Although the build instructions are available on the F1/tenth website, there are some variations to our design that required some modifications to the build process. The following describes these variations.

Bill of Materials:

There is a bill of materials on f1/tenth's website. However there are some materials you will need but not on the list and there are some materials you don't need but on the list:

Traxxas 1/10th Car platform: the link for this is not available anymore. We bought this from their official website. However, we just checked the website and it's also no long available on the official website. You might have to find this from other websites.

USB to Ethernet adapter: this is for the connection between Lidar and Jetson. It's not on the list but this is necessary. You can get this from the link below:

https://www.amazon.com/Cable-Matters-SuperSpeed-Gigabit-Ethernet/dp/B00BBD7NFU/ref=sr_1_3?ie=UTF8&qid=1482530486&sr=8-3&keywords=usb+to+ethernet

USB hub: At the time when we were purchasing materials, the 7 port USB hub mentioned in the f1/tenth BOM was not available. We chose a 4 port USB hub instead, partly in order to reduce the form factor, and also because our current design only utilizes 4 ports. While the number of ports can be changed based on your design, the only limitation is that the hub should be USB / Bus powered, not externally powered. The USB hub we used in our design can be purchased from the following link:

https://www.amazon.com/Sabrent-4-Port-Individual-Switches-HB-UM43/dp/B00JX1ZS5O/ref=sr_1_1?s=pc&ie=UTF8&qid=1482530731&sr=1-1&keywords=usb+hub

Sensors: there are two optional sensors on the list. One is Structure Sensor, the other is ZED camera. In our project we only need ZED camera which makes the structure sensor useless.

SD cards: you only need one SD card instead of two in the list.

Teensy power board: you will need some materials which are not on the list to build your teensy board yourself. You can find the teensy circuit diagram on the front page of their website.

Teensy circuit: You will need some materials which are not on the list to build your teensy board yourself, however these are shown in the Teensy board schematic provided on the f1/tenth website and are all commonly available online. To save some time on soldering however, the following links can be utilized.

Teensy 3.2 with pins already soldered: https://www.pjrc.com/store/teensy32_pins.html

Teensy headers : https://www.pjrc.com/store/socket_14x1.html

6mm ABS: Please first check if your institute has a powerful enough latter cutter to cut through a 6mm ABS. If not, you will probably use a different material. We use acrylic for now, however, this material lacks flexibility which causes some trouble when building the chassis. You can find crylic here: https://www.mcmaster.com/#acrylic/=15lk69u

barrel jack connector: this is necessary for wiring the battery and lidar.

https://www.amazon.com/Omall-5Pairs-Terminal-Adapter-Cameras/dp/B00W058HHQ/ref=sr_1_1?ie=UTF8&qid=1476583542&sr=8-1&keywords=barrel+jack+connector\

Energizer Battery:

Although the f1/tenth website acknowledges the XP 8000 is no longer in production, it specifies the Energizer XP18000AB battery instead. Unfortunately, while the BOM was updated, the CAD files for the chassis are still designed based on the dimensions of the XP 8000 that has a significantly smaller form factor.

Traxxas Rally Car:

Weight: Our model is made from acrylic plastic rather than the ABS plastic assigned in the f1/tenth website. This is mainly because the laser cutter in our university is not powerful enough to cut through the required ABS shapes that are 6 mm thick. The use of the heavier acrylic material combined with the added weight of the XP18000 AB battery has caused the clearance of the car to reduce to approximately 10mm. We will increase this clearance using stock spring spacers to the car's shocks.

Preparing the model: The following Youtube videos will be useful in preparing the car for use:
- How to Bind a Traxxas Transmitter and Receiver: https://www.youtube.com/watch?v=NMrKkt0BHxA

Note the battery type you are using. We disabled Low Voltage Detection for our design using the following link :
- How to Turn On Low Voltage Detection: https://www.youtube.com/watch?v=FCNsmV18PSg

Powering up the Lidar:

In the tutorial, it is very ambiguous about how to powering up the Lidar. Here is a clarification.
You can find this on the HOKUYO website.

Power source, I/O cable

Cable length: 1000mm Flying lead cable(AWG28)

Color	Signal
Red	COM Input+
Gray	COM Output-
Light Blue	IP Reset Input
Orange	Synchronous Output
Brown	+VIN(12VDC/24VDC)
Blue	-VIN

There are two connections for HOKUYO, first is a 6-wire I/O cable, the other is the ethernet cable. To power it up, you will need to first cut the 6-wire I/0 cable and connect the Blue and Brown wires to the barrel jack connector. From there you can follow the tutorial and easily power it up.