

Vonado_Kwik-E-Mart_71016 LED Lighting Kit

Package contents:

- 7x LED Strip Lights
- 10x White 30cm Dot Lights
- 1x Flashing White 30cm Dot Light
- 3x Flashing Red 30cm Dot Lights
- 4x White 15cm Dot Lights
- 2x Flashing White 15cm Dot Lights
- 2x 12-port Expansion boards
- 1x 8-port Expansion Board
- 1x Flat Battery Pack (Requires 2x CR2032 batteries)
- 1x Battery Pack (Requires 3x AA batteries)
- 10x Adhesive squares

Connecting Cables

- 4x 15cm cables
- 4x 30cm cables

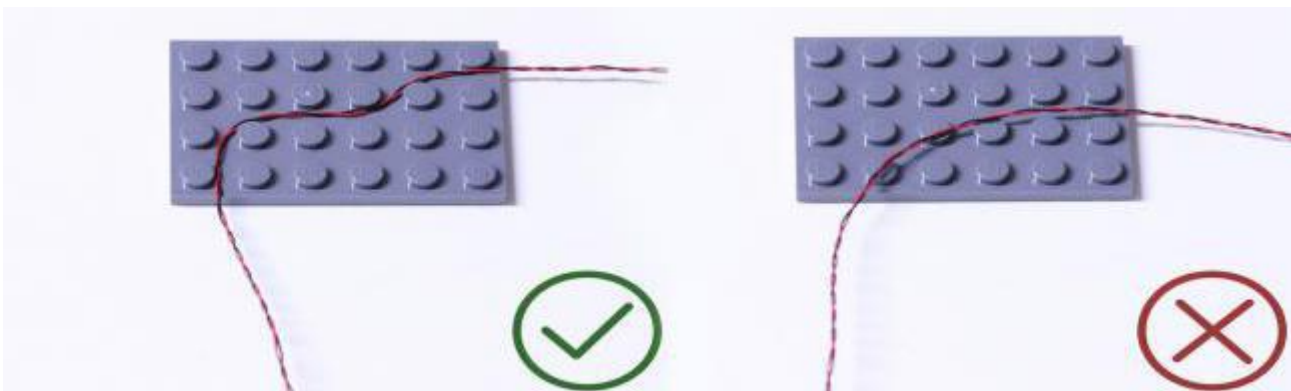
Extra LEGO Pieces for mounting Strip Lights, CCTV and Billboard Lights

- 4x Lego Plate 1x6
- 2x Lego Transparent Red 1x1 round plate
- 2x Lego Black Tile, Modified 1 x 1 with Clip
- 2x Lego Technic Pin with Friction Ridges Lengthwise WITH Center Slots
- 2x Lego Weapon Spear Gun with Squared Trigger and Thick Spear Base
- 2x Lego Technic Black 1x1 brick with hole

Note:

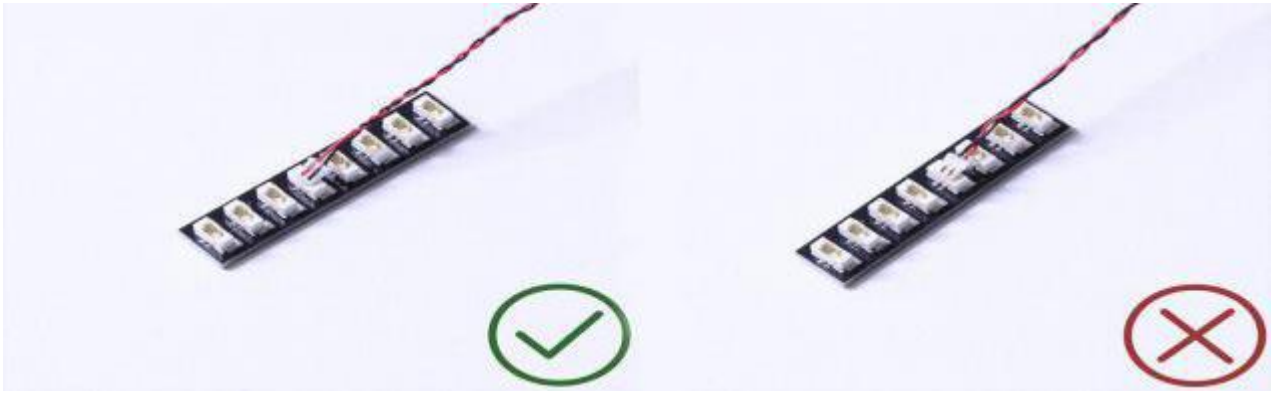
Place wires on the surface or under the LEGO building blocks.

The wire can be placed between the building blocks or under the block, but they should be placed between the studs correctly.

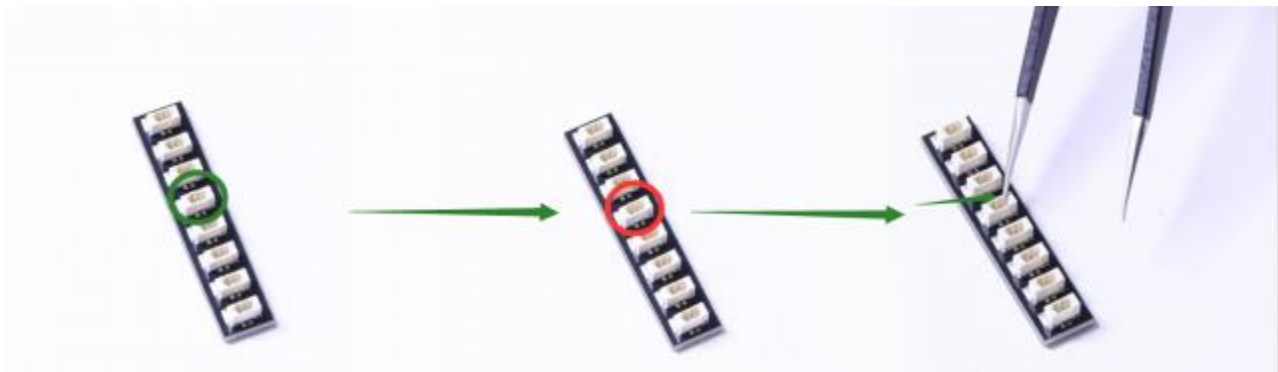


Insert the connectors to the ports.

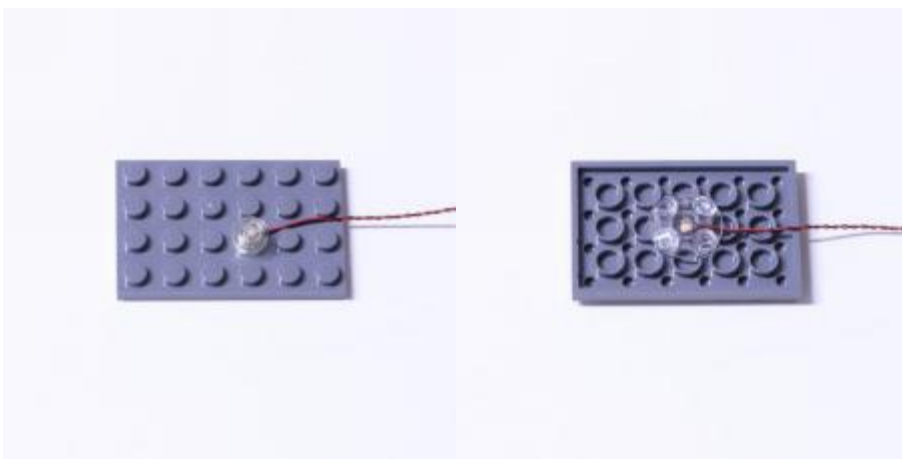
Be careful when you are operating, there's only one correct way to insert, make sure the expansion board is upward, find the soldered "=" sign on the left of the port. When you are inserting, the side which the wires can be seen should be faced to the "=" sign and if you feel hard to insert, please stop, and don't force it, for that may result in bent pins inside the port or overheating of the expansion board.



At this point, use the tweezers to straighten the bent pins.

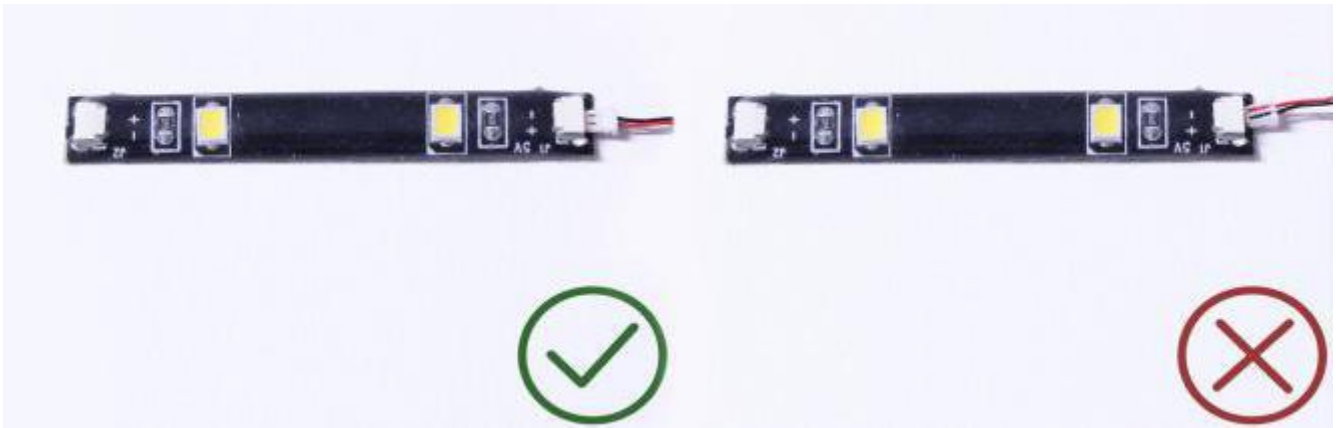


When installing dot lights, make sure they are correctly placed (Yellow LED package is exposed). You can put them either on the top of the studs or between studs.

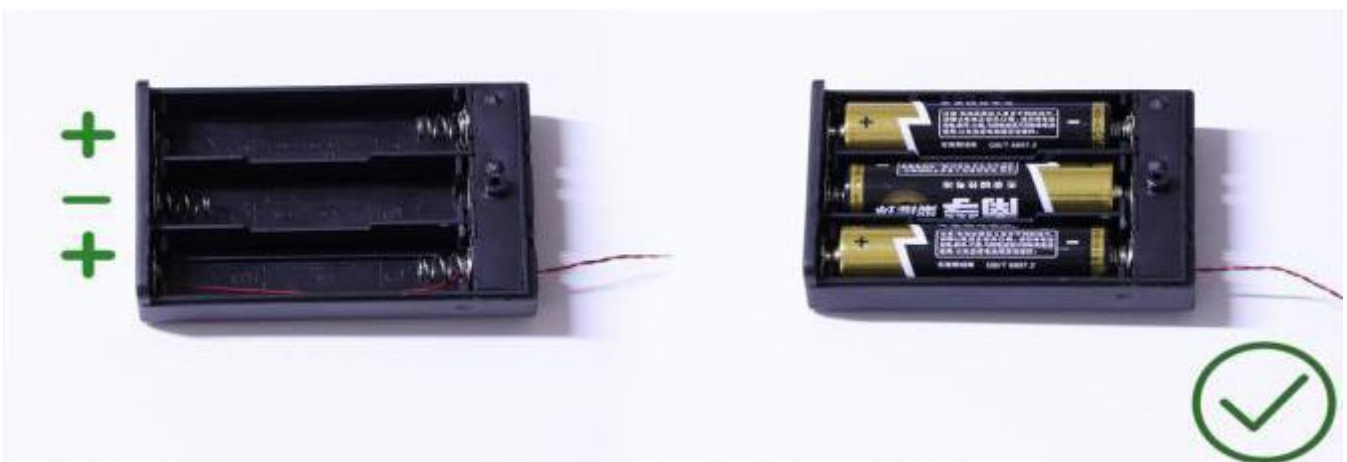


Connecting cable connectors to Strip Lights

Take extra care when inserting connectors to ports on the Strip Lights. Connectors can be inserted only one way. With the Strip Light facing up, ensure the side of the connector with the wires exposed is facing down. If a plug won't fit easily into a port connector, don't force it. Doing so will damage the plug and the connector.



Finally, please pay attention to the positive and negative terminals of the battery when installing the battery case.

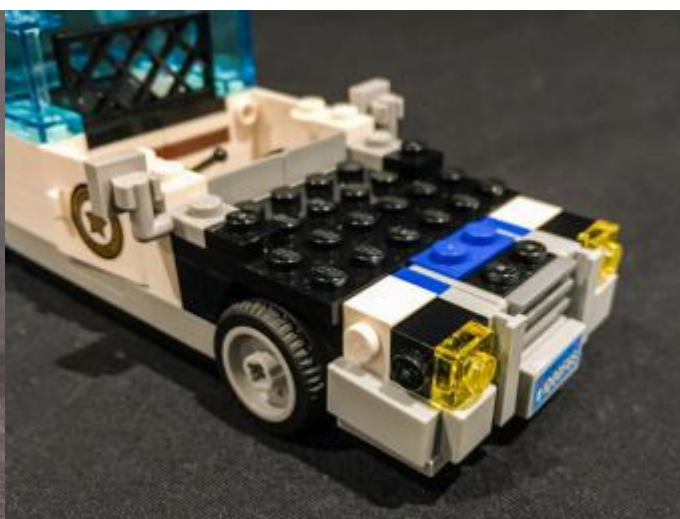
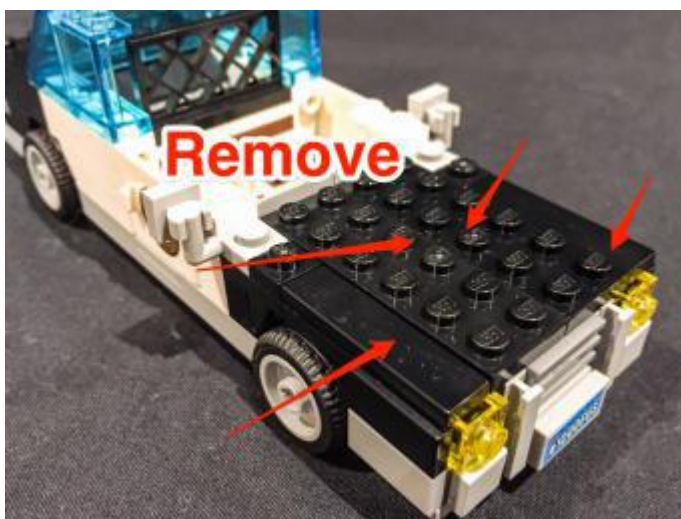
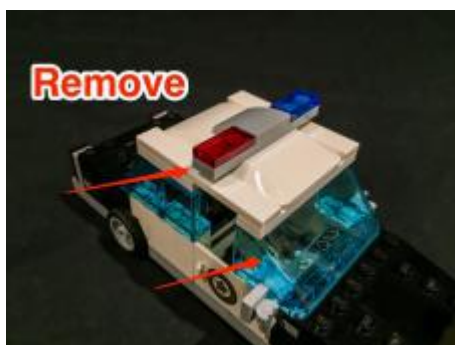


OK, Let's Begin!

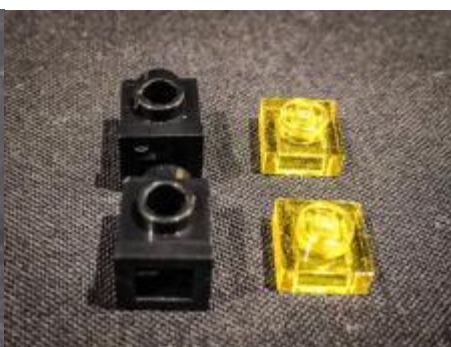
Instructions for installing this kit

Lighting the Police Car:

1.) Start by removing the following Lego pieces which make up the roof and windscreen, followed by the black Lego plates and tiles from the front bonnet.



2.) Disconnect from each side of the car, the black 1 x 1 brick with the transparent yellow plate attached. Remove the yellow plate from the black brick and take **1x White 15cm Dot Light** and using the connector end of the cable of the LED, thread this through the hole of the front of the black brick.



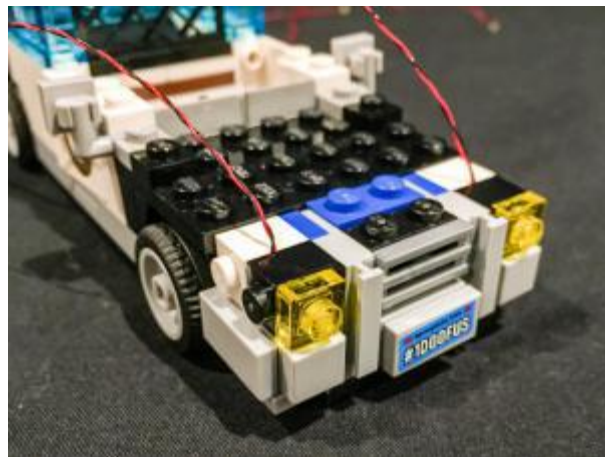
Pull the cable from the back of the black brick all the way until the LED component is flat up against the other side of the brick. Ensure that the LED component part is facing the correct way up, then secure this down by reconnecting the transparent yellow Lego plate over the top.



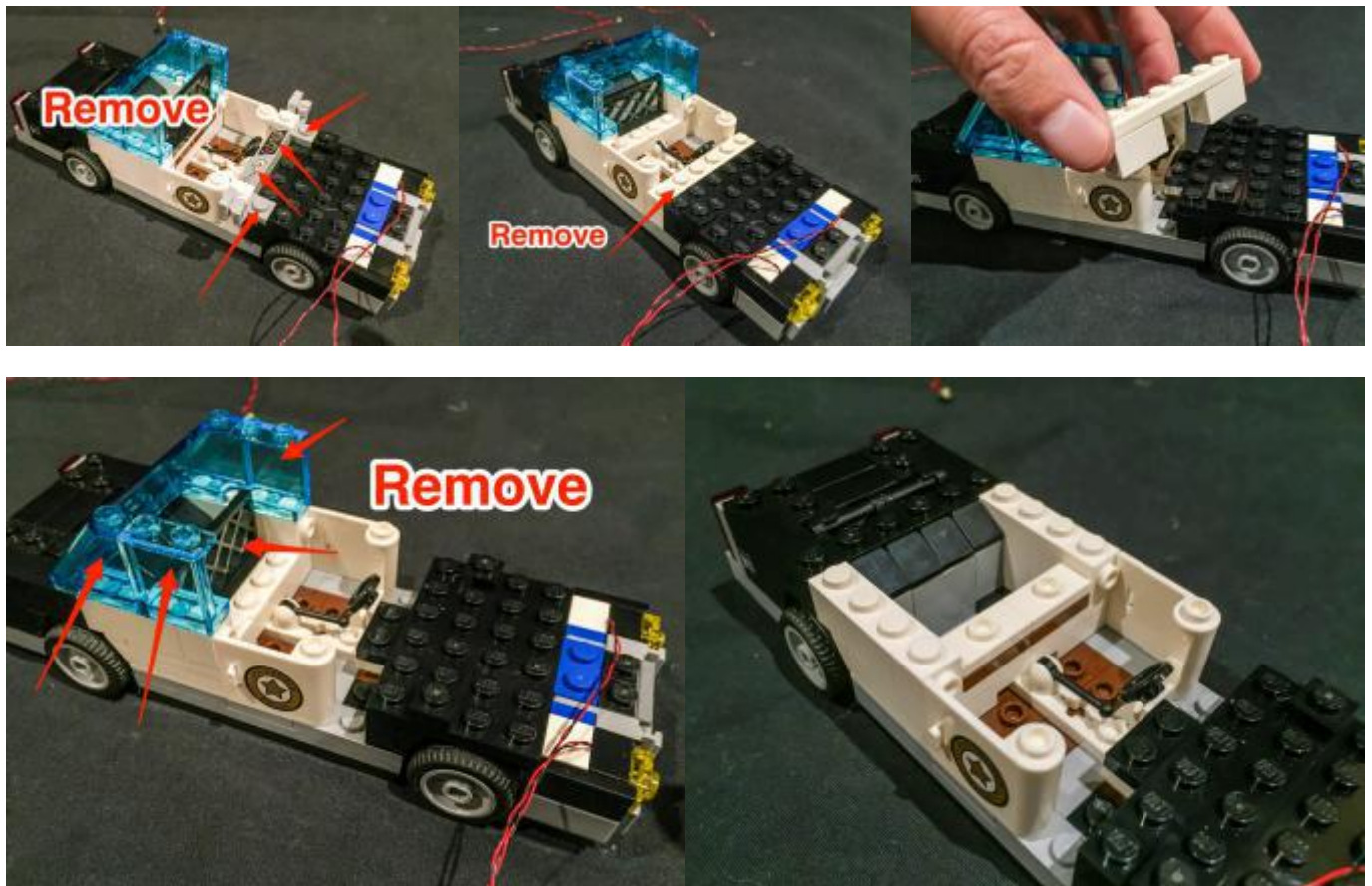
Repeat this step for the other head light of the car using another **White 15cm Dot Light**.



