

ROADIO

RadRunner 2 Install SOP

1. Gather your Roadio kit

Tools:

Allen keys (3mm, 4mm, 5mm)



Flush Cutters

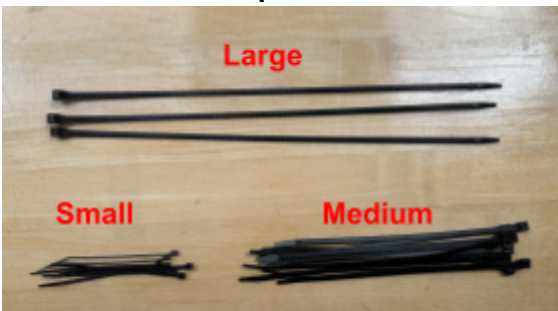


Socket wrench (8mm)

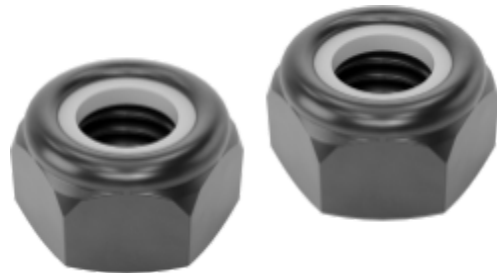


Fasteners:

Zip ties



2x Lock nuts (M5x0.8) (*spare*)



Roadio Hardware:

Rear camera+mount+0.4m extension cable



Front camera+mount+1.6m extension cable



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Roadio controller+mount+PIB



RRI



Cable Cover



Lightning Cable (2.2m)



- **General tip:** Before inserting the connectors into each other, make sure the arrows on the housing point at each other. This ensures that the plugs are properly keyed together when they are connected.



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2. Mount Front Camera

- Use a 5mm Allen key to unscrew the upper 2 headtube mounting bolts. Install the front camera (**above the mounting holes**) using the original bolts and tighten back down.
 - The cable exiting the camera should be on the **left side** when you are facing the camera



3. Mount Rear Camera

- This step will take place on the rear rack of the bike, next to the tail light.



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- Use your socket wrench to remove the two nuts on the back of the rear tail light. Set these nuts aside for now.



- Cut the zip tie constraining the tail light cable and unplug the tail light.



- Thread the cable of the rear tail light through the mount of the rear camera.
- Align the rear camera mount and tail light as shown in the second picture.



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- Place the tail light and rear camera mount assembly onto the original tail light mount.



- Use your fingers to replace the 2 nuts you removed and tighten them slightly.
- Use your socket wrench to tighten the nuts all the way down.



- Plug the tail light cable back in.
- Use a small zip tie to re-secure the tail light cable to the rear rack.



Tail light connection circled in blue. Red indicates zip tie location.

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4. Mount Roadio Controller + PIB

- Remove any accessories located on the rear rack (*if necessary*).



Example of removing rear rack passenger seat using a 4mm Allen key.

- Gather controller mount with Roadio controller and PIB attached.
 - a. PIB will be plugged into Roadio controller.



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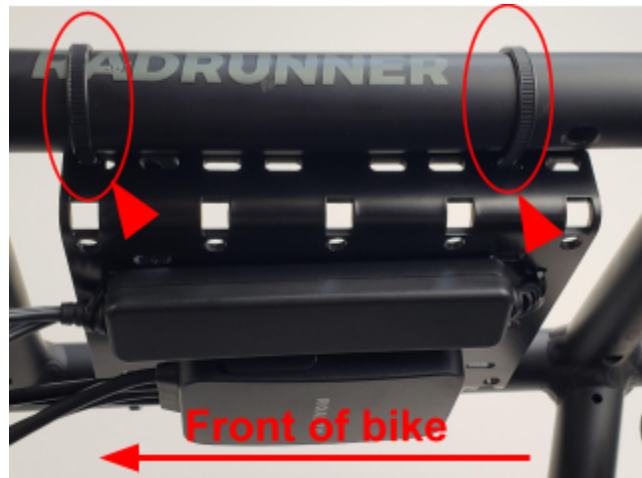
- Use 4 medium zip ties to secure the controller mount to the underside of the rear rack, positioned under the middle bars of the rear rack. The controller cable exit should be facing the front of the bike.

