/
Wifi status	Disconnected
Wifi Hotspot Name	<input type="text"/>
Wifi SSID	<input type="text"/>
Wifi Password	<input type="password"/>

Buttons: **Reset SSID/PWD** (grey), **Apply wifi settings** (blue)

Last date/time read: 17h1m59s - 2022.11.18

Update date and time: **Setup NOW** (blue)

Reboot Wifi (red)

Controller Panel:

Status	Connected
Firmware	5.3
Name	410
UUID	3f02001450315
Dev R	0
Hw Type	0
Custom Conf	0

Buttons: **Restart Sync** (blue), **Reboot Controller** (red)

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- In the SD Card page you can find the data logger files, display them on the screen, download them on your phone/computer (CSV) and finally delete any unwanted file.

The screenshot shows the SmartDPV interface with the 'SD Card' tab selected. The top navigation bar includes 'SmartDPV', 'Dashboard', 'Setup', 'Motor', 'SD Card', and 'System'. On the right, there are status indicators for 'Wifi', 'Vesc', 'Piranha', and 'SD Card'.

The main content area is divided into two sections:

- Data log:** A line graph showing various metrics over time. The y-axis ranges from 0 to 45. The x-axis shows time points from 246 to 617. The legend includes: Current Motor (pink), Current Battery (blue), Duty cycles (grey), Errors (black), Speed (light grey), Controller Temp (orange), Motor Temp (purple), Voltage (teal), and Errors (red). The Voltage line shows a significant spike from approximately 32 to 42 around time 608.
- Log files:** A list of log files with a 'List file' button. The files are:

File Name	Size	Actions
/logs/smartdpv_log_2022-11-18_17h34m37s.dtl	2894	View, Download, Delete
/logs/smartdpv_log_2022-11-18_17h43m43s.dtl	971	View, Download, Delete

At the bottom left, there is a copyright notice '© 2021 SmartDPV'. At the bottom right, there is a 'Back to top' link.

- Congratulations, your scooter is now ready to dive.