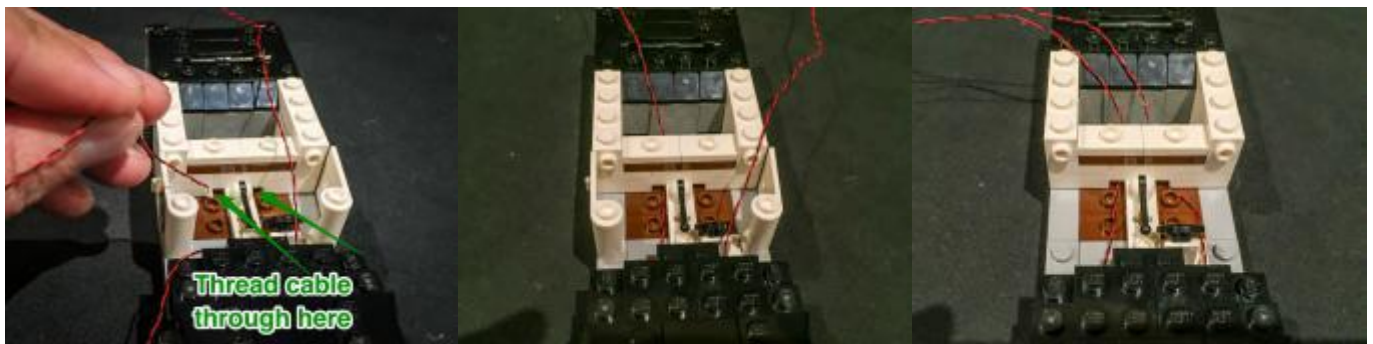
3.) Reconnect the 2 head lights back to the front of the car ensuring the cables for the lights are facing up.



4.) Next step is to remove the following Lego pieces from the car so that we can lay the cables from the headlights underneath and all the way to the back.

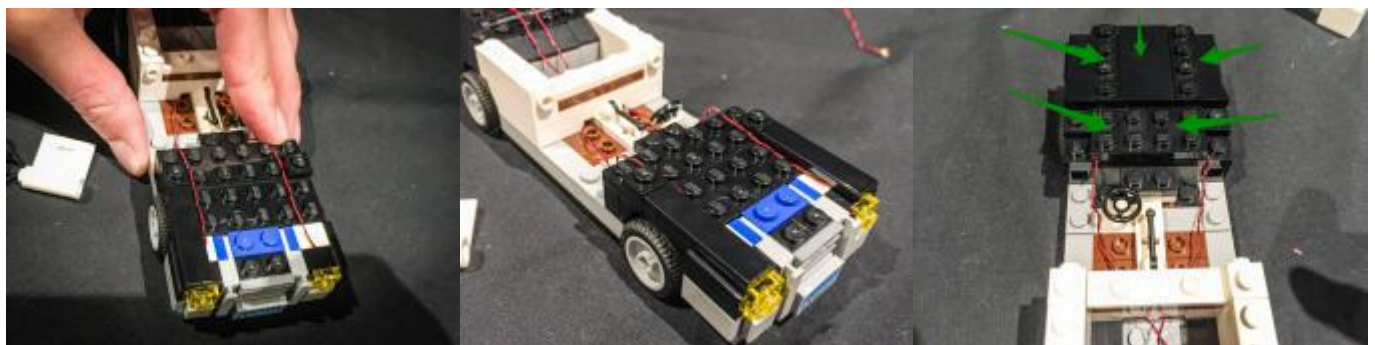


5.) Thread the 2 cables through the small holes behind the front seats, 1 cable through each hole.

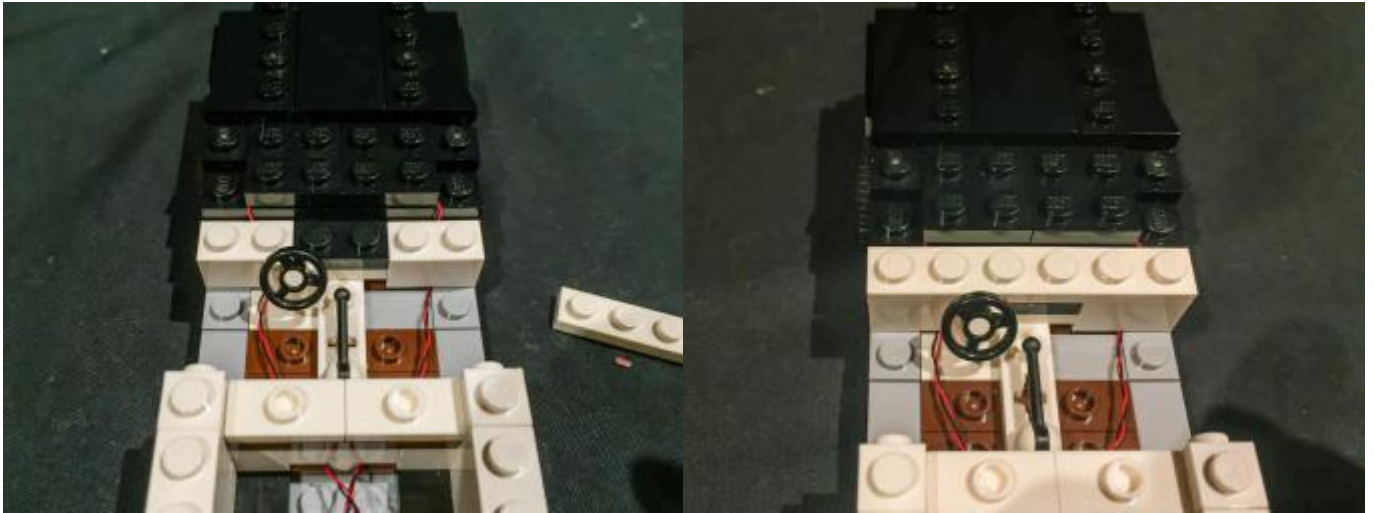


Ensure the cables are laid on the side of each of the brown Lego studs

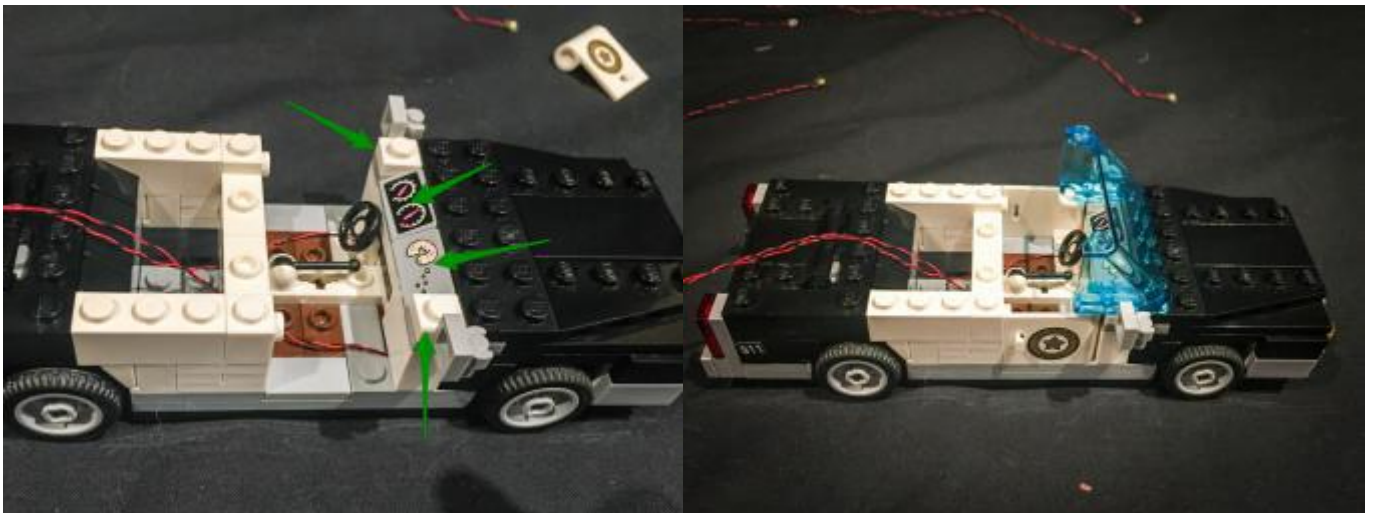
6.) Start securing the cables down by reconnecting back Lego plates and tiles over the top. Before doing so, ensure that the cables are laid in between studs exactly the same way as the below images.



7.) Reconnect the white bricks as per below ensuring that the cables are laid in between the black and white studs underneath.



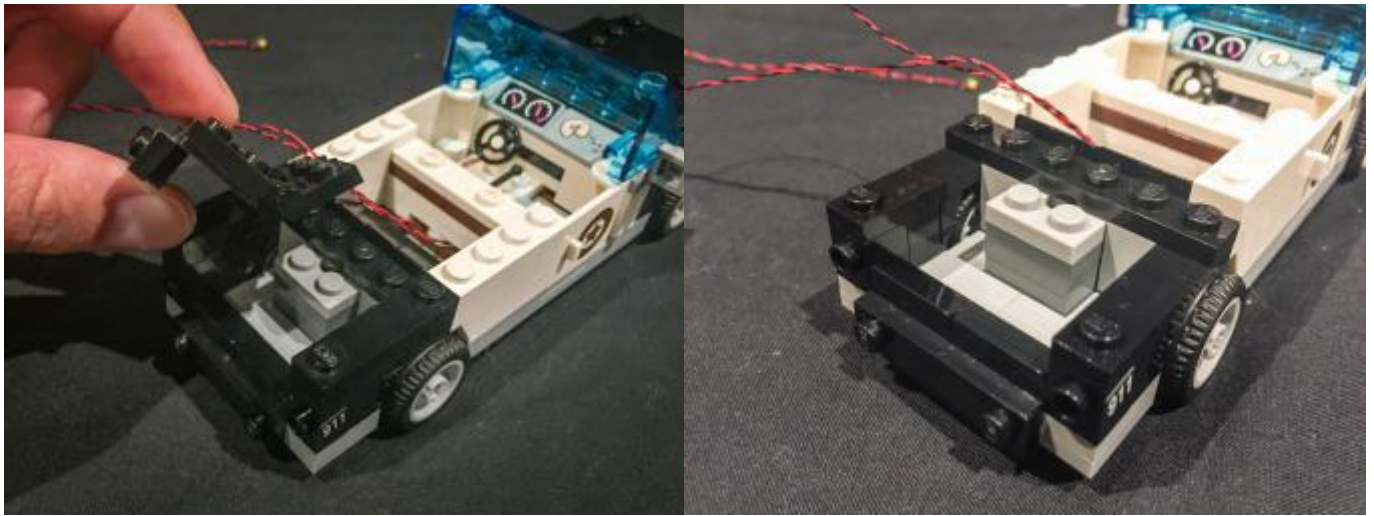
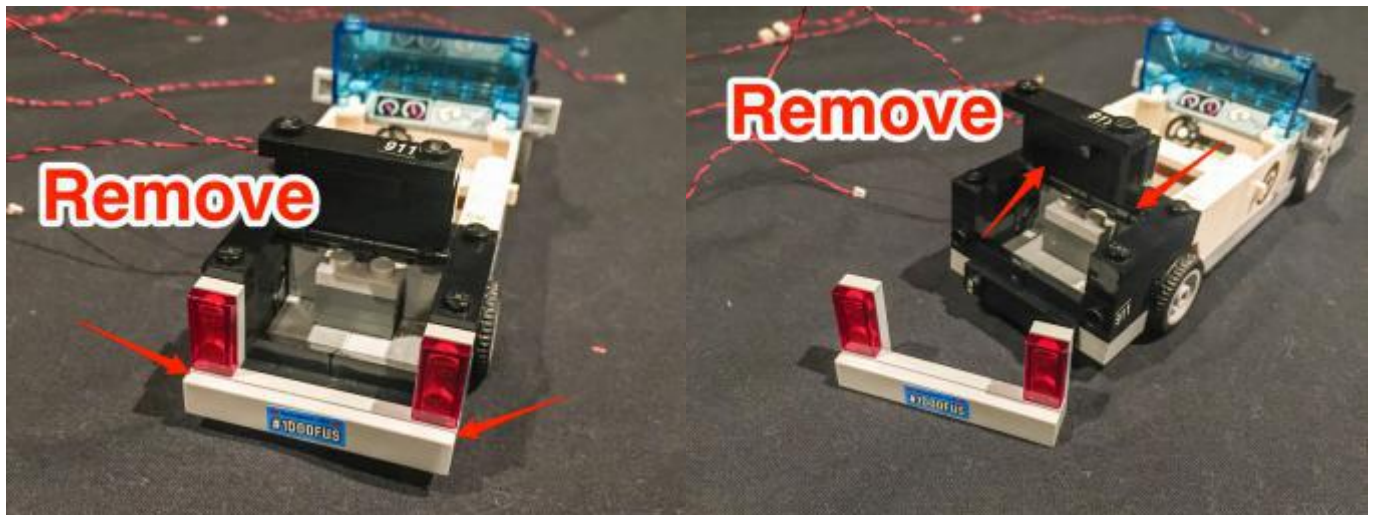
We can now also reconnect the Lego pieces which make up the front of the dash board, side mirrors, and front windscreen.



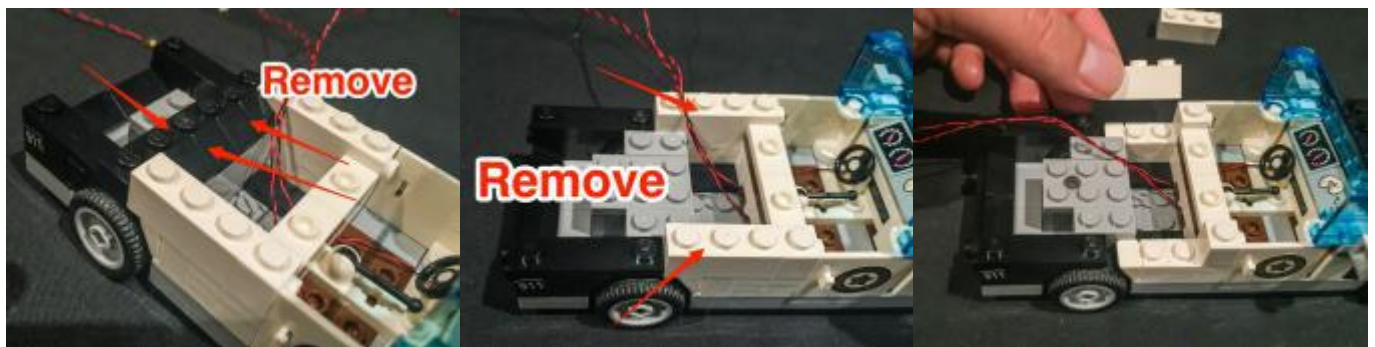
8.) In order to hide the rest of the contents from this lighting kit in the back section of the car, we will be removing and discarding the following pieces.



First, turn the car around to the back and remove the back bumper with tail lights attached, followed by the boot cover.



9.) Continue to remove the following pieces from the back of the car.

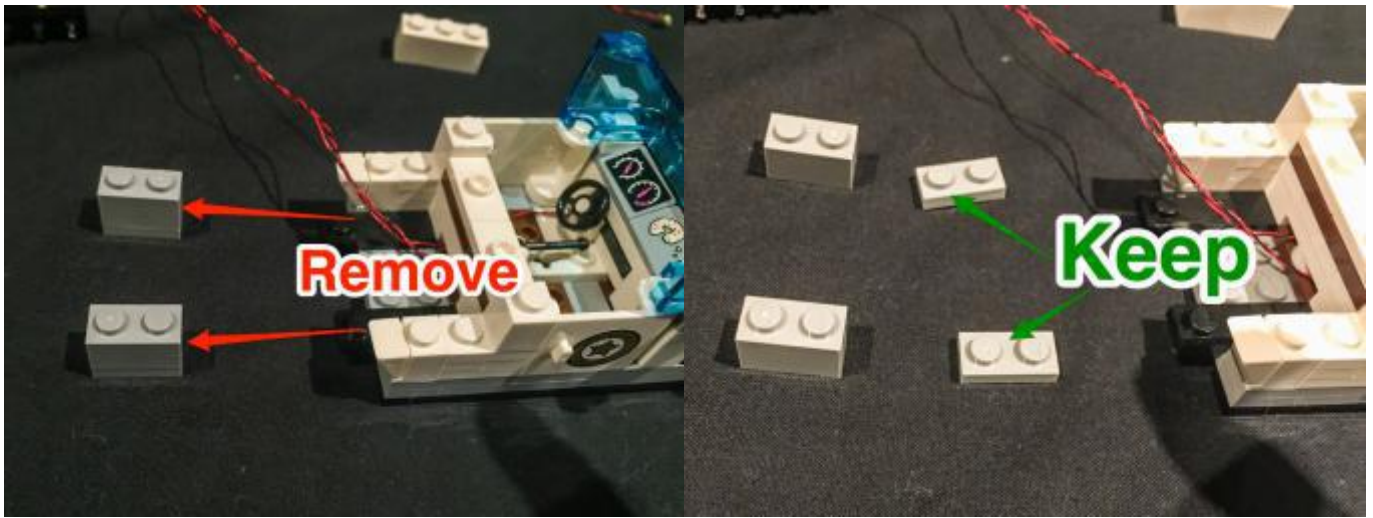


10.) Turn the car over and remove the following pieces.





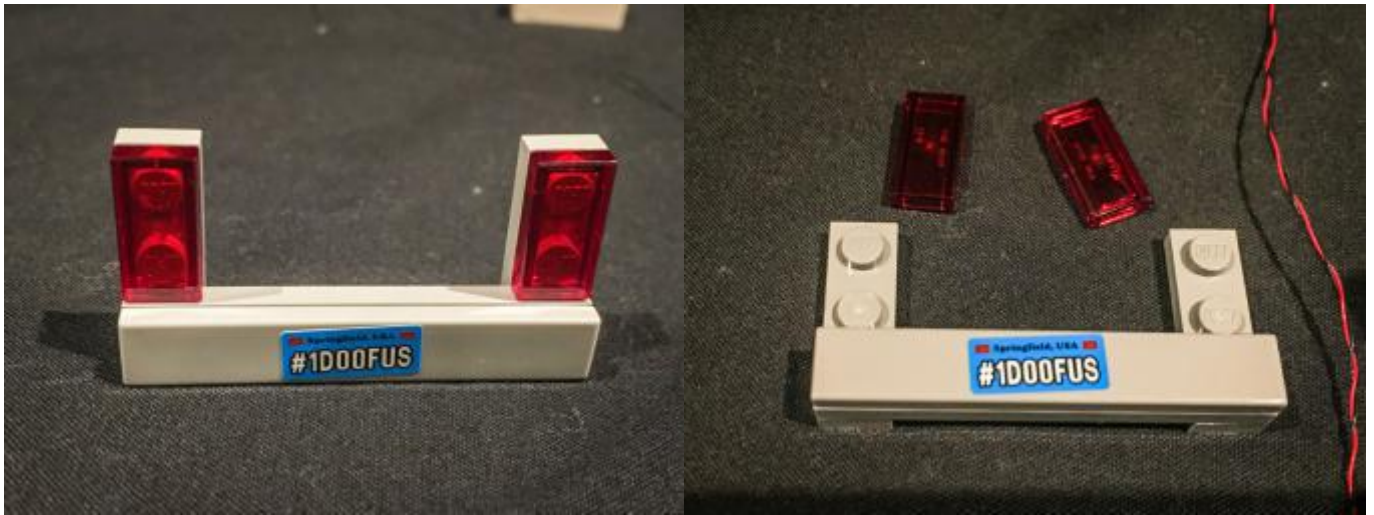
11.) Remove the 2 grey bricks with plates attached below, then separate these pieces and hang on to the 2 grey plates.