The zip ties will go through the holes on the sides of the controller mount, then loop around the outside bars of the rear rack. Pull the zip ties tight so that the mount is secured against the underside of the cross railings.

- The zip ties closer to the front of the bike should be threaded through the holes at the outside edge of the mount.
 - The zip ties closer to the rear of the bike should be threaded through the second-outermost hole in the mount.
- Use your flush cutters to cut off the excess length from the zip ties.



Controller mount location on bike.



Proper zip tie placement.

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5. Cable Routing

- Route the rear camera extension cable directly along the underside of the upper railing of the rear rack on the left side of the bike.
- Use 2 medium zip ties to secure this cable to the underside of the rear rack railing.
 - Make sure the zip tie heads are facing towards the inside of the bike and towards the ground.



Path of rear camera cable to Roadio controller connection shown in red. Green arrows indicate zip tie locations.

- Plug the other end of the camera cable into the Roadio controller at the appropriate port (green connection port labeled 'Rear').



- Disconnect the cable from the front camera
- Plug the front camera extension cable into the Roadio controller (green connection port labeled 'Front').
- Plug the Lightning cable into the Roadio controller (black connection port).

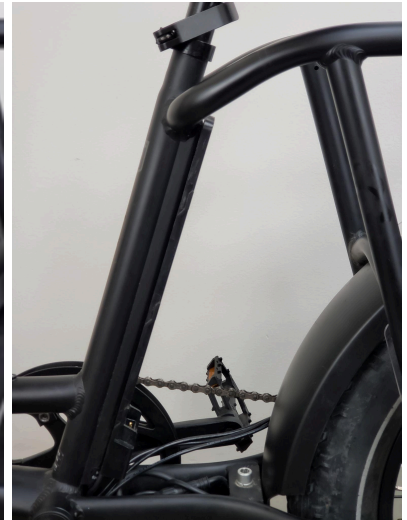


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- Remove the battery from the frame and set aside for now.



L: battery on bike



R: battery removed

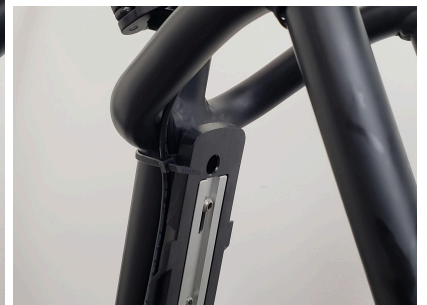
- Gather front camera and Lightning cables coming out of the Roadio controller as well as the cable from the PIB. Route this bundle towards the left side rail of the rear rack (*when looking toward the front of the bike*). Position this bundle on the bottom of the rail until it reaches the vertical support bar - at this point, the bundle will transition to the inside side of the rail to get around this bar.



Zip tie locations shown in red.

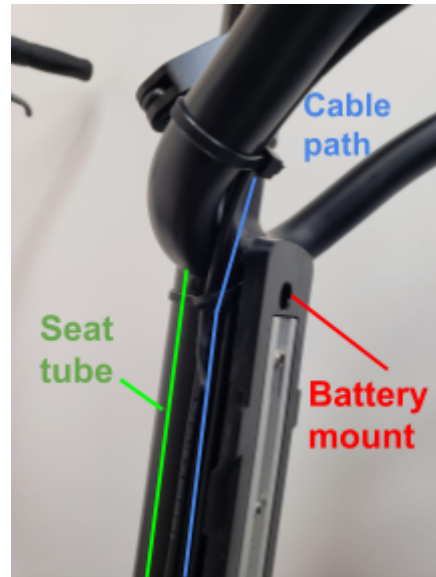
- Use 2 medium zip ties to secure the bundle to the rear rack rail. Cut off the excess zip tie length.

- Use 1 more medium zip tie to secure the cable bundle to the vertical tube that the battery is mounted on (seat tube). Cut the extra zip tie length with your flush cutters.



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- Route the cables down the seat tube along the back side of the battery mount.



- The next part of this step will take place below the battery at the base of the battery mount, next to the pedals.

