



Hot Wheels GoPro 3D Printed Car Mount

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<https://learn.adafruit.com/hot-wheels-gopro-3d-printed-car-mount>

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Overview

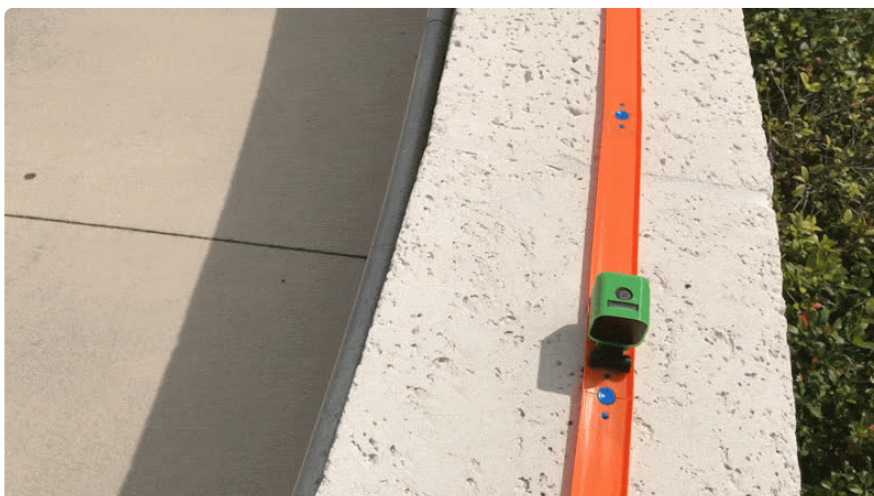


FPV GoPro

In this project we'll show you how you can turn a GoPro session into a Hot Wheel car with a 3D printing case.

This idea was inspired by hot wheel stunt videos by [FiveMadMovieMakers](https://adafru.it/svB) (<https://adafru.it/svB>) on YouTube. This project doesn't use any parts from a Hot Wheels car, but instead is fully 3D Printed.

The mount for the GoPro Session is 3D printed in ninjaflex, which is TPU based filament. It's very flexible and has a rubbery texture. It also provides extra protection and can work as a stand alone bumper for the GoPro.



Parts, Tools and Supplies

You'll need the following tools and supplies to complete this build.

- [3D Printer \(https://adafru.it/diH\)](https://adafru.it/diH)
- [1.75mm Filament \(http://adafru.it/2080\)](http://adafru.it/2080)
- [Soldering Iron & Solder \(https://adafru.it/drl\)](https://adafru.it/drl)
- [Diagonal Flush Snips \(http://adafru.it/152\)](http://adafru.it/152)

3D Printing

Download and 3D Print

The 3D printed parts can be downloaded with the link below.

Download Fusion 360 Archieve

<https://adafru.it/19Dg>

Thingiverse

<https://adafru.it/svD>

Youmagine

<https://adafru.it/svE>

Pinshape

<https://adafru.it/syB>

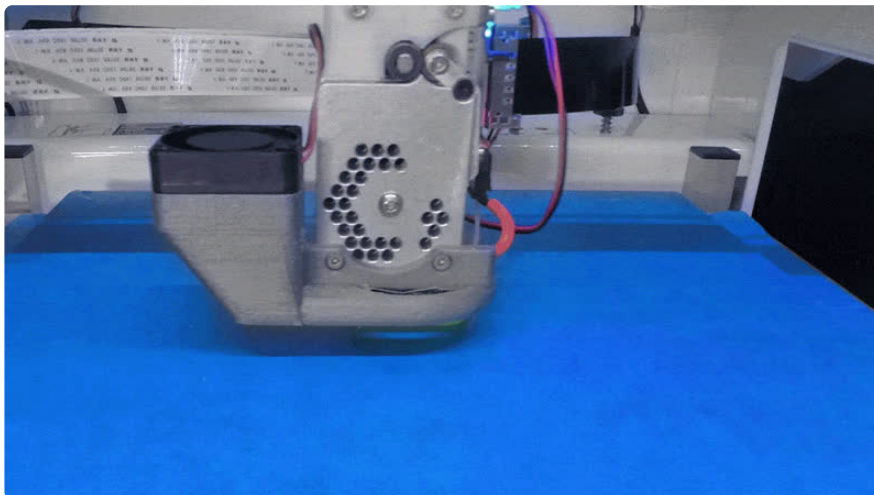
The case is optimized for flexible materials, rigid material will not work.