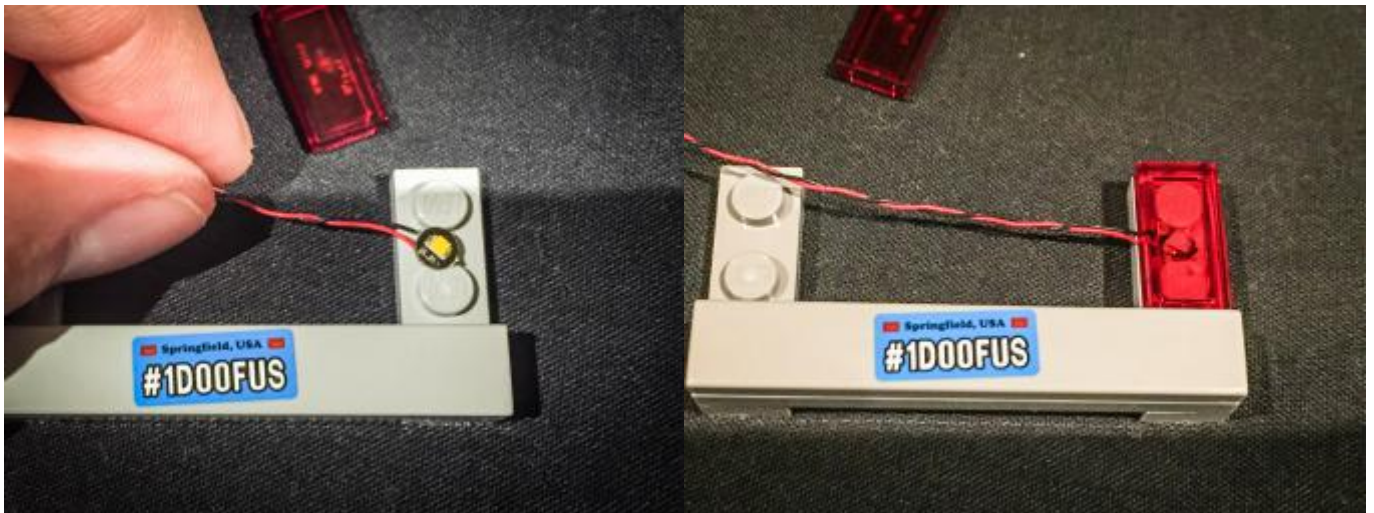
12.) Remove the following pieces from the rear wheels and then connect to the axle, the 2 grey pieces we kept in the previous step in the following position.



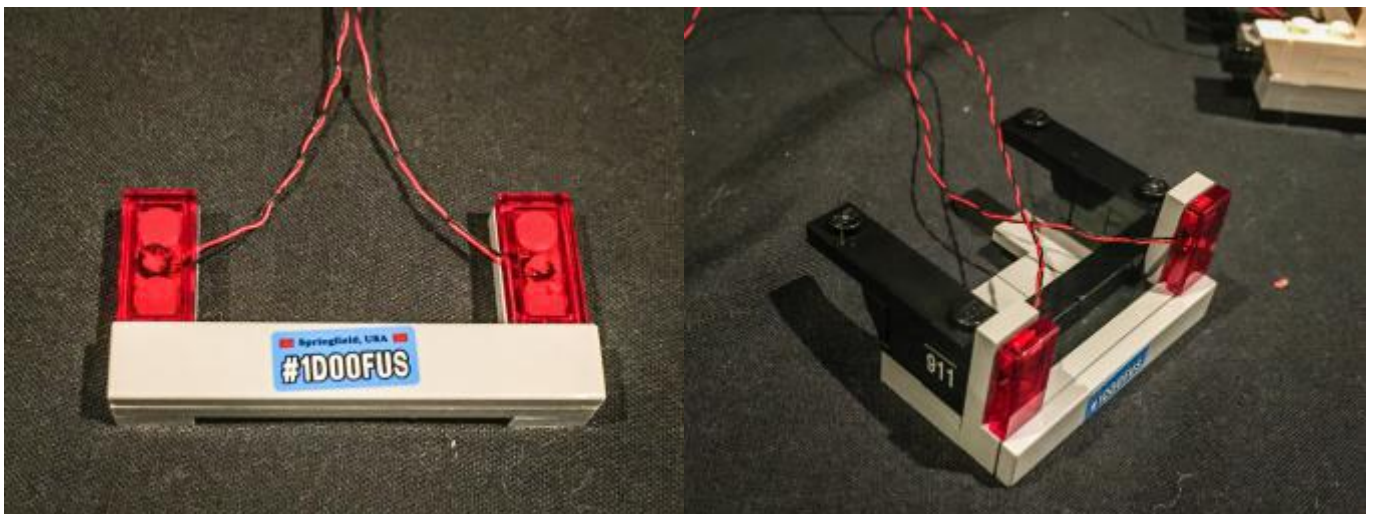
13.) We are now ready to install the 2 tail lights. Take the bumper with lights attached and remove the 2 transparent red plates.



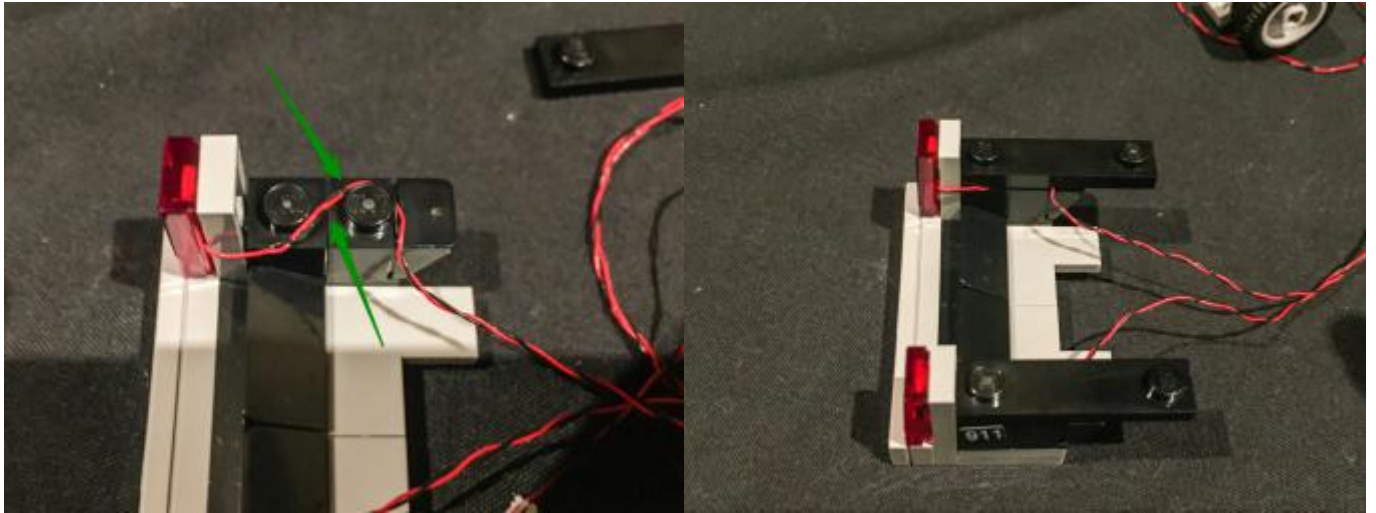
Take another **White 15cm Dot Light** and place it in between the 2 grey studs. Secure this LED in place by reconnecting a transparent red plate over the top.



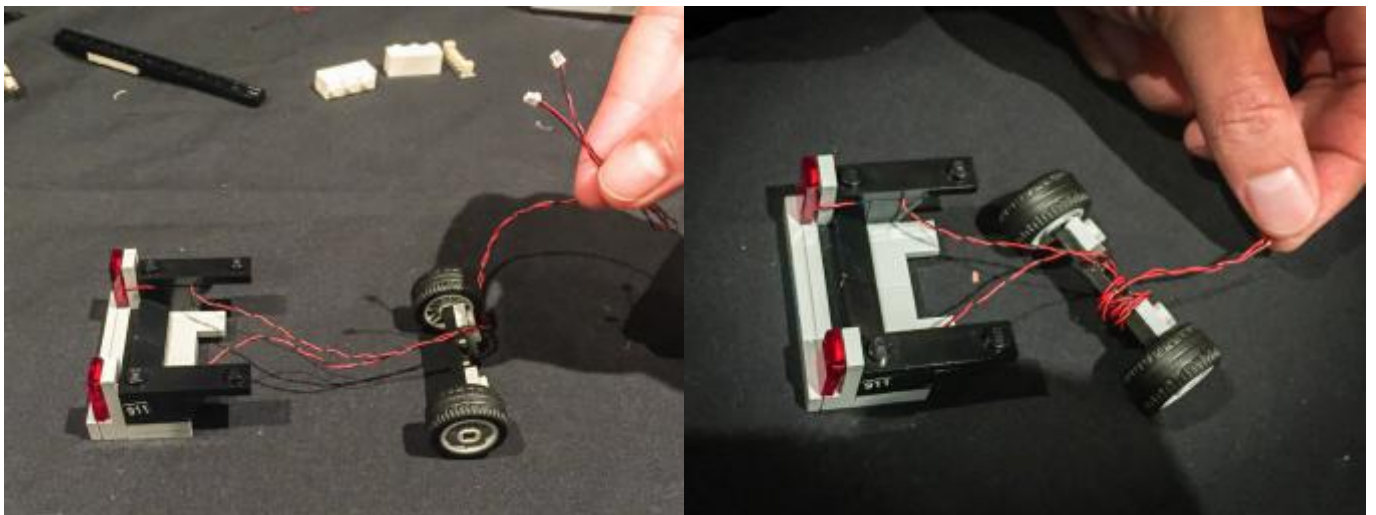
Repeat this step for the 2nd tail light using another **White 15cm Dot Light** then reconnect the bumper to the back section of the car.



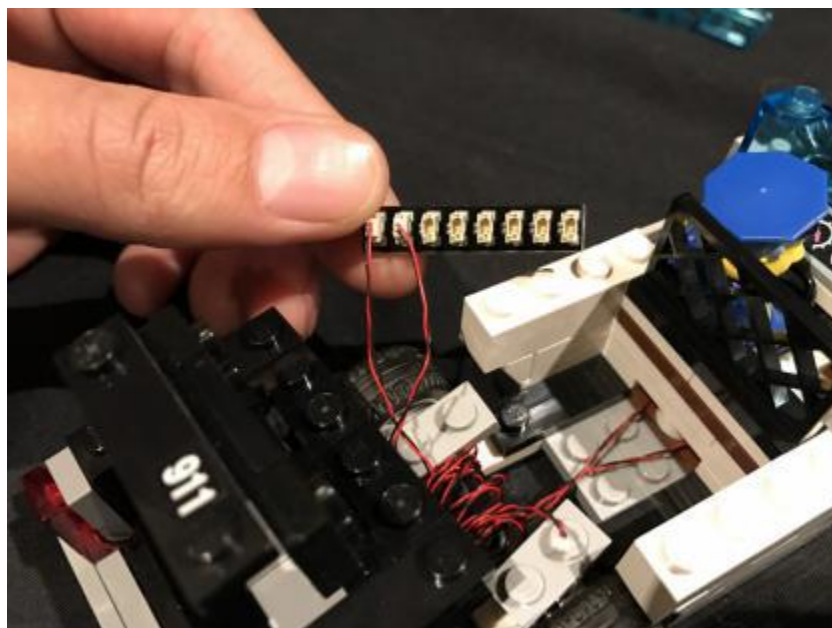
14.) Secure the 2 cables from the tail lights to the inside of the boot by laying them in between studs underneath the black plate on each side.



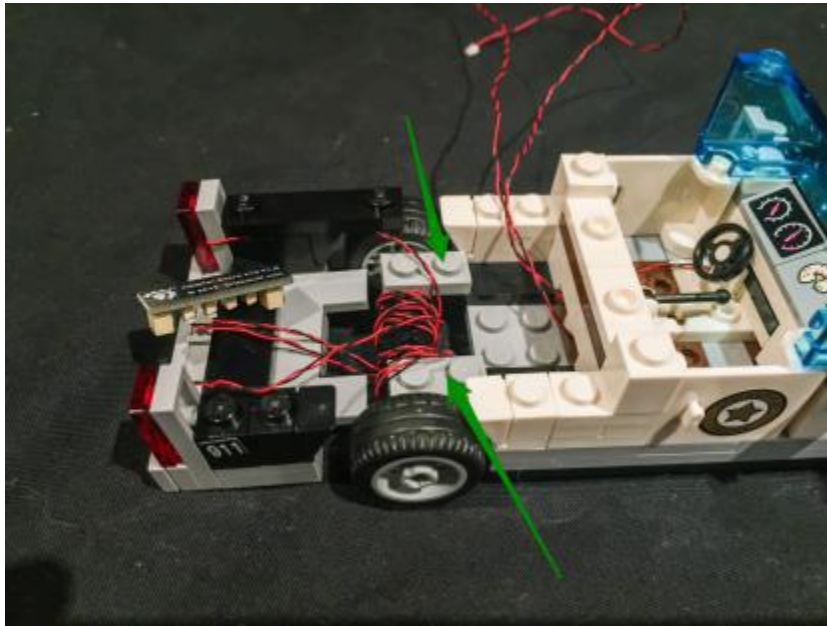
15.) Take the 2 cables and then pull them together and twist them around so they both come together. Wind the cables around the axle of the rear wheels a few times until you have about 2-3 cm of excess cable left on each side.



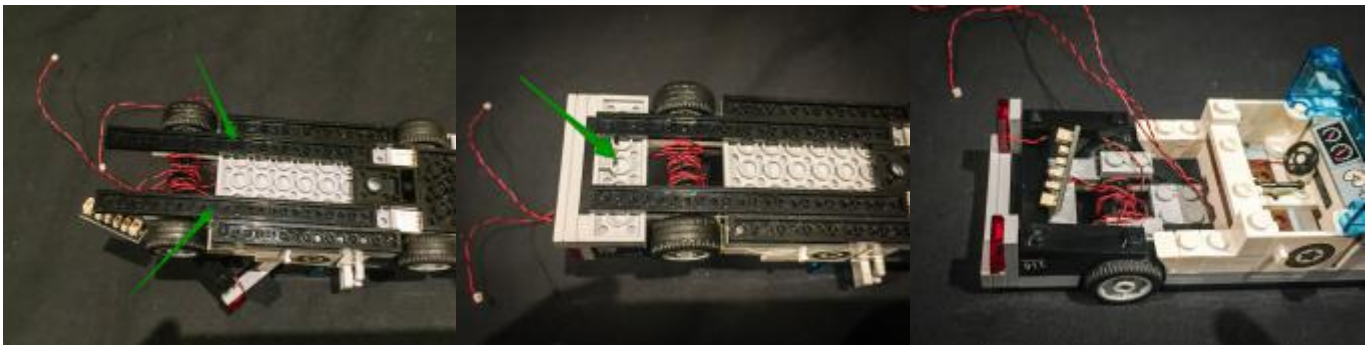
Connect these 2 lights to first available ports on the **8-port expansion board**



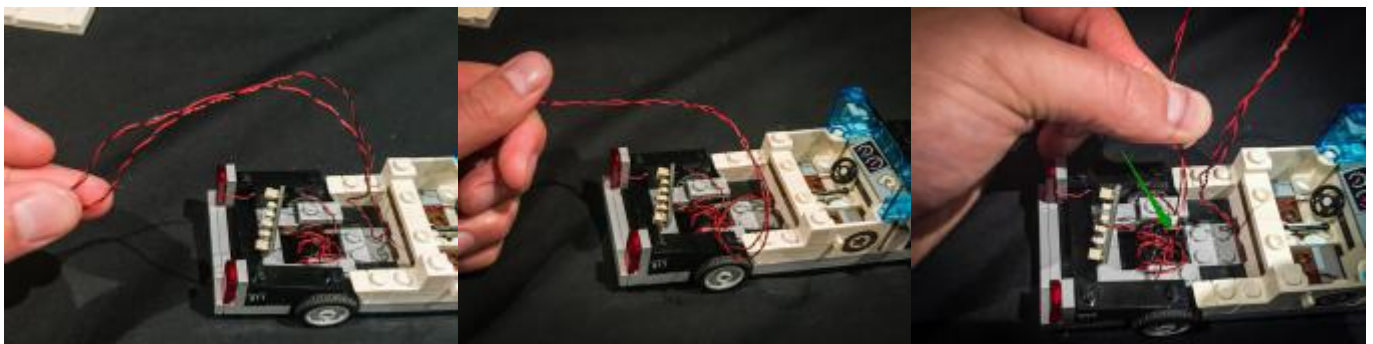
16.) Reconnect the rear wheels along with the back section of the car to the rest of the car using the 2 grey Lego pieces.



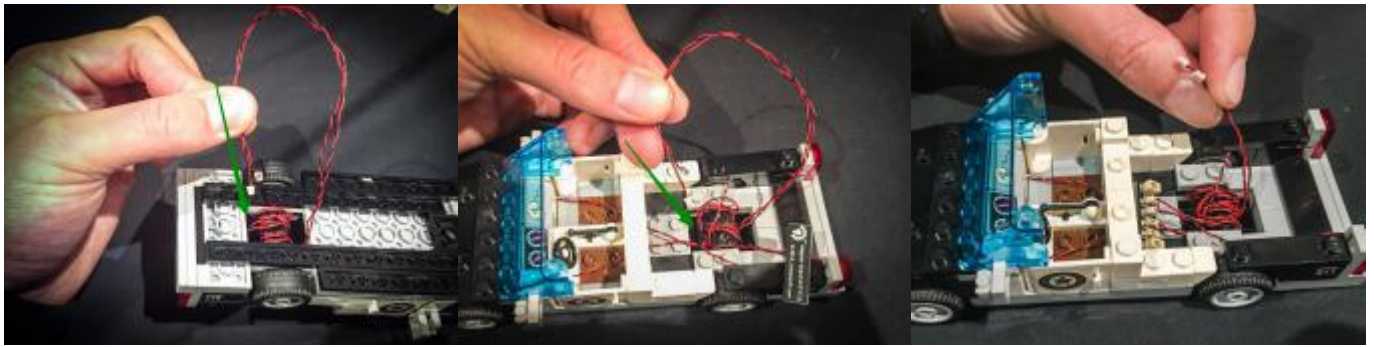
Flip the car over and then reconnect the 2 long black plates (which we removed earlier). This will then allow the back section of the car to be secured to the car.