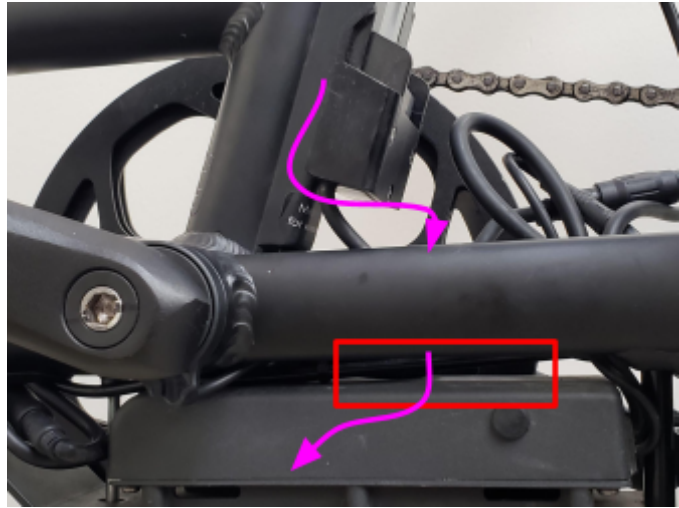


- Move the cables previously under the battery out of the frame cavity to make space for cable routing.
 - The cables coming from the top of the battery mount will pass through the area marked by the dashed red line.



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- Pass each cable through the top of the frame cavity and out through the side (marked by a red box in the picture).
 - Pass the cables one at a time, keeping them aligned for the best appearance.



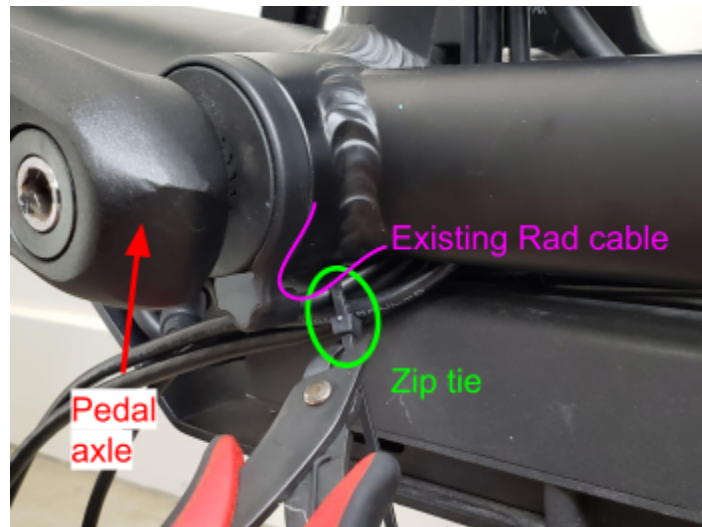
Pink indicates cable path. Red box mentioned in text.

- Tuck the cables behind the battery mount and pull the forward-facing ends taut to remove any slack.
 - Ensure that all three cables exit the frame cavity aligned as shown.



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- Zip tie the three cables to the existing Rad cable on the pedal axle with a small zip tie and cut off excess zip tie length.



- Get your cable cover and place your three cables into the recessed center part of the cable cover.

The front camera cable should be on the right side of the cable cover and the Lightning cable should be on the left side when you are looking toward the front of the bike. This leaves the PIB in the middle.

- Make sure to keep cables flat and organized in cable cover - if they aren't, the cable cover will not fit flush to the tube.



Cable organization in cable cover.

- Ensure that the longer end of the cable cover is oriented towards the handlebars of the bike.



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- Hold the middle of the cable cover onto the front of the main tube (downtube) of the bike frame with one hand, lining up the curve of the cable cover to the curve of the tube.
- Hold one of the large zip ties with your index finger and use the other hand to wrap the zip tie around the cable cover and downtube and tighten it.
- Make sure to keep cables in the center of the cable cover so that the cable cover lies flush against the tube.



