**Motor Driver:**

* Switches:

The first step to designing the motor driver is selecting the type of switches to use. You should start online by looking up H-Bridge basics (try modularcircuits). You don’t have to dive too deep into MOSFETS. Get a solid understanding of the basic concepts that will allow you to look at a datasheet and have an idea of what the different parameters mean, and why you should select certain specs to improve the performance of your motor driver (H-Bridge).

When you are done reading about MOSFETS, you should know what PWM, VGS, VDS, ID, RDS-ON, input capacitance mean, and how they can influence the switching characteristics of the MOSFET. You should also get a basic understanding of the heat dissipation characteristics such as Thermal Resistance Junction to Case (RθJC) and Thermal Resistance Junction to Ambient (RθJA). This will help you select the proper heatsinks to make sure you don’t see magic smoke ☺

You should also be familiar with BJTs but in a much more basic way. Just know how to bias them to turn on and off, for both NPNs and PNPs. You may need to bias your MOSFETS using BJTs if you decide to not go with a gate driver.

Moreover, read up a bit on Schottky diodes. In particular, their use in H-Bridges to prevent “fly-back” current. MOSFETS typically have built in diode-like behavior (see datasheets). However, depending on your design, it may be important to use external ones.

A quick google search can get you going. I have also included a summary of some useful info that I found online, but it is incomplete. You should not go over that until AFTER you have done your research.

I have included some datasheets for NMOS and PMOS by Fairchild, as well as other components for you to look at. Keep in mind, those might be good for testing but if you decide to make a PCB, you will need to spec out some surface mount ones. But at that point, you should know what you are doing.

Your next step will be to look into gate drivers (more to be added).