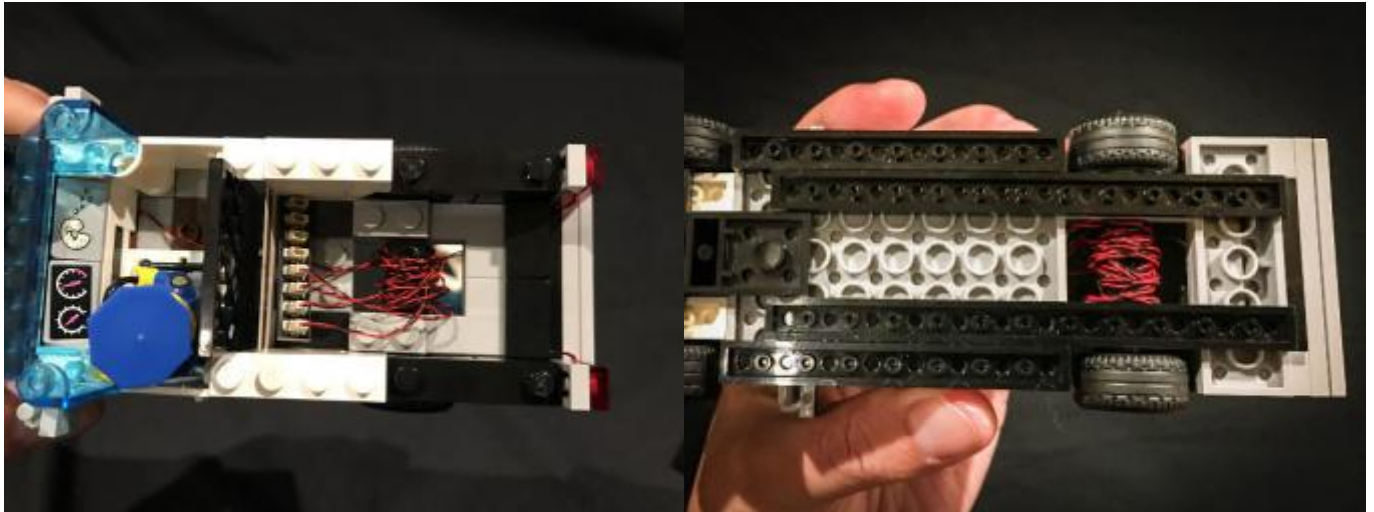
17.) Take the 2 cables from the front lights and twist them around so they come together. Thread them down the space in between the axle and the grey Lego piece (4 grey studs).



Turn the car over and then pull the 2 cables up from underneath all the way and then then thread them down again over the axle. Repeat this process a few times (threading the cable around the axle) until there is only approx 3 cm left of the cable.



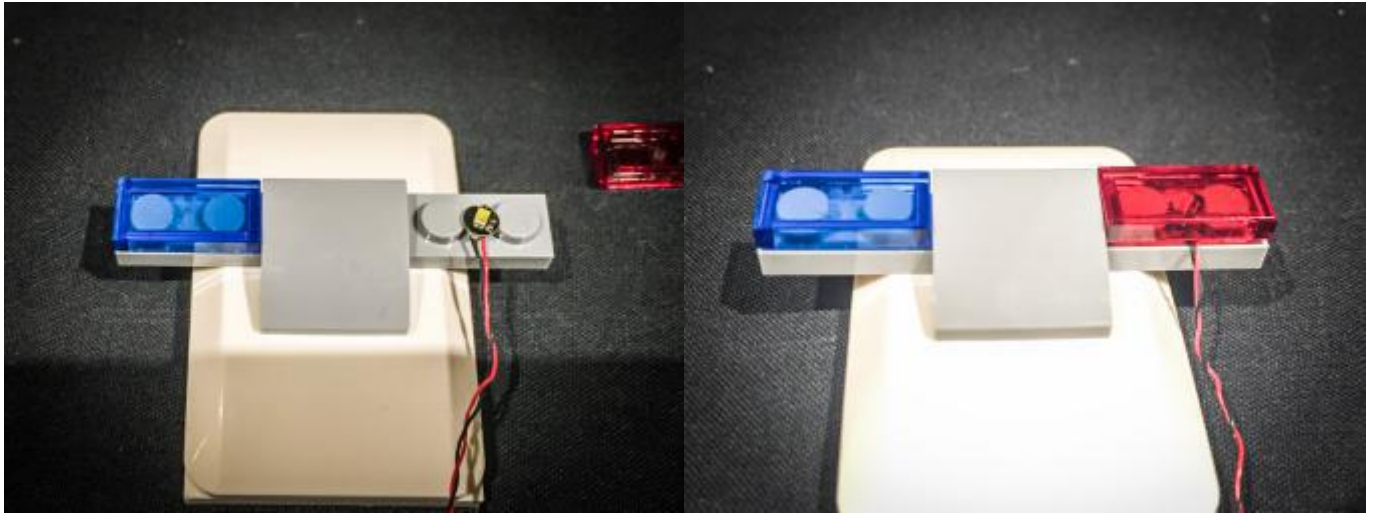
Plug the 2 cables into the next available ports on the expansion board.



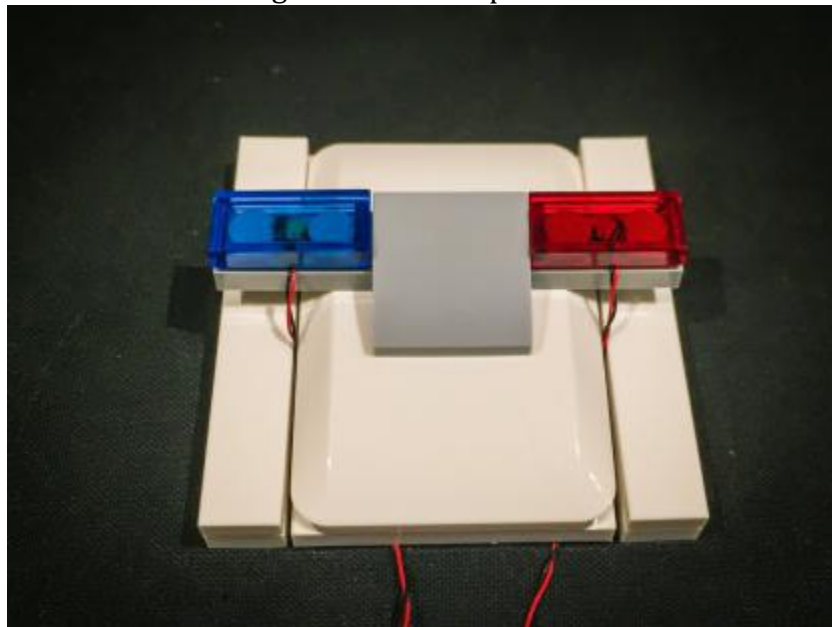
18.) We will now install flashing lights to the siren lights on the roof of the car. Take the roof and remove the long white plates on each side.



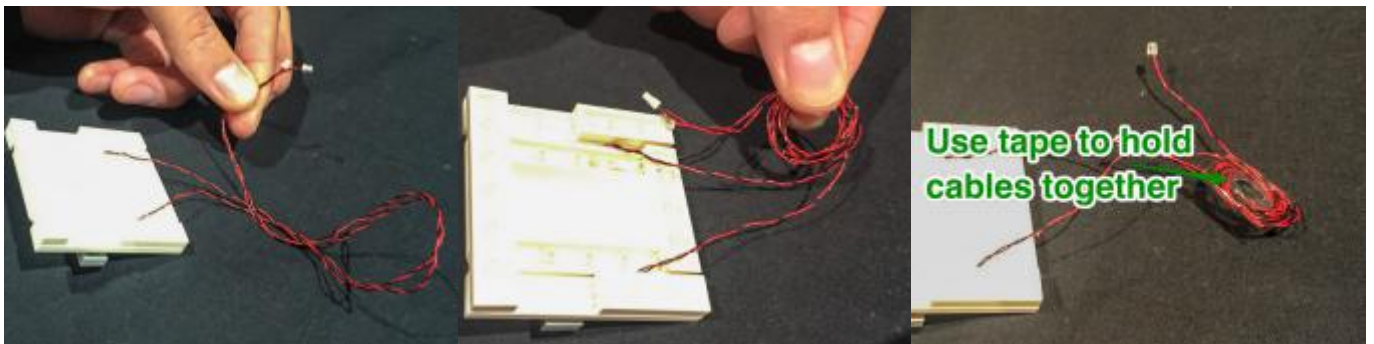
Remove the transparent red Lego tile and then take one of the **Flashing White 15cm Dot Lights** and place it in between the 2 grey studs, then secure the LED in place by reconnecting the transparent red tile over the top.



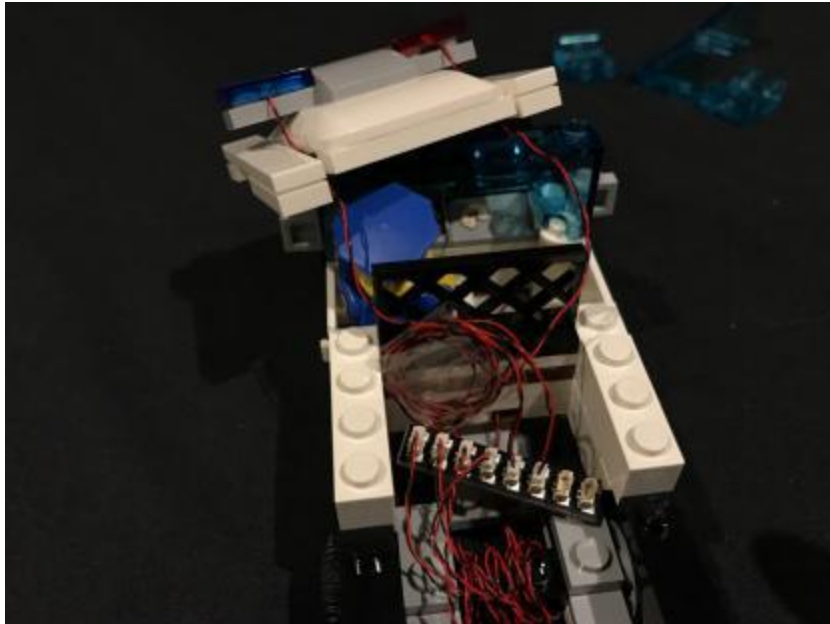
Repeat this process using another **Flashing White 15cm Dot Light** for the blue light. Then reconnect the long white tiles on each side ensuring the cables are pulled down in between.



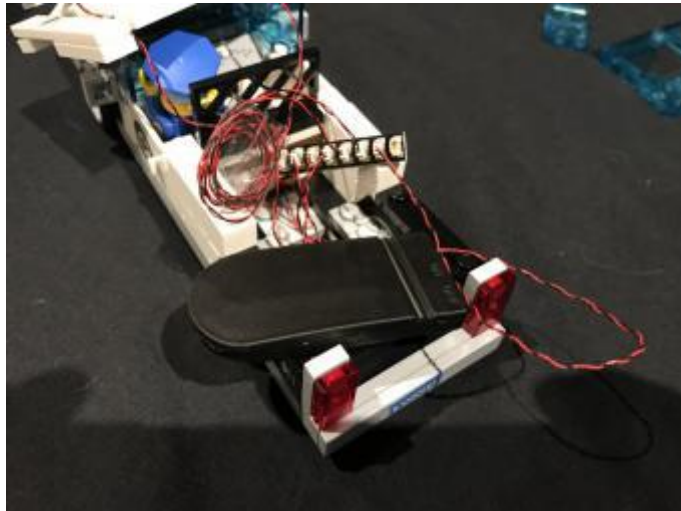
19.) Take the 2 cables from underneath the roof and twist them so that they come together. Wind them around so they form a neat loop of cables with a diameter of around 1.5cm. Use a bit of tape to hold them together, preventing them from untangling.



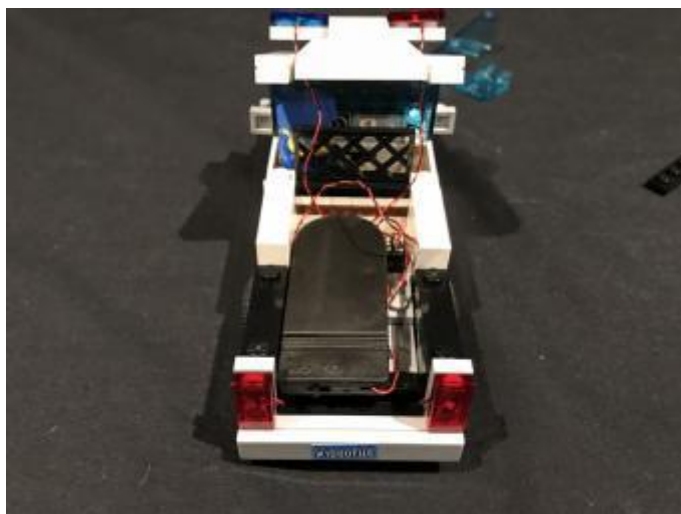
20.) Place the roof with lights installed on top of the car and then connect the 2 flashing Dot Light cables into the next available ports on the expansion board.



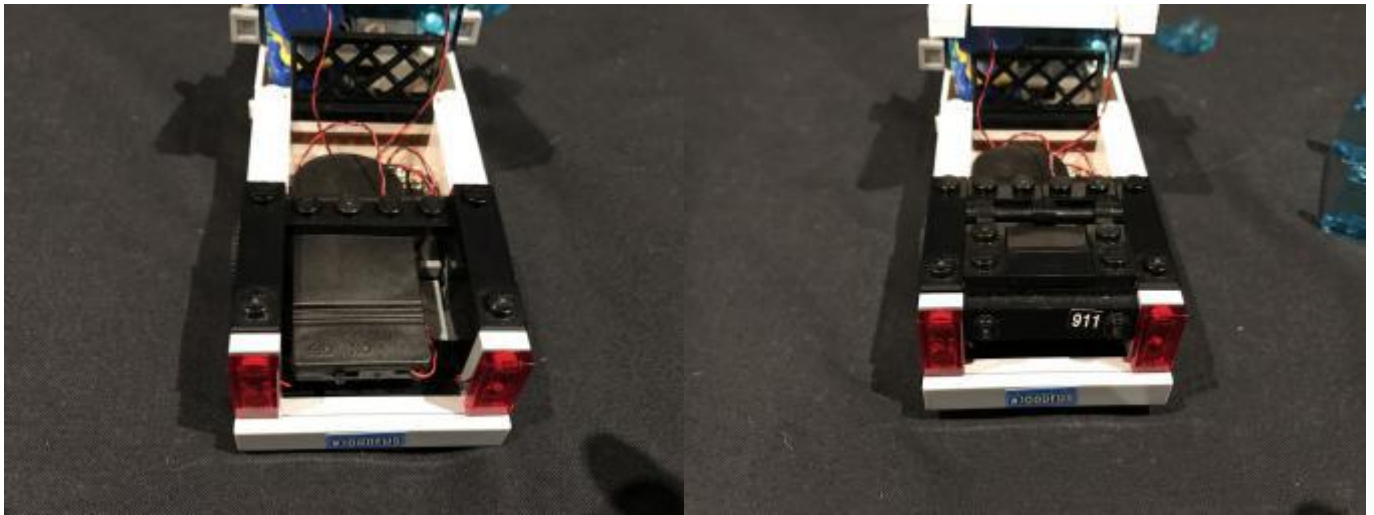
21.) Take the flat battery pack and insert 2x CR2032 batteries, then connect the battery pack cable to the spare port on the expansion board.



Place the battery pack in the following position ensuring that the on/off switch is facing the outside.



24.) Reconnect the pieces that surround the boot of the car to secure the battery pack.



25.) Reconnect the the side windows and back windscreen before reconnecting back the roof of the car. While doing so, ensure that the cables from the flashing lights are neatly kept in the back section underneath.



Installation of this Police Car lighting kit is now complete.

Lighting The Kwik E Mart

This Lego tool will be required as it will be used to remove the roof of the Kwik-E-Mart as well as other Lego pieces.



1.) We will install lights starting from the right sections (store room) of the Kwik-E-Mart. We will need

to first remove the roof of the right section by using the Lego tool to remove the roof at the following sections.

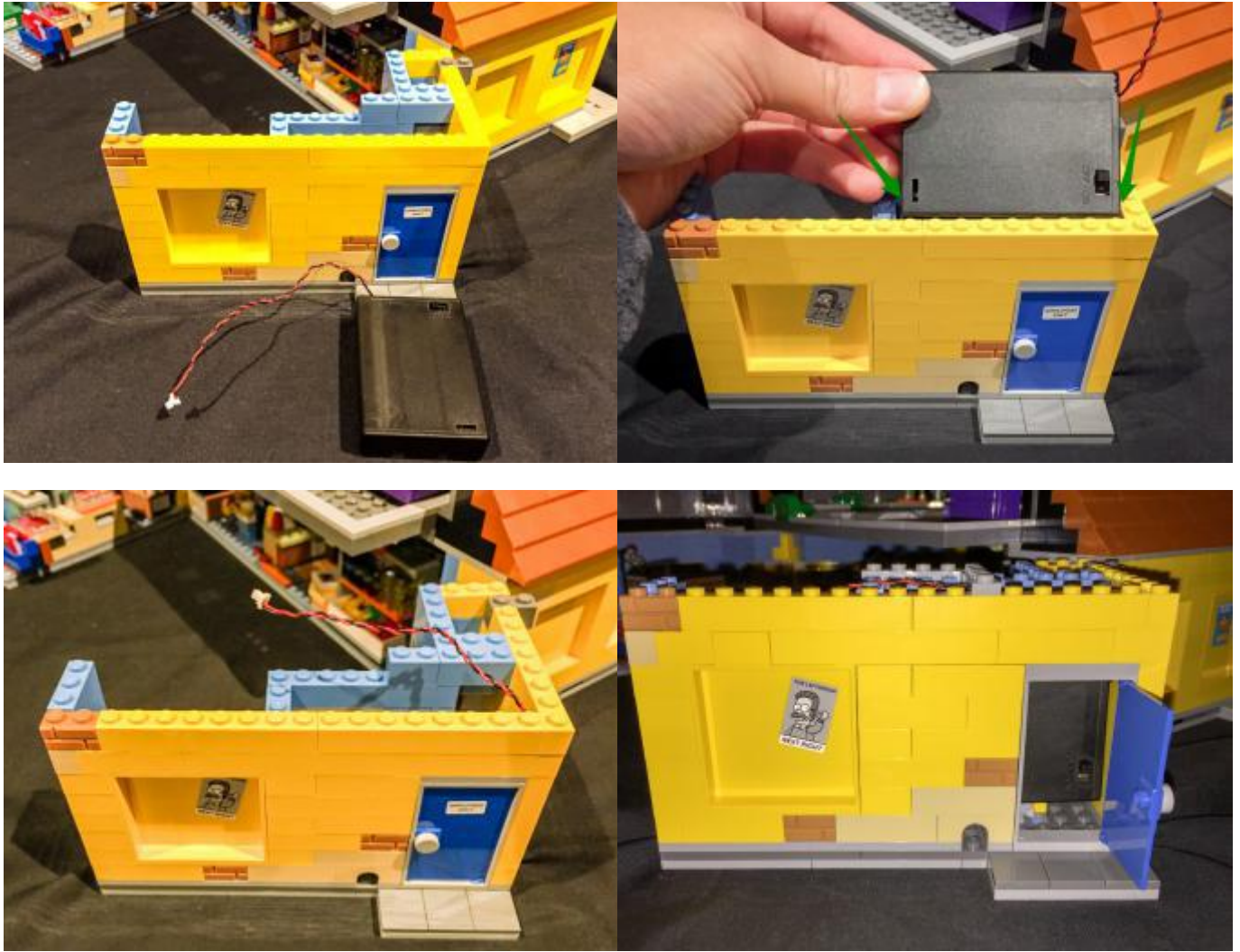


2.) We will be installing the battery pack to the “store room”. Remove the following Lego bricks to allow enough space for the battery pack to go.