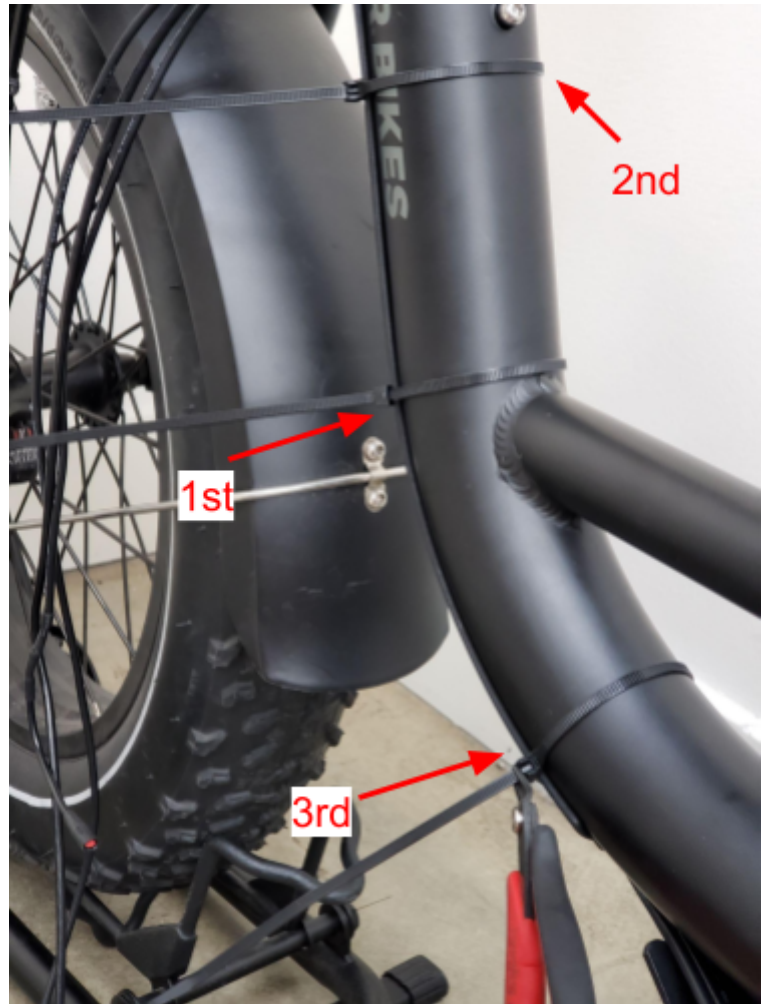
Holding the cable cover to the downtube.



Tightening the zip tie.

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- Repeat this process at the top and the bottom of the cable cover to secure the cable cover to the downtube.
- Cut the extra zip length for all 3 zip ties.



Zip tie locations.

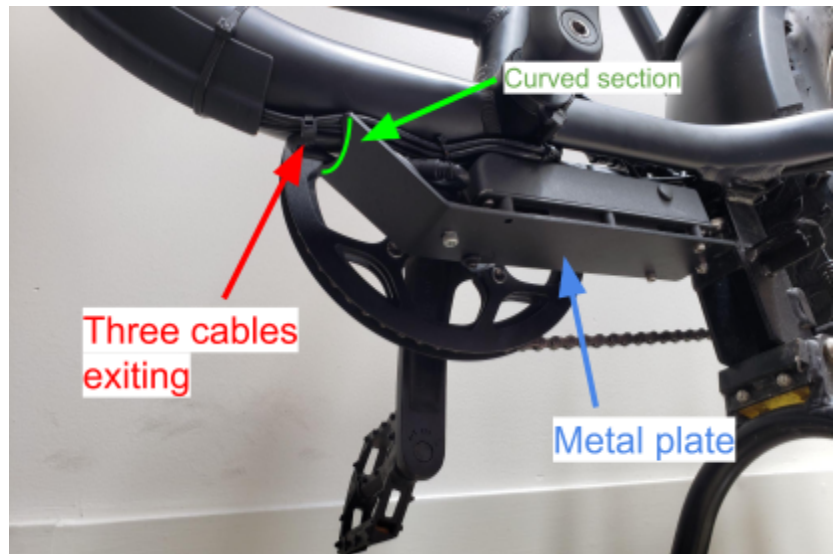
- If there is extra cable slack at the bottom of the cable cover, remove it by pulling on the cables at the opposite end of the cable cover.