Materials & Slice Settings

This design requires an extruder capable of printing with flexible materials such as the [Flashforge Creator](http://adafru.it/2742) (<http://adafru.it/2742>). If you're using standard Ninjaflex material (85A shore hardness), we recommend printing slow, around 20 to 40mm/s with extruder temperature of 240c.

You can also use Cheetah Ninjaflex, which has a higher shore hardness (95A). The only difference will be in how flexible and how grippy the texture is.



	PLA 245c / 0c bed	The car mount body (GP-body.stl) takes about two hours to print using original NinjaFlex. You can speed up prints by using Cheetah NinjaFlex material. The only difference will be in how grippy the material will be.
GP-body.stl	No supports	
GP-axle.stl	10% infill	The axle part (GP-axle.stl) can be printed with a larger .6mm nozzle to cut down on printing times.
GP-wheel.stl	40mm/s print speed	
	No Retraction	
	120mm/s travel speed	

Retraction clean up

Flexible materials may need retraction disabled to print successfully, so we'll need to clean any left over material around the slots and grooves on the **GP-body.stl** part.

Assembly



Wheel Assembly

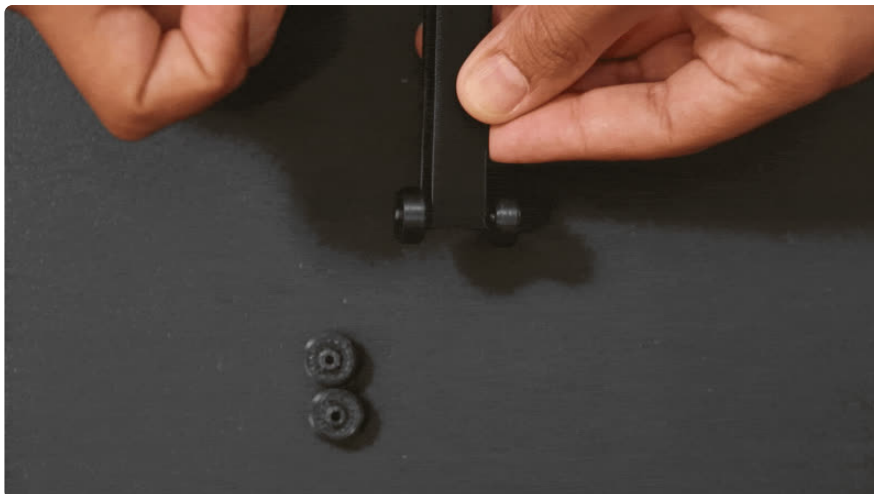
We'll use pieces of filament (1.75mm diameter) to make the axles for the wheels. Strong materials such as ABS, Nylon or PLA/PHA will have a higher resistance to damage.

To measure out the necessary length of filament, insert a single wheel through the filament when it's still on spool. Then, add the chassis and second wheel. Cut down the piece using wire cutters.



Revits

To keep the wheels from flying off the axels, we create revits on both ends of the wheels. You can use a heated tool like the heating element of a soldering iron (or a lighter) to soften the tips of the filament. Press to flatten and create rivets.



Spin Check

The wheels should be free spinning. If the axels are too long, it could effective the performance of the ride. Trim the filament as short as you can, but still have enough material for making the revits.



Install Bumper

The 3D printed mount slips onto the GoPro session. It's a very tight fit, so it will need some force to fit over. The cover has two cutouts on one side, this is for the record button and the LCD screen.

Align the camera buttons and screen with the cutouts on the case. Push down on the camera back to slip the case over the camera.



Lower body

The camera body easily slides onto the grooves on the main axle body. Angle the front of the camera to slide it into place like shown above.



We found steep inclines throws the balance off and causes the GoPro to crash before finishing the run. We found spots with a gradual slope was just right.

If you have a GoPro session, we hope you try to build one of these yourself. And if you have a different action camera, we hope you remix this design.