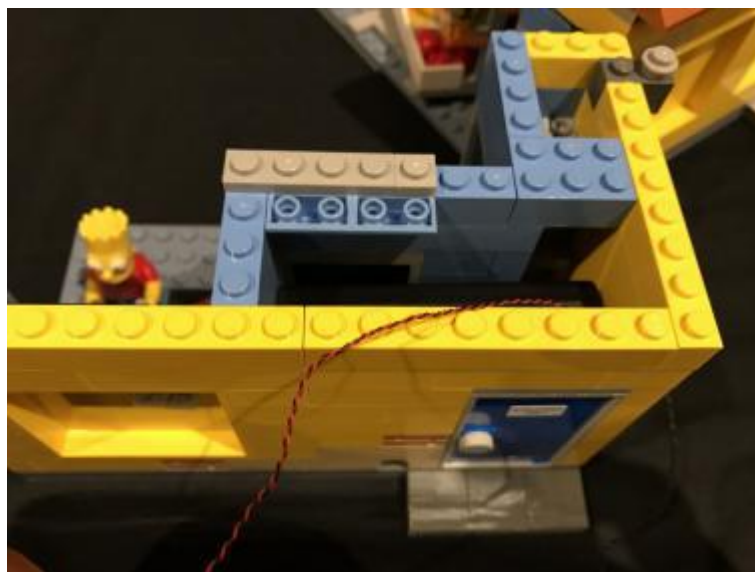


Take the battery pack and insert 3x AA batteries, then place it down the spacing in between the walls.

Ensure the battery pack is inserted in the exact position per below, as the “on-off” switch will need to be accessible by opening the back door.



Reconnect the pieces we removed earlier.



3.) Take one 30cm connecting cable and connect it to the left port of an LED strip light (**striplight#1**). Connect the battery cable to the right port of this strip light.



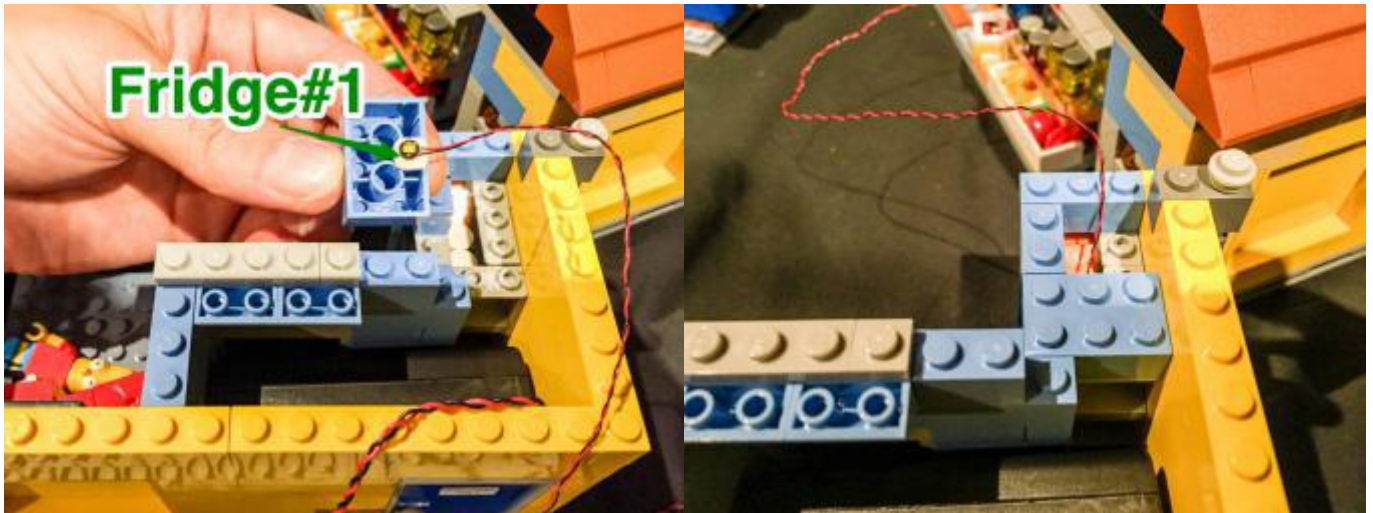
Take the roof of this section and flip it over then connect/stick the strip light in the following position. Ensure that you loop the 30cm cable above and then underneath the strip light so that it is not visible from the inside of the store.



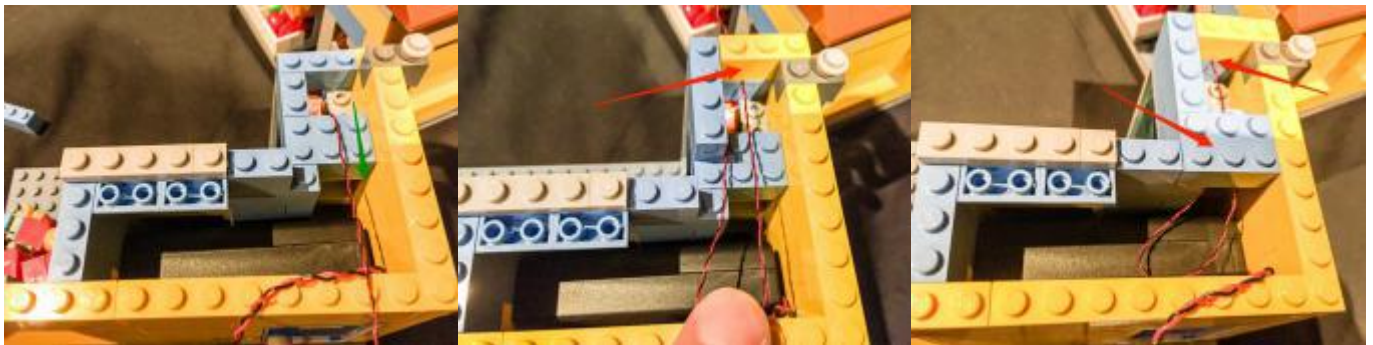
4.) We will now install a light to the fridge of this section. Remove the following pieces to allow us to get to it.



5.) Take 1 of the **White 30cm Dot Lights** and attach it to the bottom of the 2 x 6 Lego brick using one of the provided double sided adhesive squares. Stick it in the following position as pictured below. We will identify this light as **fridge#1**. Reconnect this brick with the cable facing upward.



6.) Secure the cable by pulling it over the blue 2 x 6 brick and then forming a loop, then pushing it back up and securing it underneath the yellow 1 x 3 brick and the blue 2 x 6 brick. While doing this ensure that the connector part is on the other side of the wall underneath the yellow 1 x 3 brick.



7.) Re-attach the roof as follows ensuring that the 30cm cable is pulled between the walls and out the same side as the cable from fridge#1.



8.) Use the Lego removal tool to remove the main roof section at the following sections. Carefully use the tool to lift the roof away from the yellow walls a little bit at a time to ensure the entire roof

disconnects easily in one piece.



9.) We will continue to install lights to the next lot of fridges. Start by removing the following pieces.



10.) Take another **White 30cm Dot Light (fridge#2)** and attach it using another adhesive square in the following position. Reconnect this brick with cable facing up.



11.) Install another **White 30cm Dot Light** for **fridge#3** using the same method as above and following these images.



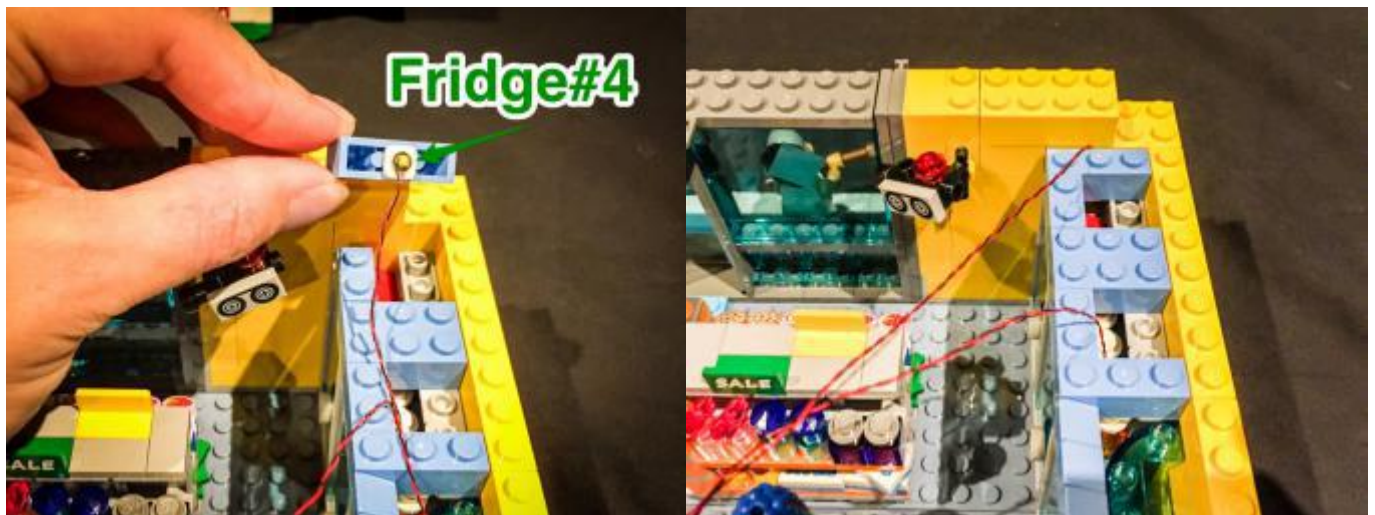
12.) Before we install the 4th fridge light, we need to remove one of the red piece items off the top shelf to prevent the light from being blocked out. Remove the following pieces to get to it.



Remove the red Lego piece on the far left and then reconnect the shelf.



Reconnect the blue Lego pieces we removed while taking another **White 30cm Dot Light** and install it in the following position (**fridge#4**).



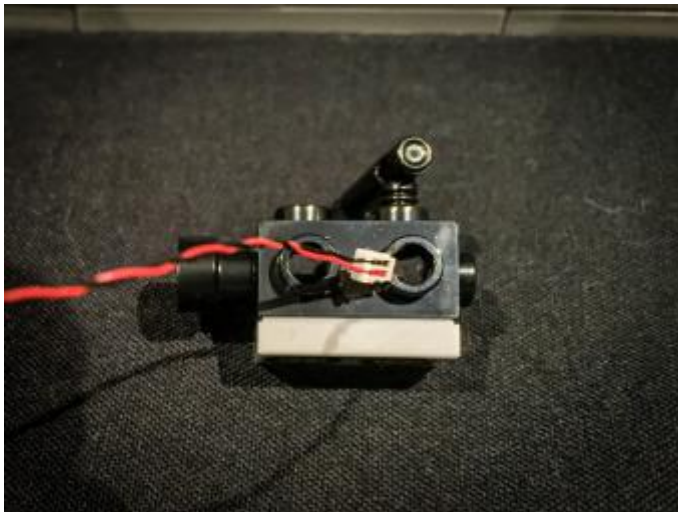
13.) Pull the 30cm cable and cable from fridge#1 across and secure them down by connecting back the yellow 2x3 brick over the top ensuring the cables are laid in between studs.



14.) We will now install a flashing light to the Video camera. Remove the video camera from its connector and place it down.



15.) Take 1 **Flashing Red 30cm Dot Light** and using the connector end of the cable, thread it through the hole at the top back of the camera. Pull it through from the bottom of the camera all the way until the LED component part is sitting flat against the top of the hole. Ensure that the LED component is facing the correct way up. Secure the LED in place by connecting one of the provided transparent red round Lego pieces. We will identify this as **video#1**.

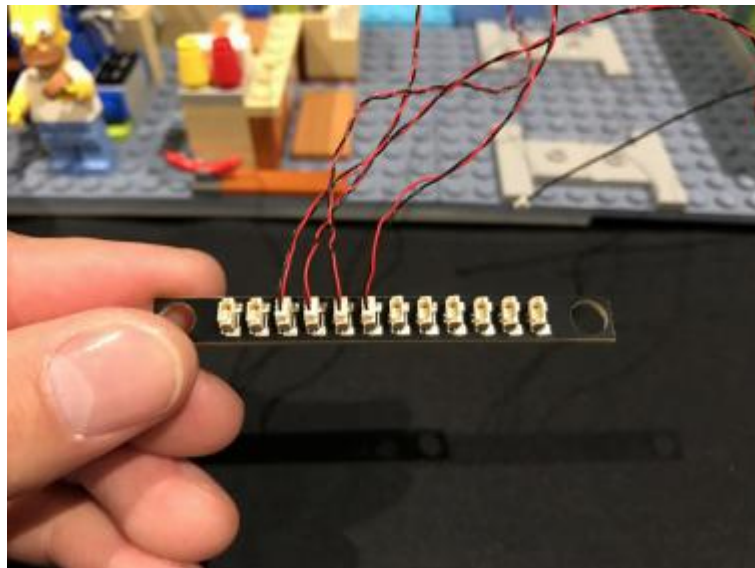


Connect the video camera back to its original position then secure the video camera cable in place by connecting the blue 1 x 2 Lego piece over the top.

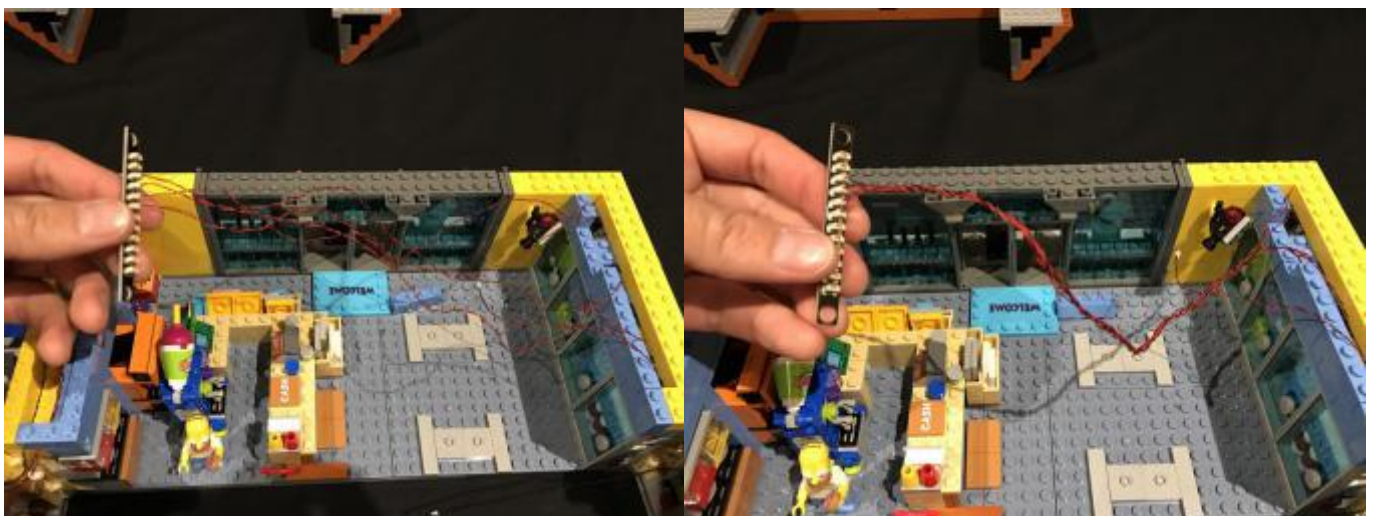


Ensure cables are laid in between studs before connecting bricks over them.

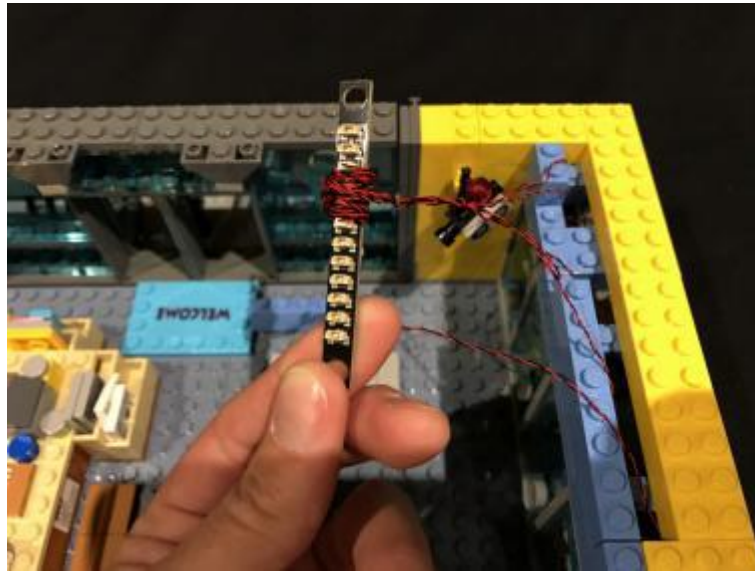
15.) Take the cables from video#1, fridge#2,, 3 and 4 and connect them all to one of the 12-port expansion boards.



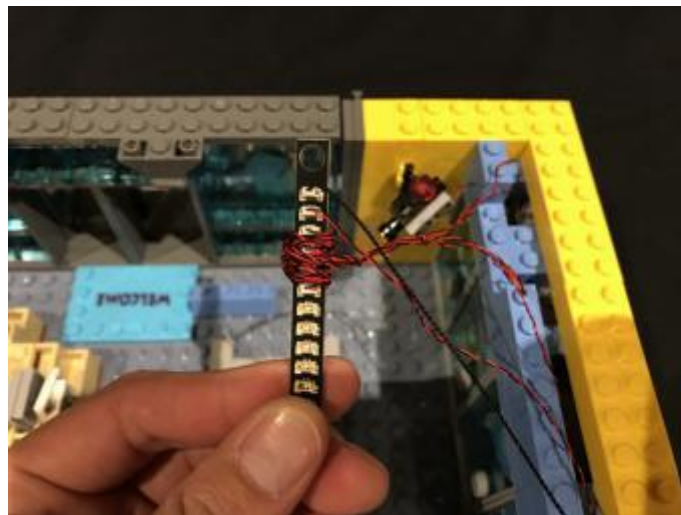
Group the 4 cables together and twist them around each other so that they all form one large cable.



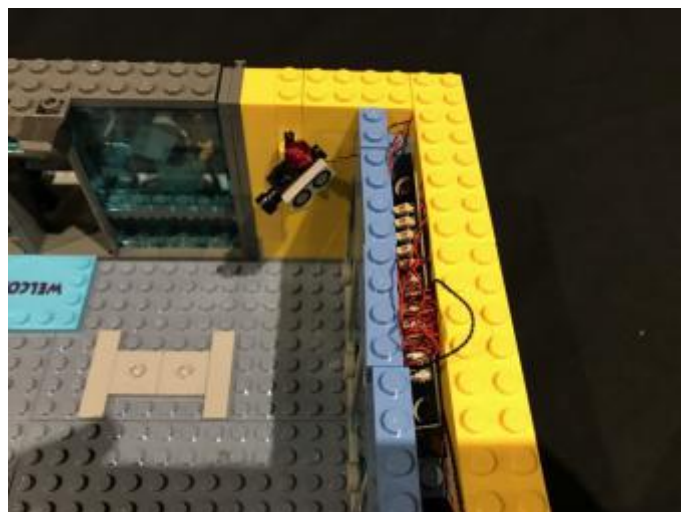
Wind the cables around the board until you have about 8–10 cm of slack.



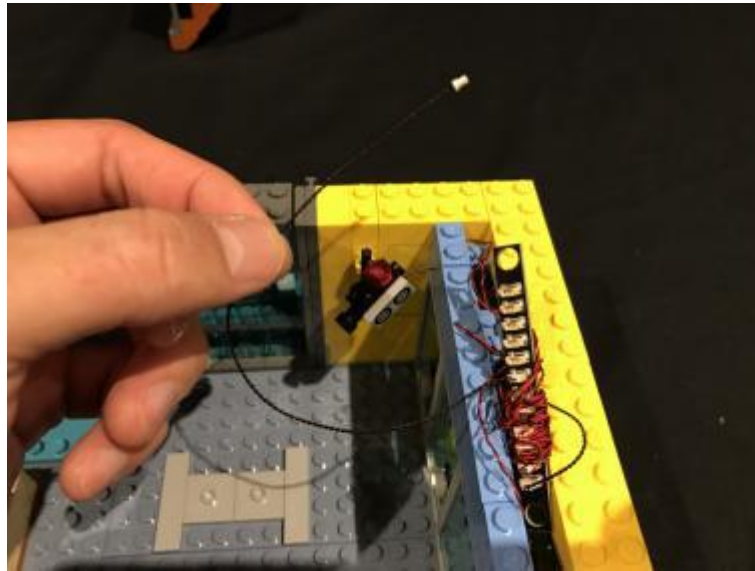
16.) Connect the 30 cm cable and cable from fridge#1 into the next available ports on the expansion board.



