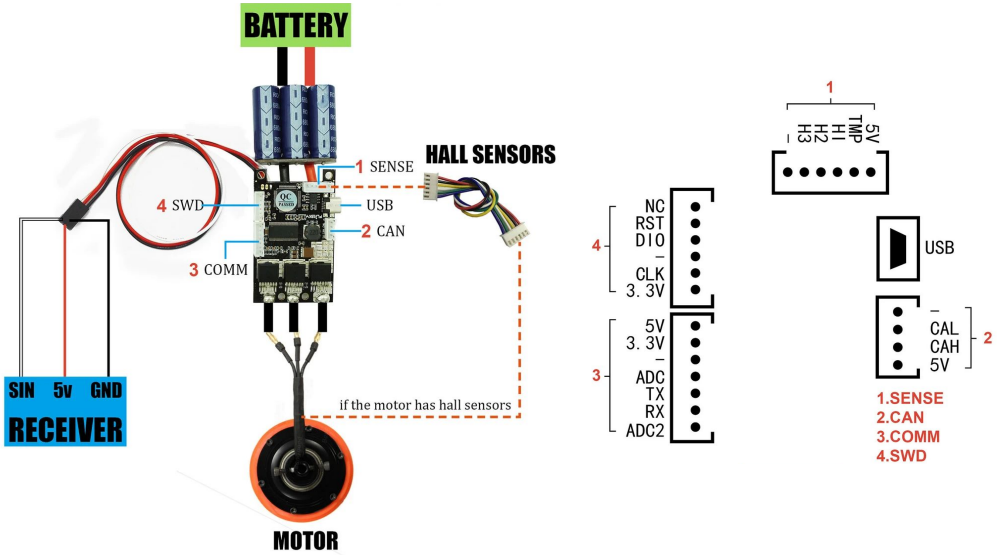
VESC - **V**edder's **E**lectric **S**peed **C**ontroller

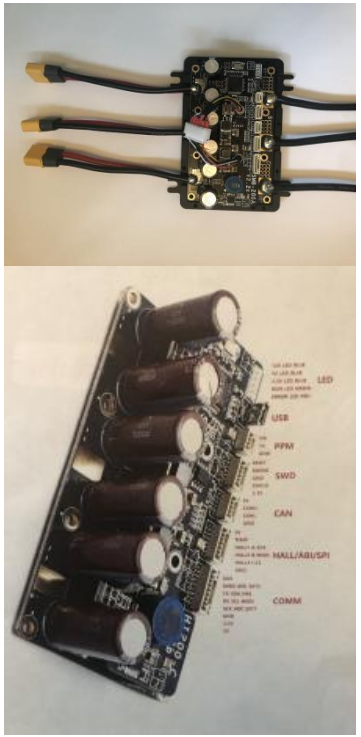
- **VESC - Hardware**
- **VESC Tool - GUI**
- **BLDC - Firmware**
- **ChibiOS - RTOS**