L: extra cable slack at bottom of cable cover
R: where to pull cables to remove cable slack

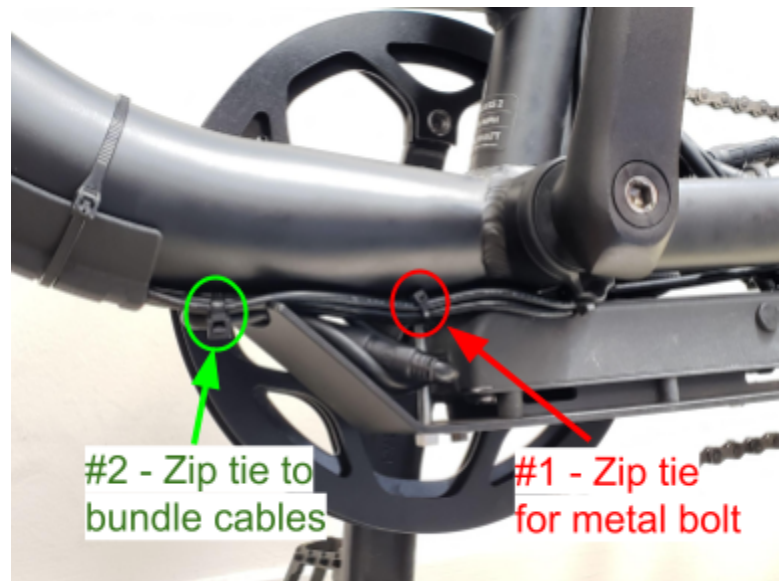
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- At the bottom of the cable cover, organize your cables by routing them over the front of the metal plate on the underside of the bike. Ensure that the cables exit over the curved section of this metal plate on their way to the cable cover.



Note the cables going over the metal plate to the cable cover.

- Staying at the bottom of the bike near the cranks, use 1 small zip tie to secure the three cables to the metal bolt between the bike frame and metal plate (*see picture for location*).
- Use another small zip tie to bundle the cables together as they exit above the curved part of the metal plate.
- Cut the extra zip length for both zip ties.



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6. Connecting to Power

- This step will occur at the front of the bike.



- Unzip the cable sleeve holding the Rad cable bundle.
- Cut and remove the zip ties holding the existing Rad cable bundle together.



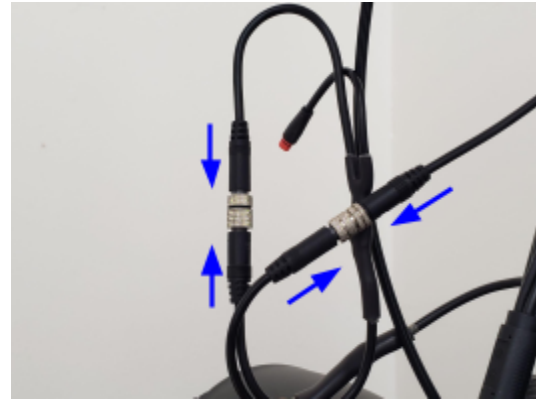
- Find and disconnect the silver display connector at the front of the bike.
 - Unscrew the metal part of the connector until the threaded portion releases, then pull directly apart, without twisting, to unplug.



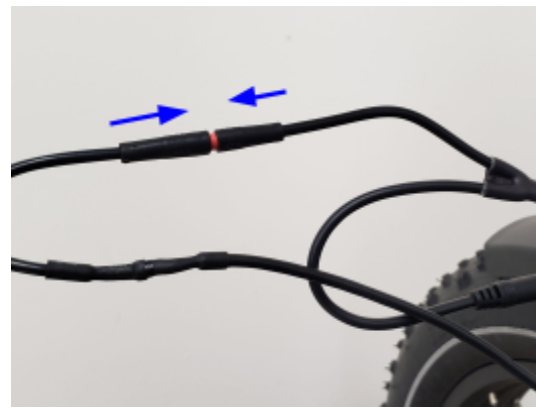
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- Connect the metal connectors of the RRI to the open display connectors.

Align the internal notch and pins and press together, without twisting, then twist the metal portion together until the connector is secure.