17.) Wind the rest of the cables around each the expansion board as much as possible and then squeeze the expansion board on top of the fridges in between the blue and yellow bricks. Ensure that the available ports are facing toward video#1. Then reconnect all the bricks surrounding the fridge.

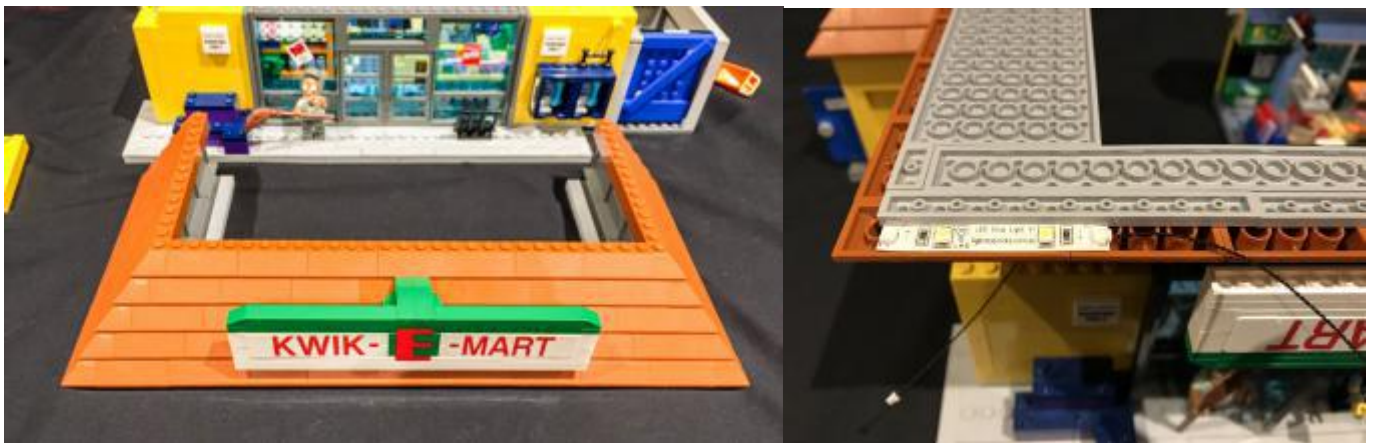


18.) Take a 15cm cable and connect it into a spare port on the expansion board.



19.) We can test our current lighting circuit as you go by simply turning on the battery pack. This is a good idea as you want to ensure all is working before you connect back bricks into original positions. Let's turn it on to see how it looks so far.

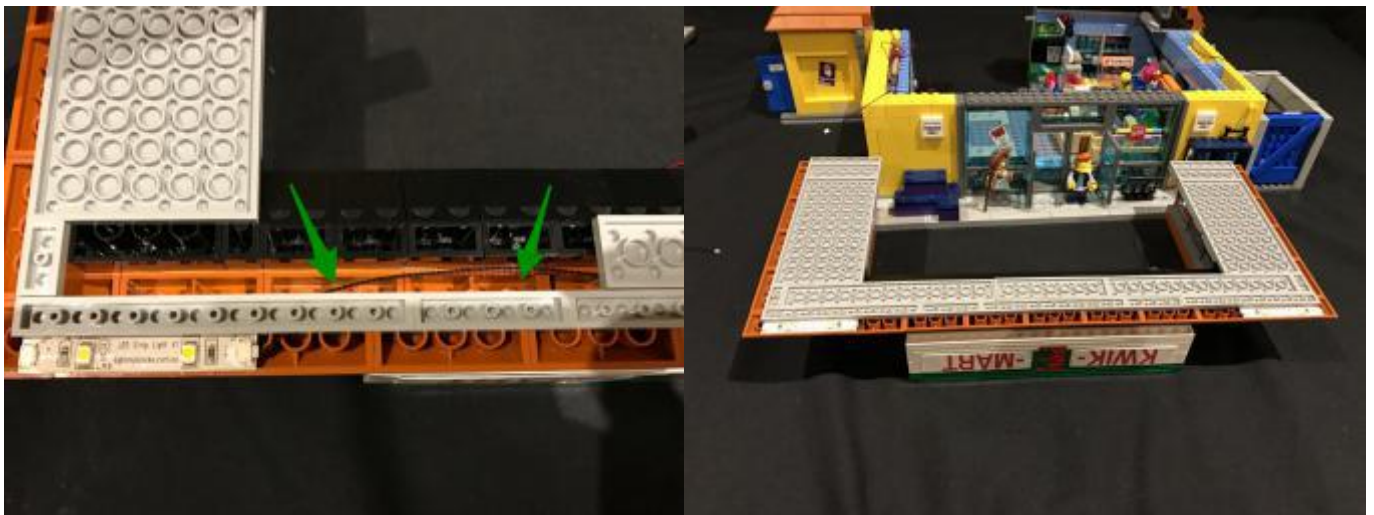
20.) We will now move onto lighting the front of the building's roof section. Take the main section of the roof and turn it over. Take 1 LED strip light (striplight#2) and stick it to the following section on the left side under the roof. Sticking the strip light using it's adhesive backing is recommended for this part rather than sticking to 1x6 lego plates. Then take another 30cm cable and connect it to the right port.



Take another strip light (striplight#3) and stick it to the following position on the right side of the roof (using the strip light's adhesive backing). Then connect to the other end of the 30cm cable from striplight#2 into the left port.



Hide the 30cm cable underneath the grey Lego tiles in the spacing underneath the roof.



21.)We will now install the 2 billboard lights which point to the “Kwik-E-Mart” sign.

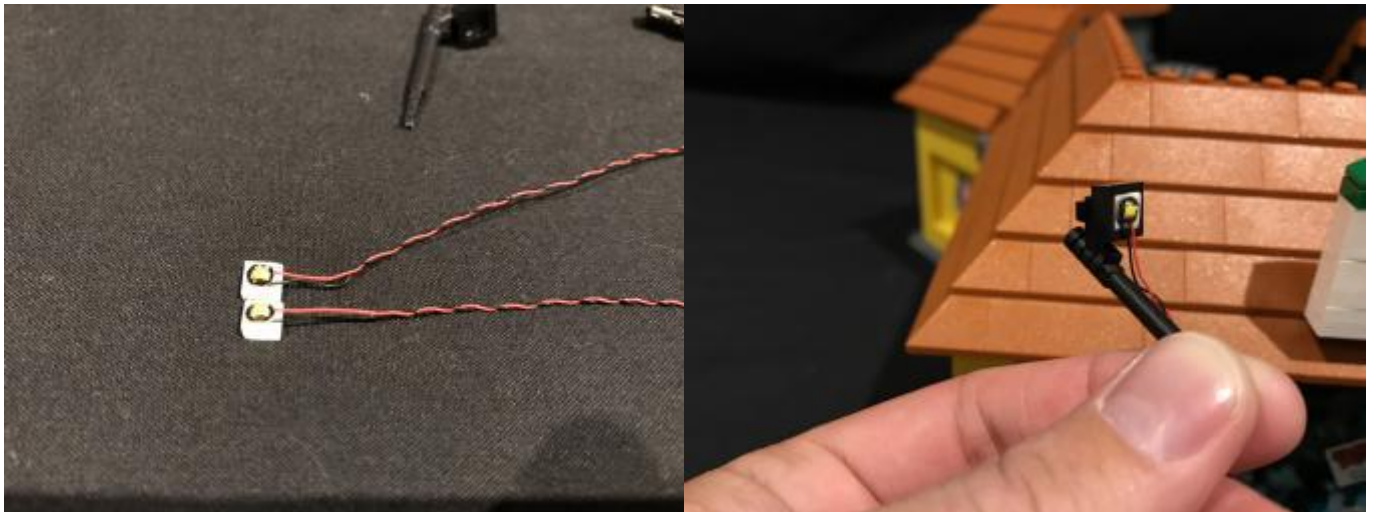
Locate the following Lego pieces which have been included in this set.



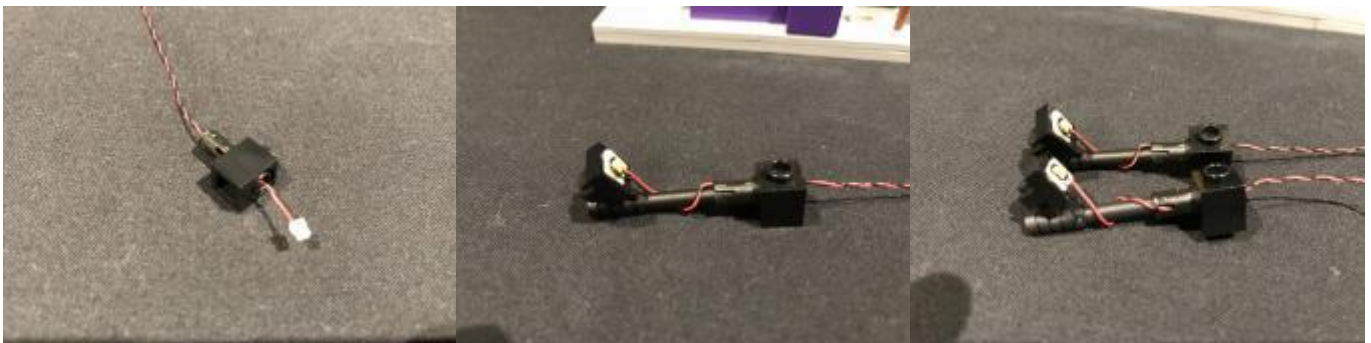
Connect the 1x1 plates with clips onto each of the spear gun pieces then using some scissors snip off the pointed end at the following position. YES, we will need to cut this piece in order for it to clip in securely to the roof.



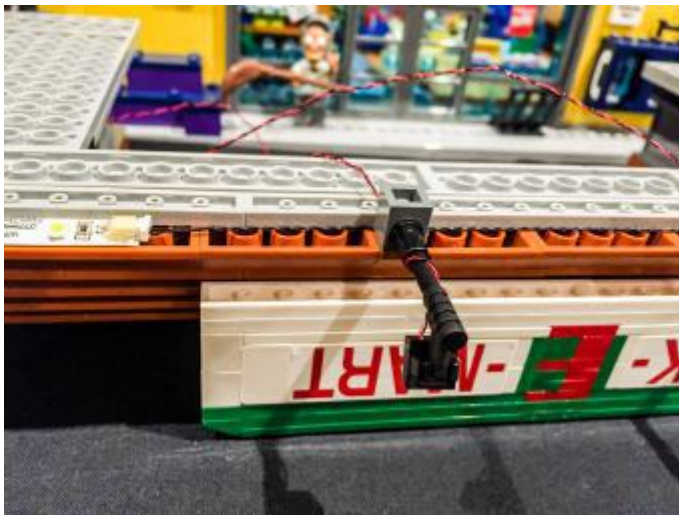
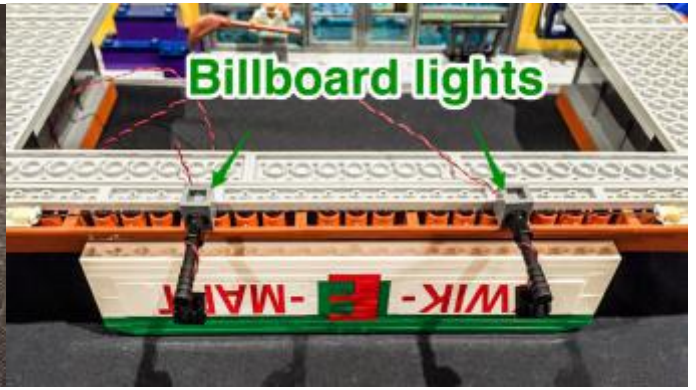
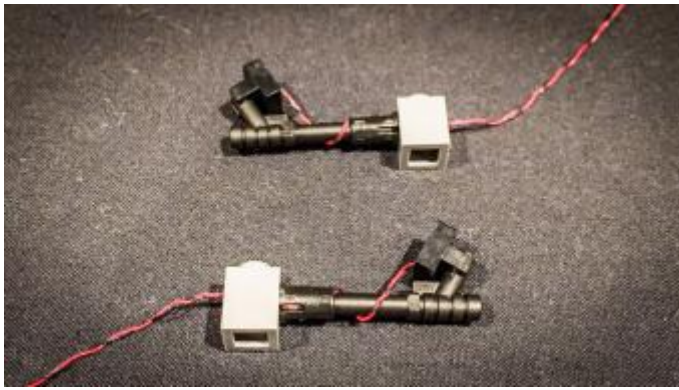
23.) Take 2x **White 30cm Dot Lights** and stick the LED to self adhesive squares then stick the other ends of the LEDs to the 1x1 plates with clips.



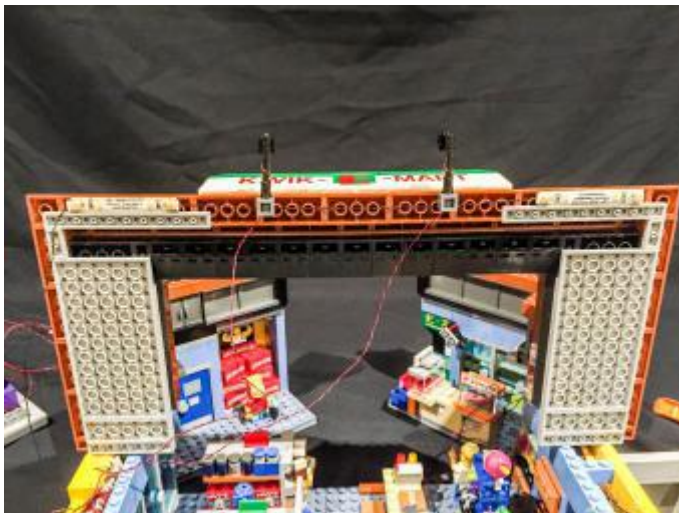
24.) Connect the Lego technic pins into the 1x1 bricks with holes, then thread the other end of the one of the Dot Lights through the pin and out the other side of the 1x1 brick. Repeat this for the other technic pin and brick so that you have two billboard lights.



25.) Take the 2 billboard lights and connect them to the following positions under the roof.

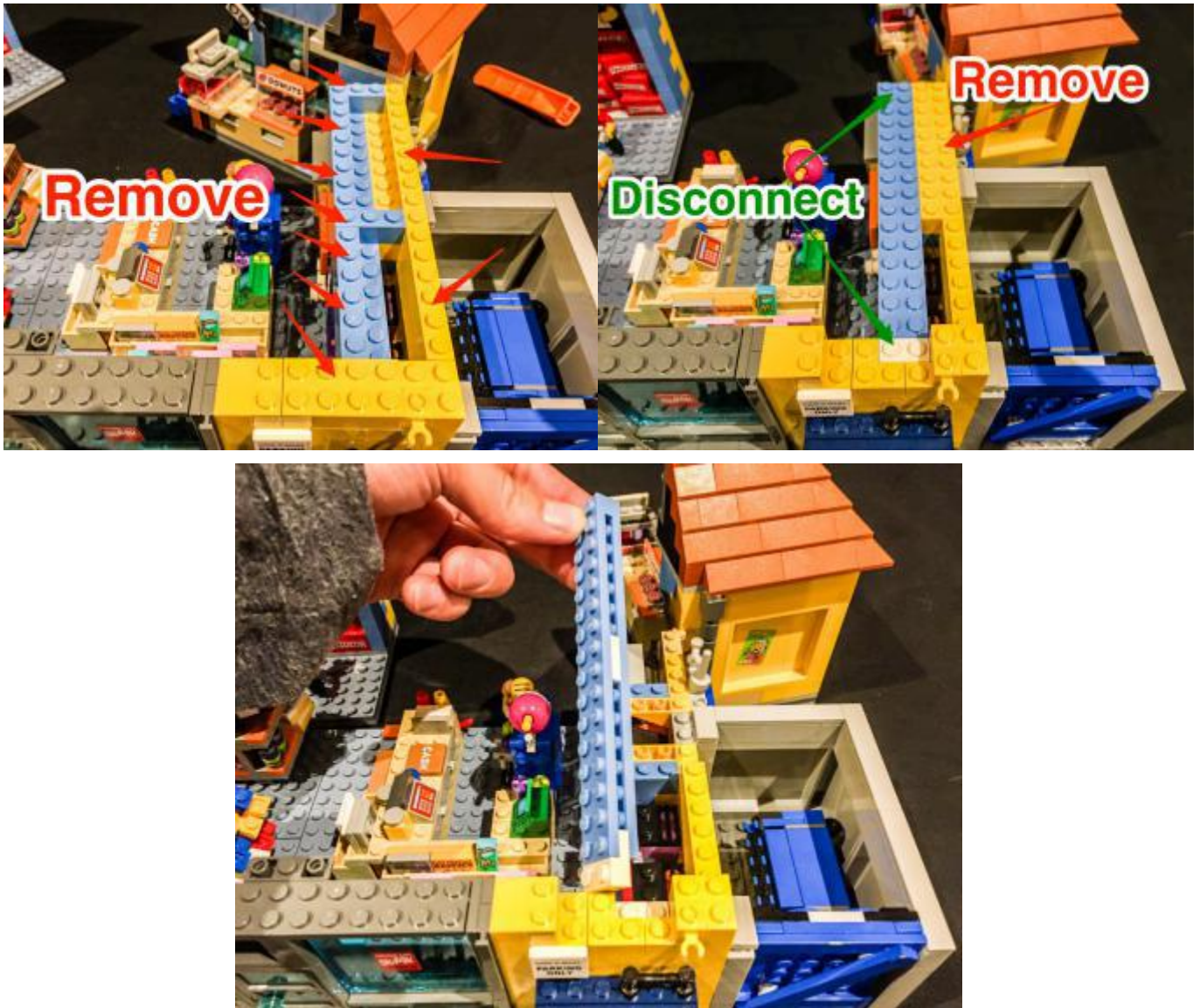


Lift the main section so that underneath of the roof is facing us. Hide the cables from the billboard lights underneath the grey Lego plates by first removing them and then reconnecting them over the cables ensuring they are laid in between studs.

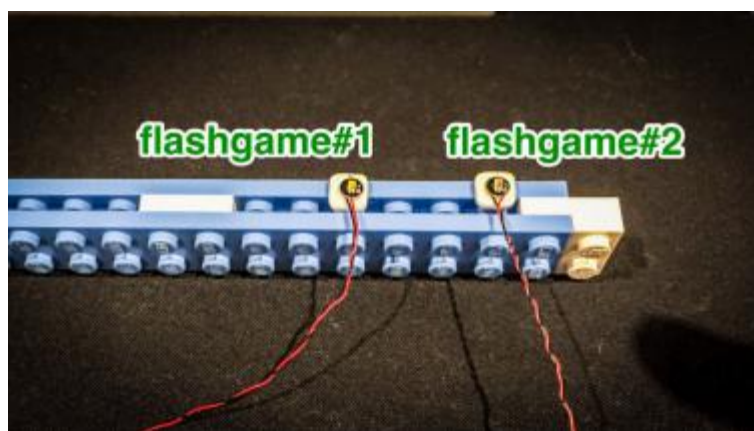


This now completes the roof lighting. We won't connect these to 12-port expansion board as yet, as this will happen when we connect the roof back after the next section of lights are installed.

26.) Let's move on to the next section of the building. Remove the following Lego bricks and then disconnect the long blue section which connects across the length of the wall.



27.) Take the long blue section and turn it over with the white brick facing toward the right. Take 1x **Flashing White 30cm Dot Light** and 1x **Flashing Red 30cm Dot Light** and stick it to the following positions using the provided self adhesive squares. It does not matter which one is on the left or right. We will identify these as **flashgame#1** and **flashgame#2**.



Reconnect the long blue section back to its original position ensuring that the cables are facing the same way as pictured.