Jerry Yang, 9/14/2021

Hardware - VESC Boards

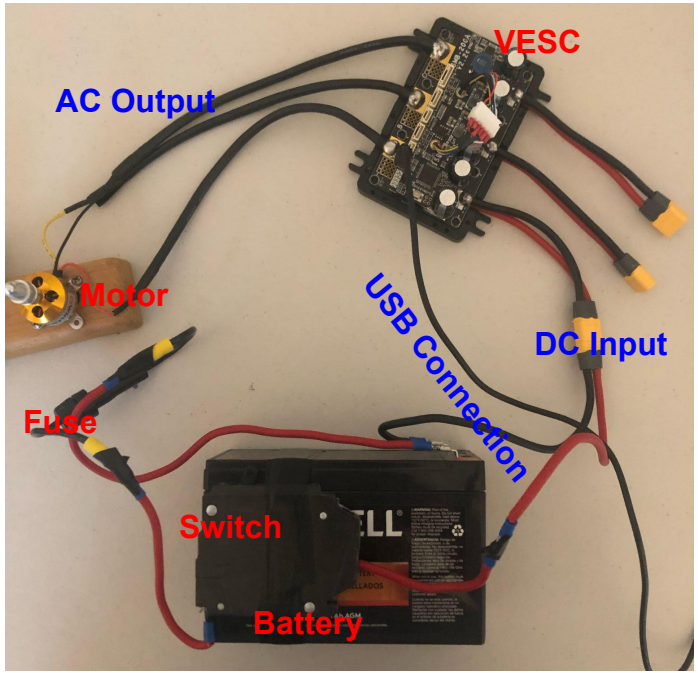


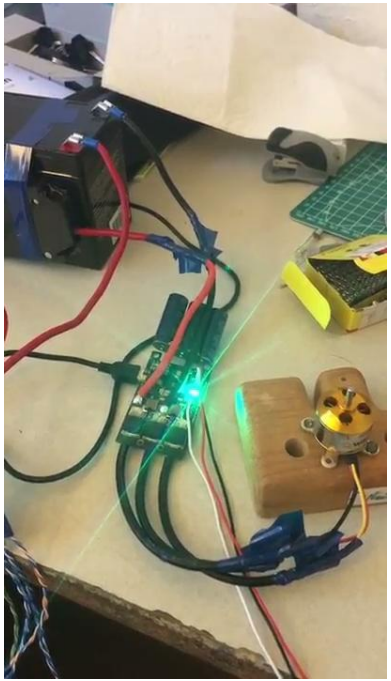
Flipsky FSESC 4.12



SMB 200A

Hardware - Setup



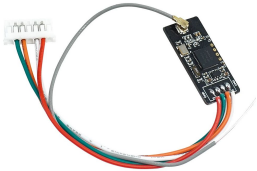


Hardware - Accessories

QWinOut A2212 Brushless Outrunner - 200 g

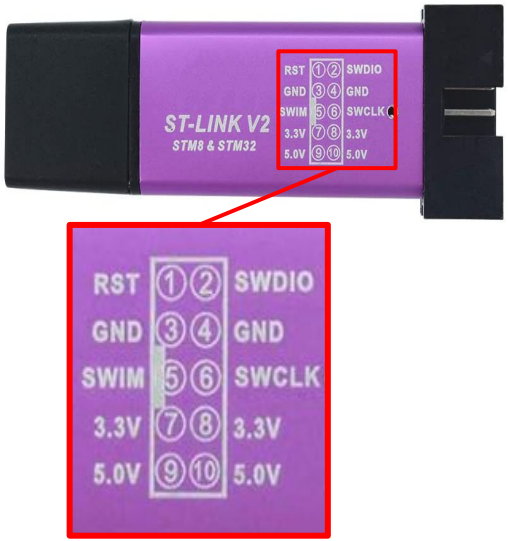
Flipsky 6354 BLDC Belt Motor - 2000 g

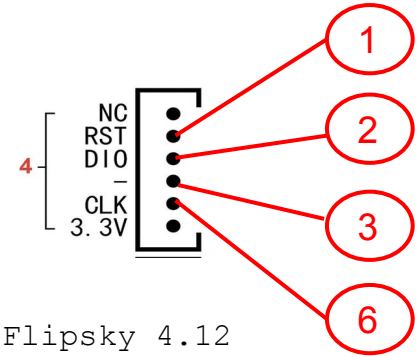
2.4Ghz Remote VX1 + Receiver



2.4G Bluetooth Module

Hardware - SWD





Flipsky 4.12

Required connections for SWD programming:

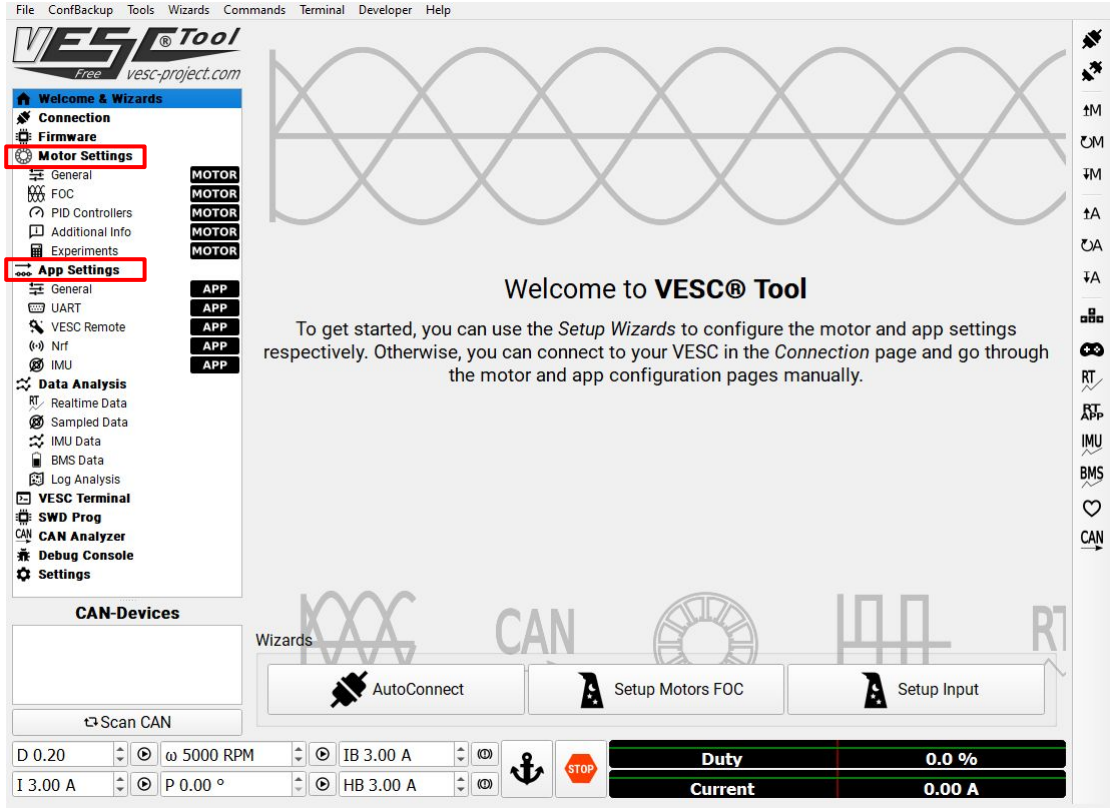
- RST
- SWDIO
- SWCLK
- GND

Hardware - Wireless Connections

Mobile Vesc Tool + Bluetooth Module

VESC Tool

The VESC Tool provides a GUI to configure both **motor** and **app** parameters



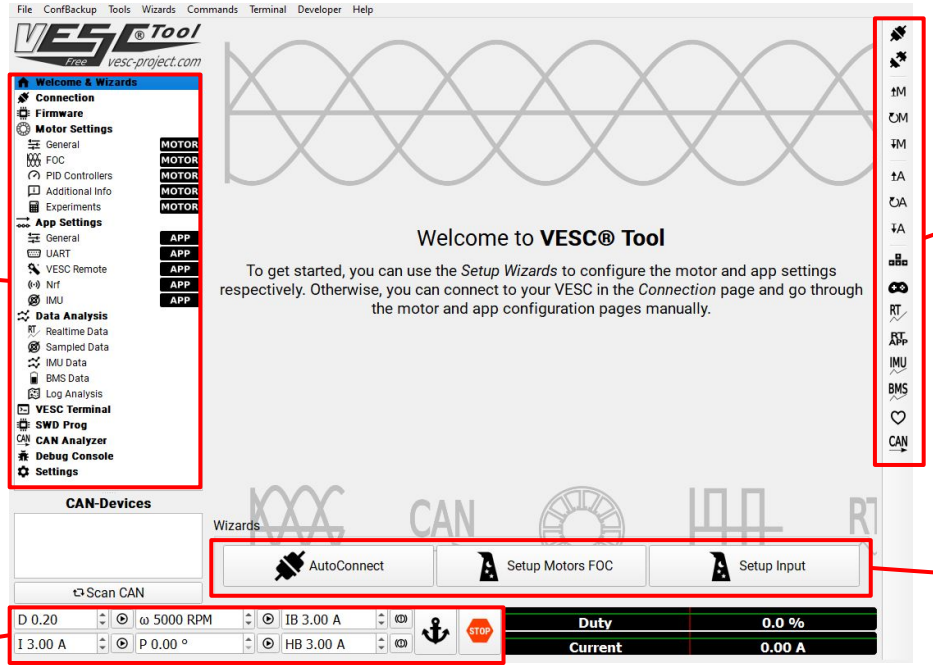
VESC Tool

Tools:

- Connection
- Firmware
- Data
- Terminal

Shortcuts:

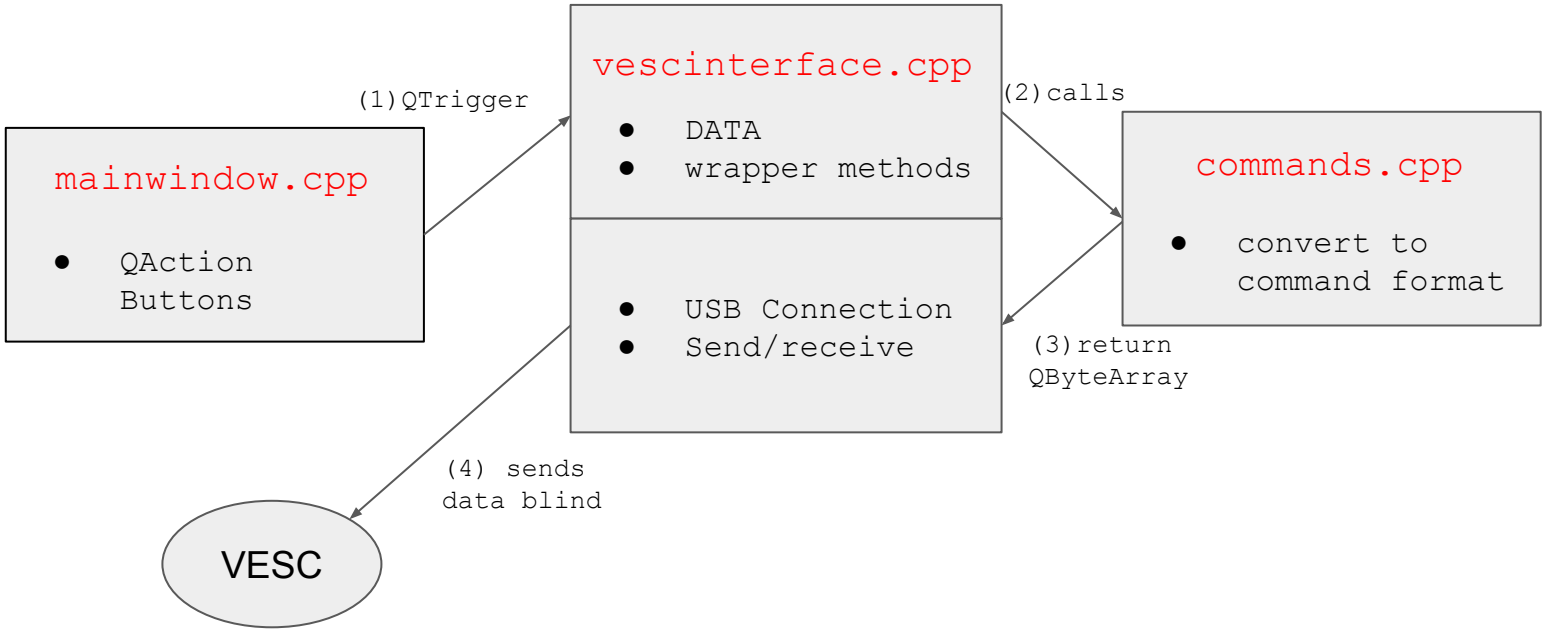
- MC
- App
- RT Data
- Keyboard



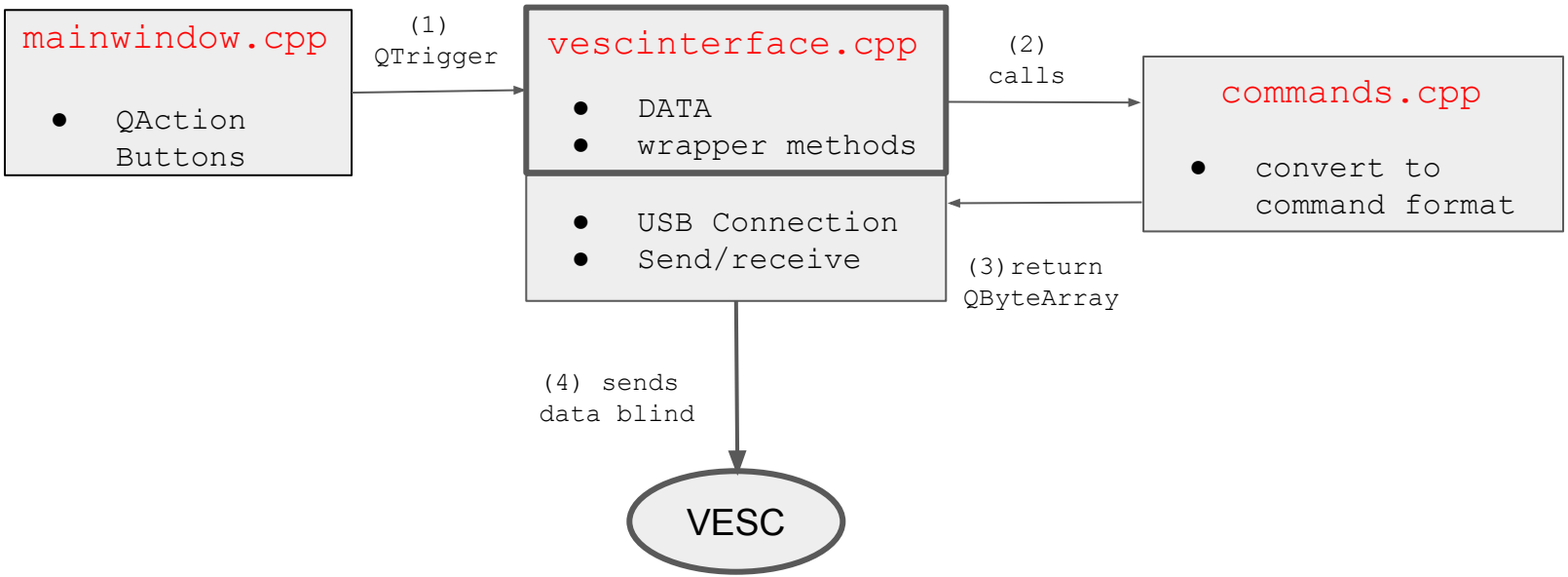
Setup Wizards

Controls

VESC Tool Code - vescinterface

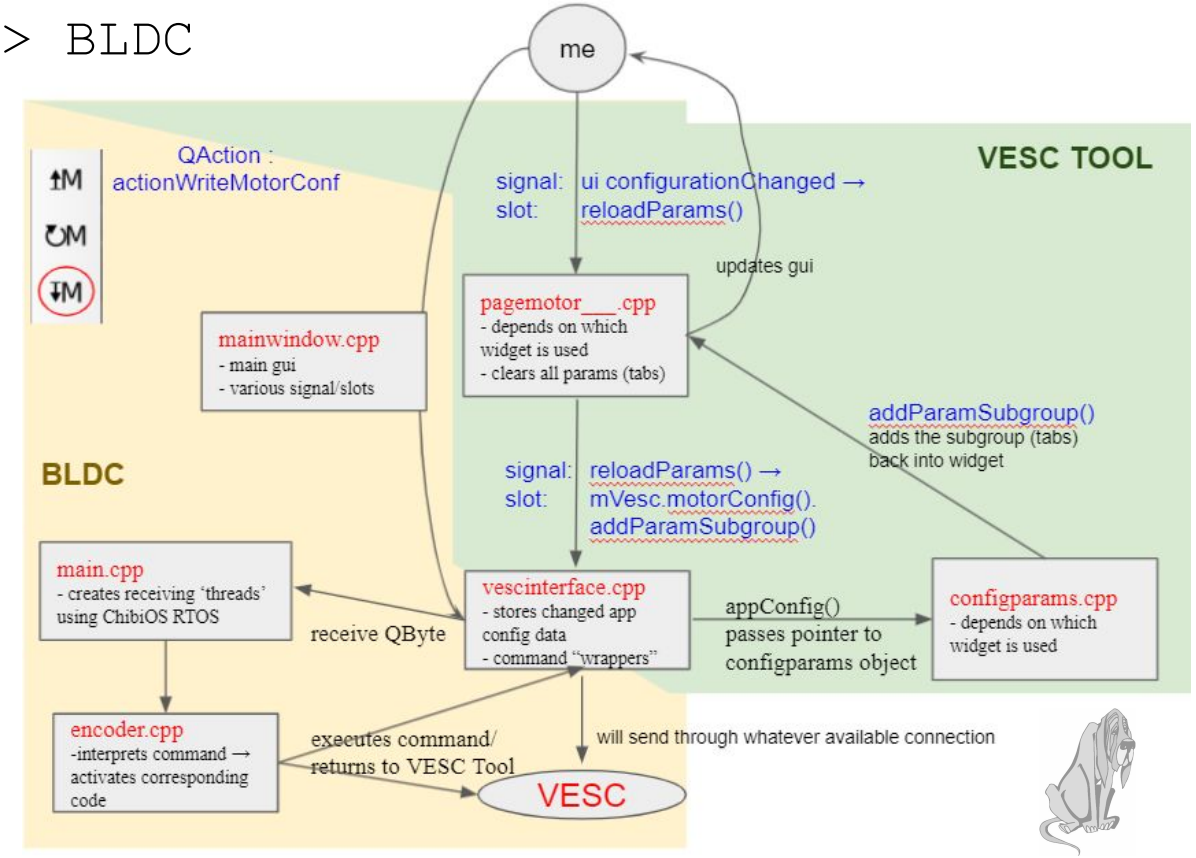


VESC Tool Code - vescinterface



VESC Tool -> BLDC

The VESC Tool GUI and BLDC firmware mainly interact through commands/data encoded as QByteArrays that are interpreted on both ends