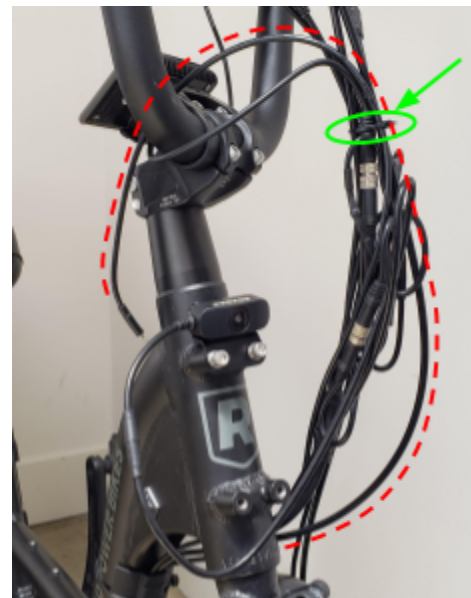


- Connect the red oval connector on the PIB cable to the red oval connector on the RRI.
 - Make sure your oval connectors are oriented the same way when you plug them into each other.



7. Final Cable Control

- Route the Lightning USB cable parallel to the rest of the cables and drape it over the top of the handlebars.
- Use a small zip tie to secure the Lightning USB cable to the existing cable bunch at the top of the existing cable bunch. Cut the excess zip tie length with your flush cutters.



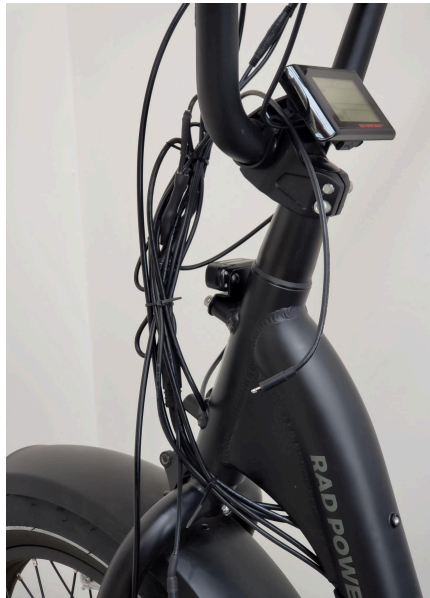
Zip tie location shown in green.

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- Reconnect the front camera extension cable to the front camera.
- Route the front camera cable up along the cables then down to the camera and secure this double back part to the rest of the bundle.



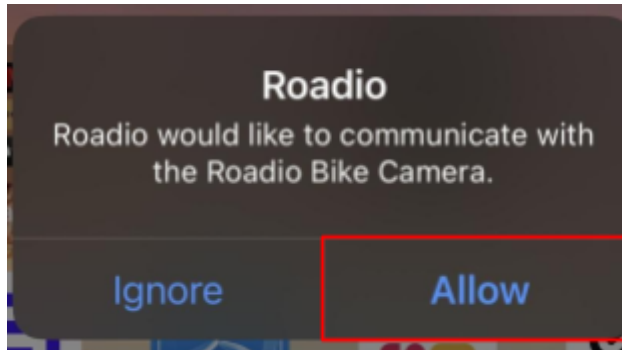
- Wrap the cable sleeve around the cable bundle (with your Lightning cable added) and zip the sleeve up.



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8. Safety checks / Miscellaneous

- Turn on the bike power, then plug in a Roadio-equipped phone to confirm that the system works.
 - a. Check to make sure the video feed from the rear camera is clear and not tilted.
 - b. Click (Allow) when given the option in the Roadio pop-up, then confirm that you are getting a live view from the rear camera.



- Using your flush cutters, make sure you have cut the excess length on all zip ties.
 - a. **Important:** ensure zip tie cuts are flush, zip ties can leave sharp tips that can cut riders.
- **Safety check 1:** Are all nuts and bolts securely fastened? (including any existing on the bike that could have been affected).
- **Safety check 2:** Cable control - have you securely fastened all cables added or affected? Is there extra cable length anywhere that needs to be bundled / affixed to the bike? Specific checks:
 - a. Make sure handlebar range of motion is not restricted.
 - b. Confirm that loose cables / wire routing does not have the potential of getting in the way of pedaling, or snagged in any way near the rider, and that no loose wires or anything could get into the spokes. If any cables are loose, use zip ties to secure them tighter.
 - c. Confirm that all cables are plugged into the correct plug on the Roadio controller. Follow the route of the cable from camera to controller for both the front and rear cameras.



- The install and safety checks are complete! You are now ready to plug your phone in and ride with Roadio!