28.) Take the 2 cables from the flashgame#1 and 2 and pull them up towards the other end of the store. Take another 30cm cable and lay the cable along side the other 2 cables. Leave about 3cm of free cable sticking out the front. This will be used to connect to striplight#3 later.



Secure all 3 cables down by reconnecting all the blue and yellow Lego pieces we removed earlier. Ensure that the cables are laid neatly in between Lego studs.

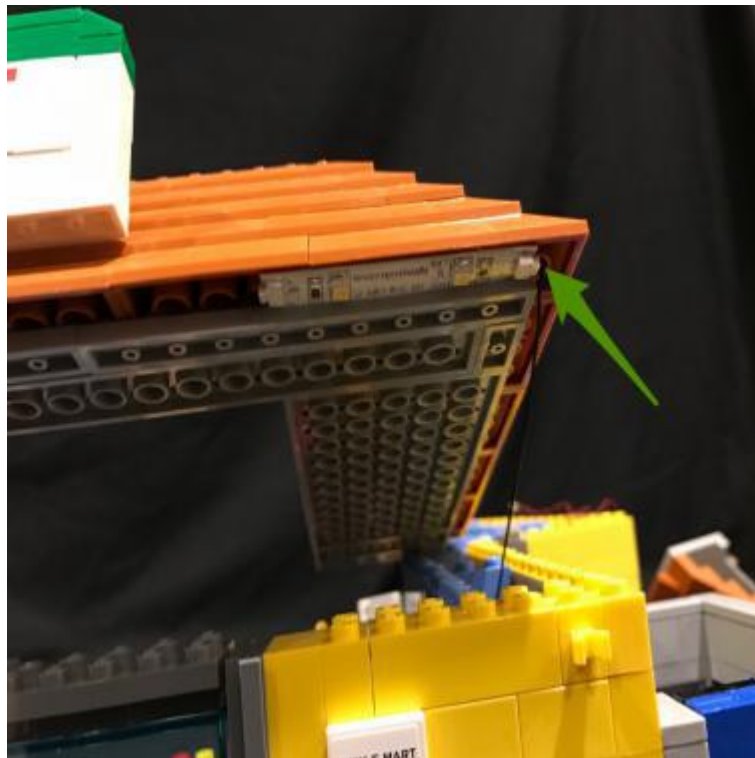


29.) Connect the roof lights to the rest of the circuit by first placing the main roof section on top of the

building and connecting the 15cm cable cable from 12-port expansion board to the left port on lightstrip#2. Then connect the 2 cables from the billboard lights into the expansion board.



Connect the 30cm cable from the right side of the building (which we left 3cm free) to the right port on striplight#3.



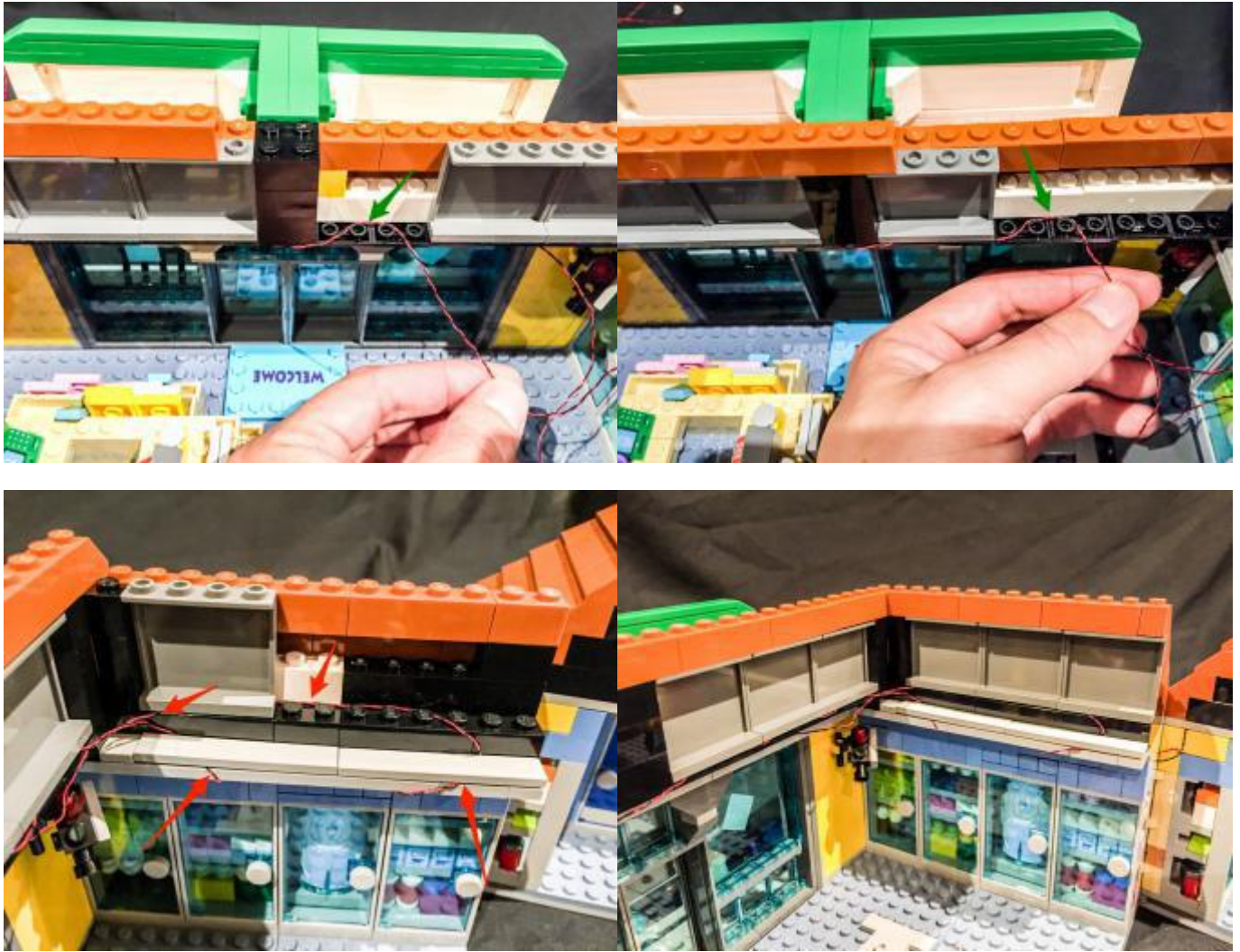
30.) Reconnect the main roof section back to the rest of the building ensuring that all cables are pushed behind their lights and over the front wall. This part is a little tricky and may take a few goes to ensure all cables are hidden behind and the roof is fully connected to the top of the walls. Be patient, you will get there.



31) Turn the building around. You will notice messy cables from the billboard lights hanging down from the other side.



We will hide these by first removing the grey Lego walls of the roof, laying the cables in between the black Lego studs below, and then reconnecting the grey walls over the top. Do this as much as required to ensure cables are neatly secured and out of the way.



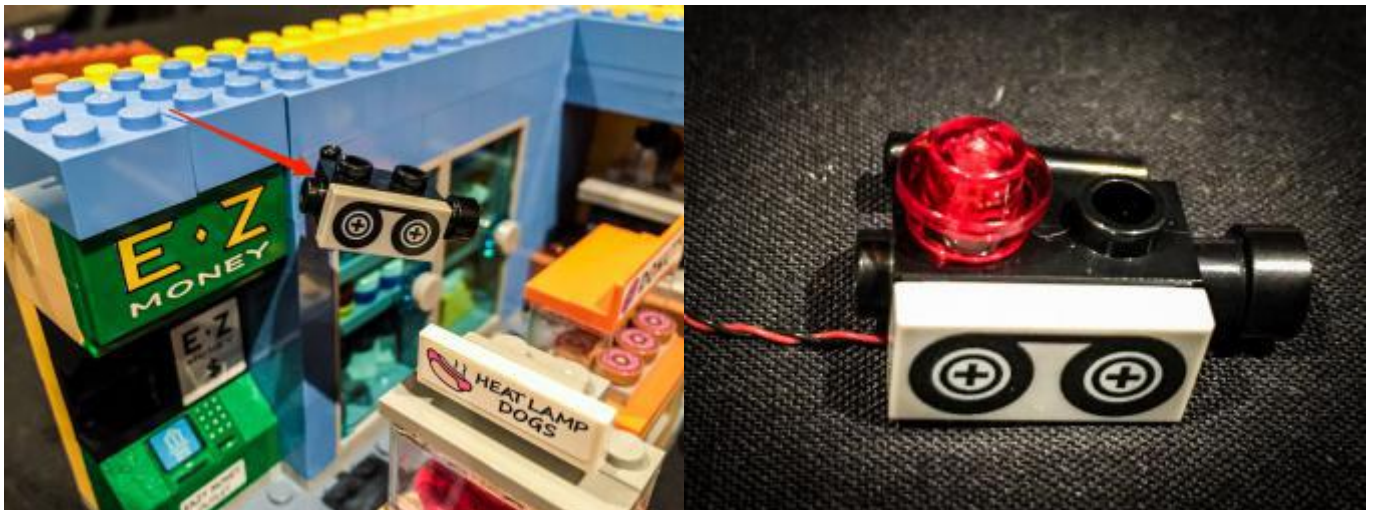
Now let's turn on the battery pack to test the lights we have just installed.



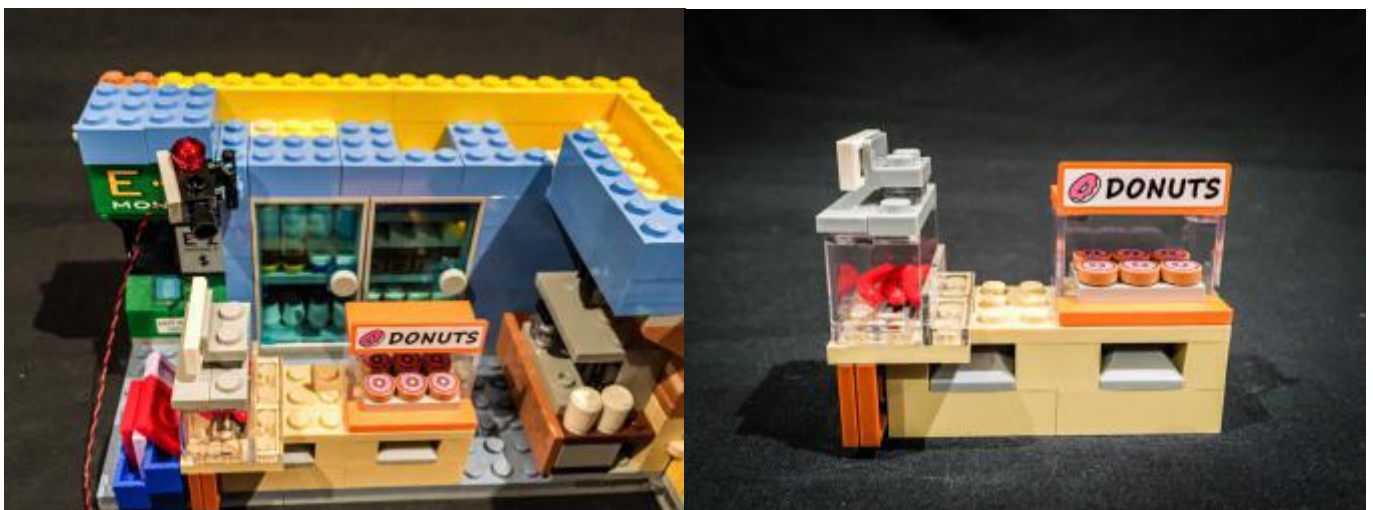
32.) Let's install lights to the left back section. Remove the roof using the Lego removal tool the same way we removed the other roof sections.



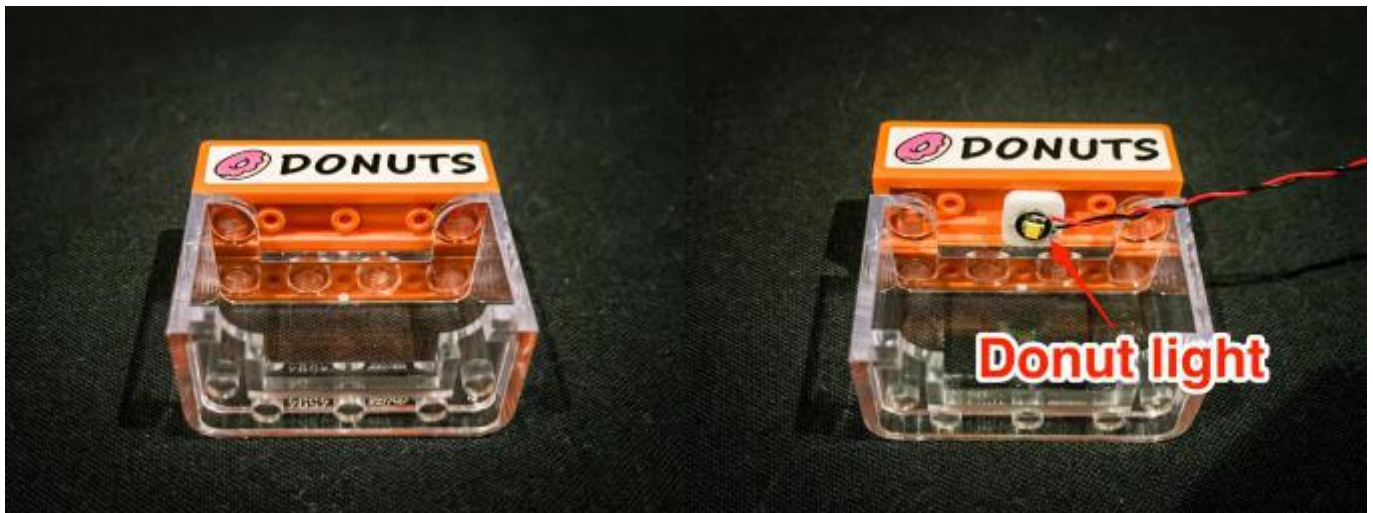
33.) We will start with the 2nd video camera. Remove this section and install another **Flashing Red 30cm Dot Light (video#2)** the same we did for video#1. Secure this LED using another provided transparent red Lego piece. Then reconnect the video camera back to its original position. We will connect the other end of the cable later.



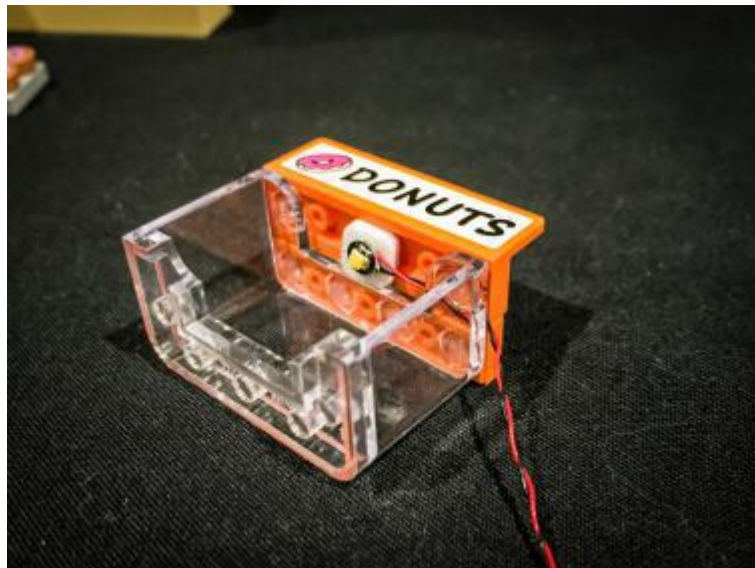
34.) We will now install lighting for the donut stand and hotdog display. First remove this whole section from the base of the shop.



35.) Detach the donut section (glass section) from the counter and then install a **White 30cm Dot Light** underneath the orange donut sign in the following position. Stick this LED using one of the provided adhesive squares.



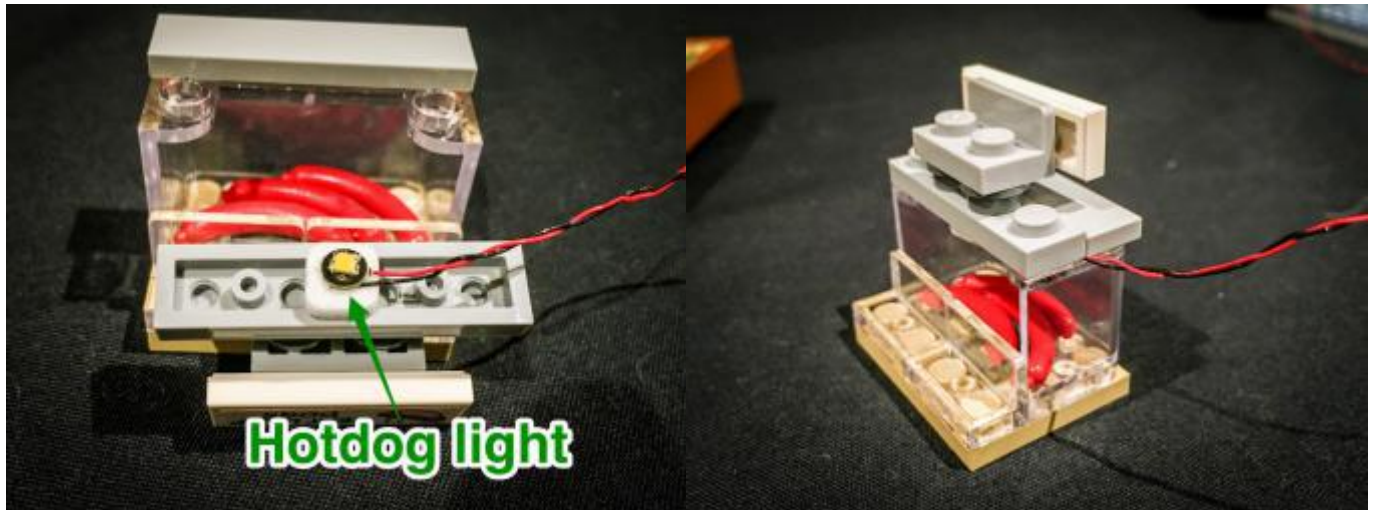
Secure the cable by pulling it toward the right underneath the donut sign and in between the studs of the glass piece.



36.) Detach the hotdog display (at the cream Lego plates) from the counter and remove the grey 1 x 4 Lego piece from the top back.



Using another adhesive square, stick another **White 30cm Dot Light** to the bottom of this Lego piece in the following position.