BLDC Code

Foundation	Basic/Helper	Core	Communication
• HAL	• utils	• mcpwm	• mc_interface
• ChibiOS	• packet	• mc_interface	• comm_can
• bms	• timer	• ledpwm	• comm_usb
• compression	• worker	• terminal	• bt
• applications	• timeout	• **conf_general**	
• hw	• encoder	• commands	
	• chconf	• gpdrive	

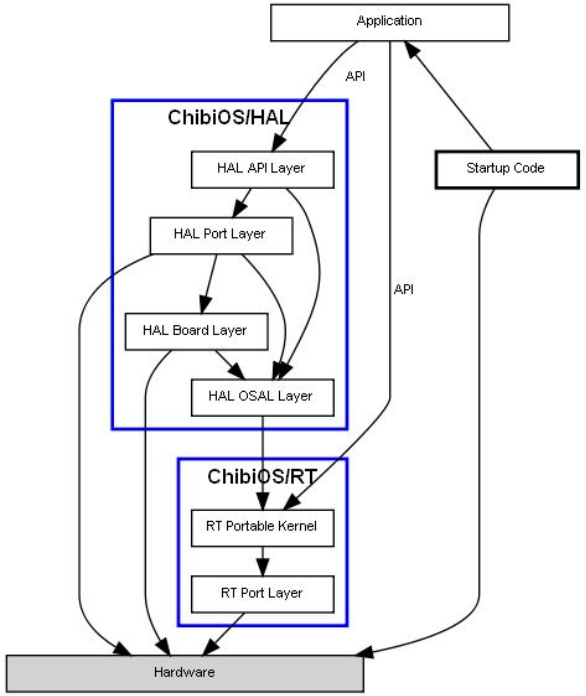
https://github.com/vedderb/bldc

BLDC Code - Revising terminal.c

ChibiOS

ChibiOS/RT is a RTOS composed mainly of:

- RT - the RTOS Scheduler
- NIL - alternate RTOS
- OSLIB - extension library
- HAL - hardware abstraction layer
- SB - sandbox for RT/NIL code



References

- https://vesc-project.com/
- https://github.com/vedderb/bldc
- https://github.com/vedderb/vesc_tool
- https://www.chibios.org/dokuwiki/doku.php?id=chibios:documentation:books:rt:start

Thanks!