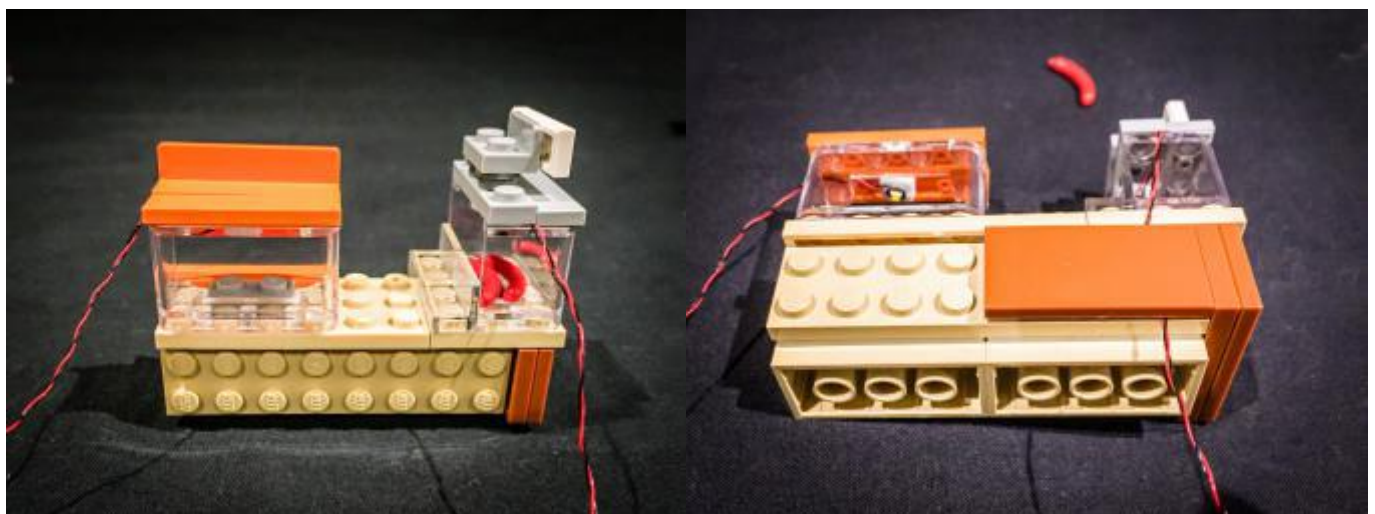


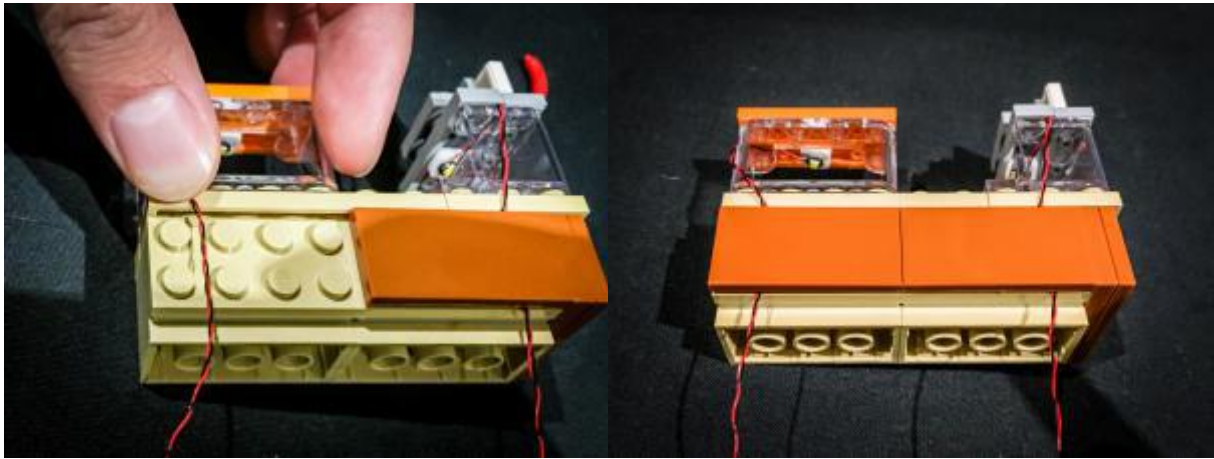
Secure this by ensuring the cable is facing the exact way as per above and laying it underneath the grey plates in between the studs of the glass window piece underneath.

37.) Turn the counter over and remove the 2 orange Lego plates from the back of the counter.



38.) Reconnect the hotdog display and donut stand to the counter, pull the cables from the lights down in between studs and then reconnect the orange Lego plates over them to secure them down.





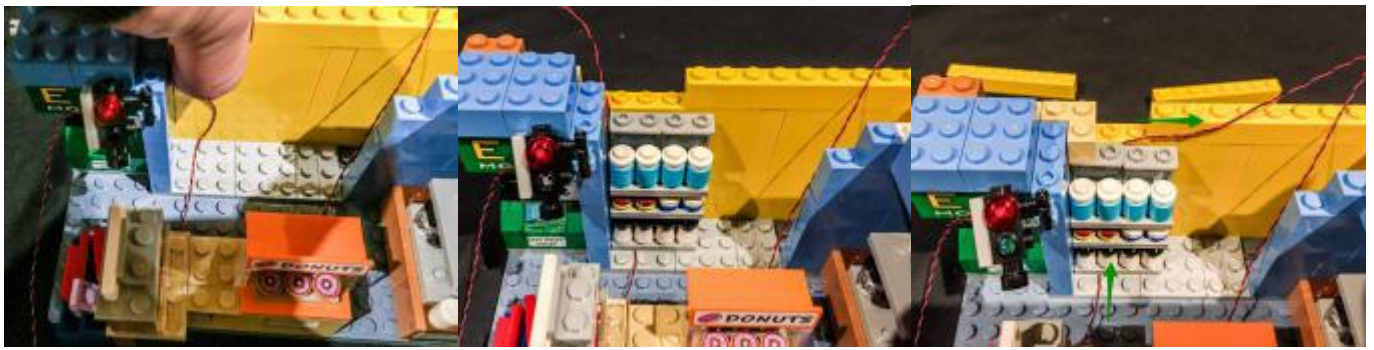
Reconnect this whole section back to the base of the shop



39.) We will be laying the cables from the hotdog and donut lights down and then underneath the 2 fridges behind. Start by removing the following pieces to then allow us to remove the fridge doors and shelves.



40.) Start with the hotdog light cable and pull it toward the back in between the studs of the grey base plate and then connect the shelves over the top ensuring that the cable is pulled up from behind it and then to the right.



Secure the shelves by reconnecting the cream and yellow Lego piece. Be careful and ensure that the cable still remains in between studs.



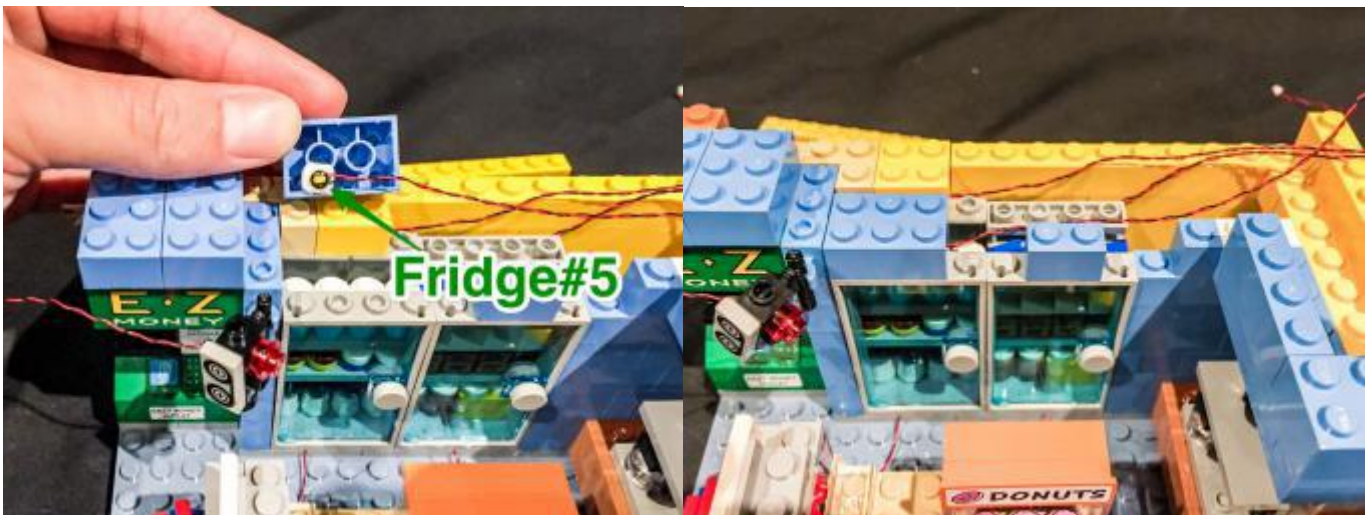
41.) Do the same for the donut light cable, ensuring that the cable is laid in between grey Lego studs.



Reconnect the fridge doors and blue Lego 2 x 6 piece and 1 x 2 piece. Take the left 2 x 6 piece and turn it on its side.



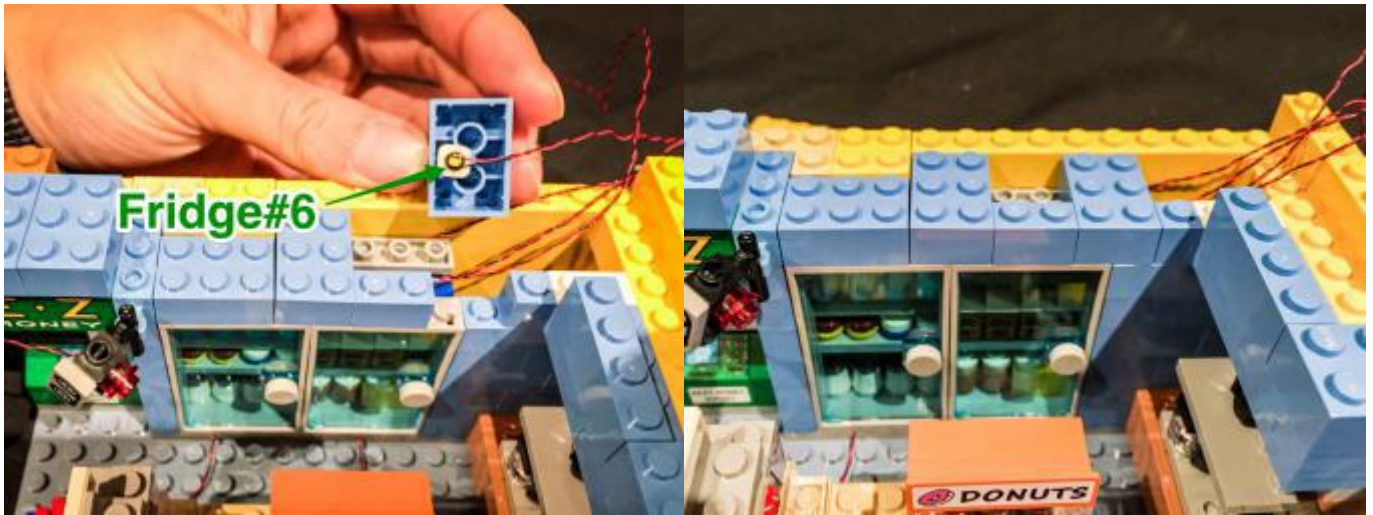
42.) Take another **White 30cm Dot Light (fridge#5)** and stick it using an adhesive square in the following position before reconnecting this piece back . Ensure that the cable is pointing toward the right as pictured below.



Reconnect another blue Lego brick ensuring the cables are laid underneath.



43.) Install another **White 30cm Dot Light** to the bottom the last blue 2 x 6 Lego brick in the following position before reconnecting the piece back.

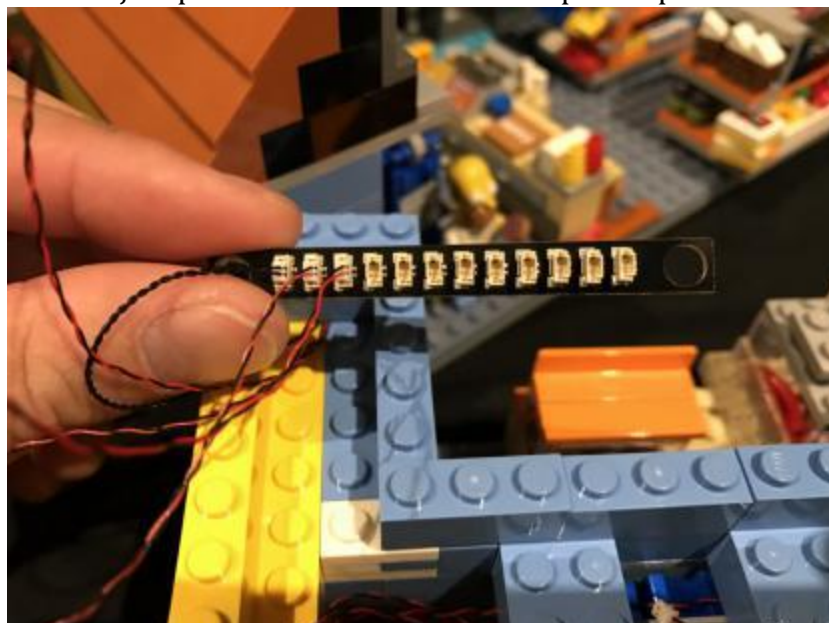


Ensure all cables are pulled to the right underneath the blue Lego bricks.

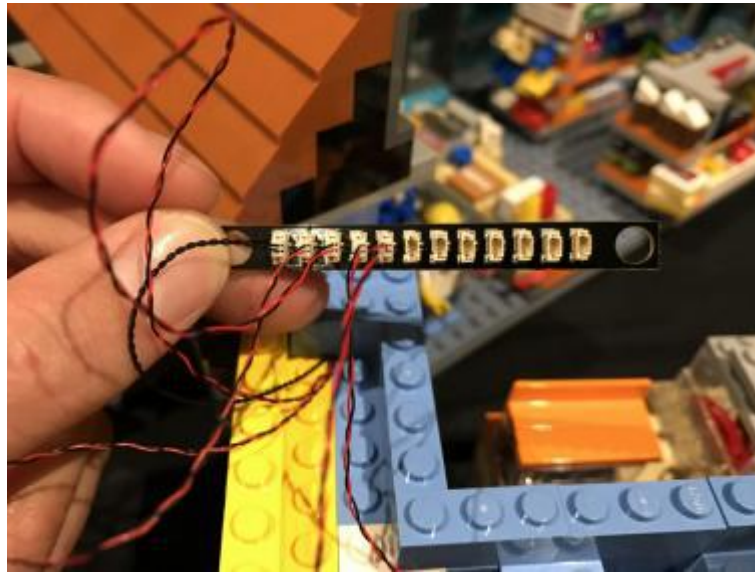
44.) Take the cables from flashgame#1 and 2 as well as the 30cm cable and then pull them across to the other side. Lay them in between studs and then secure them down by reconnecting the blue Lego 2x3 brick over the top. Ensure that you pull this section all the way out so that you have enough cables when you open and close the section.



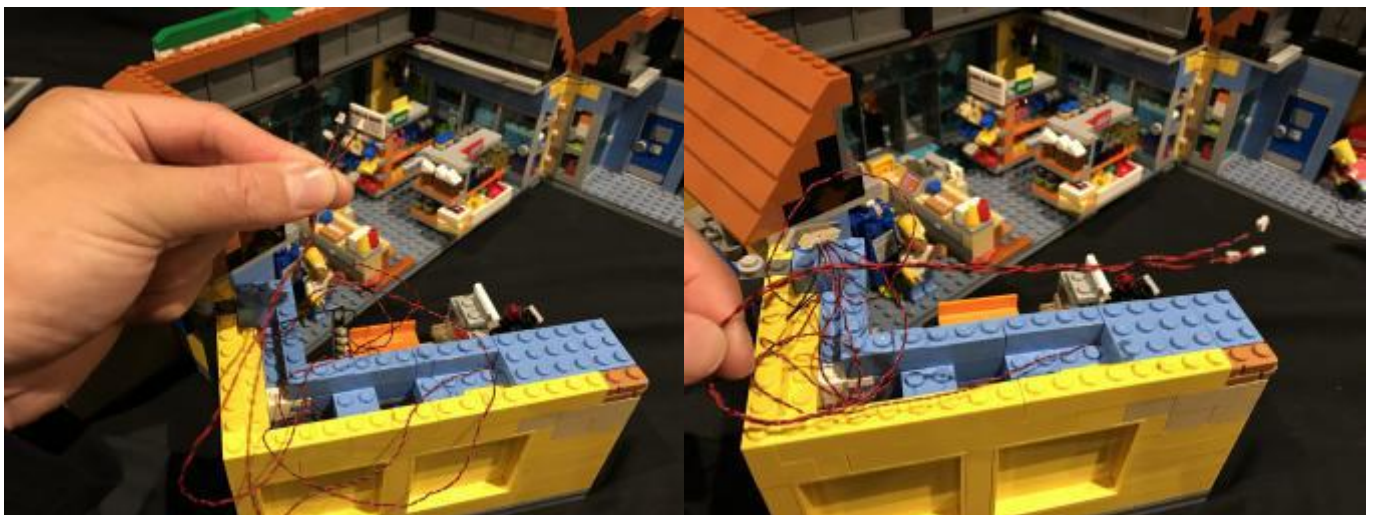
45.) Connect the 3 cables we just pulled over into another 12-port expansion board.



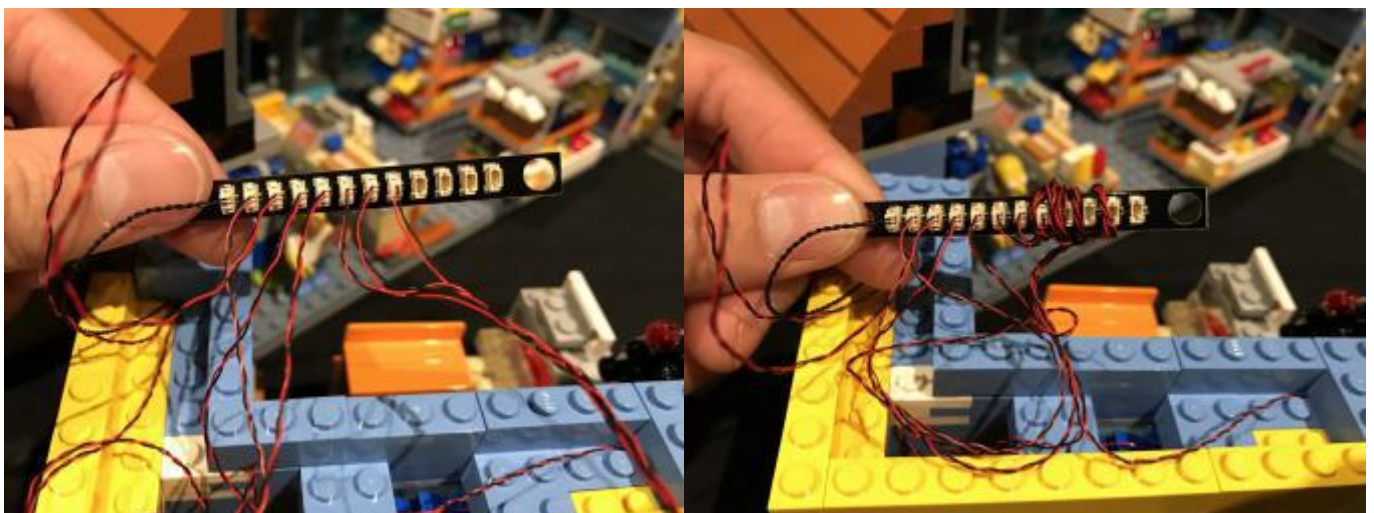
46.) Take the cables from the hotdog stand and donut light and then connect them into the next available ports.



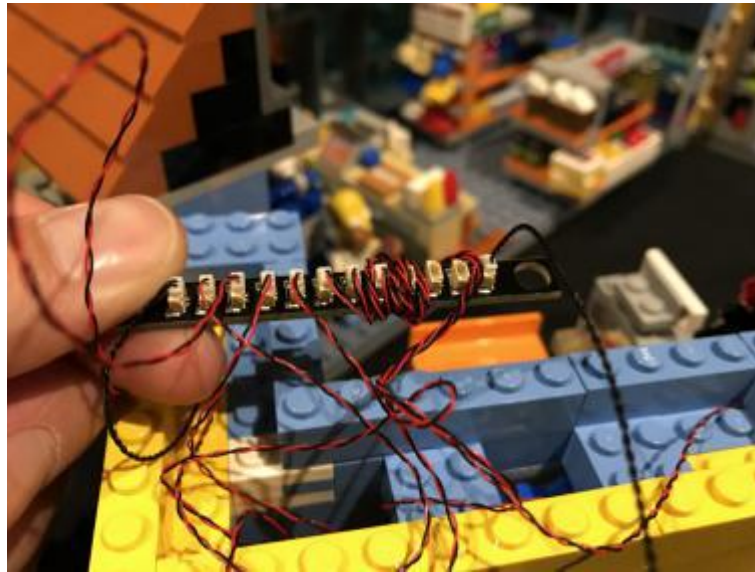
47.) Take the cables from video#2 and fridge#5 and 6 and then twist them together so that they form one large cable.



Connect these 3 cables into the next available ports on the expansion board, then wind them around the expansion board to eliminate excess cable.



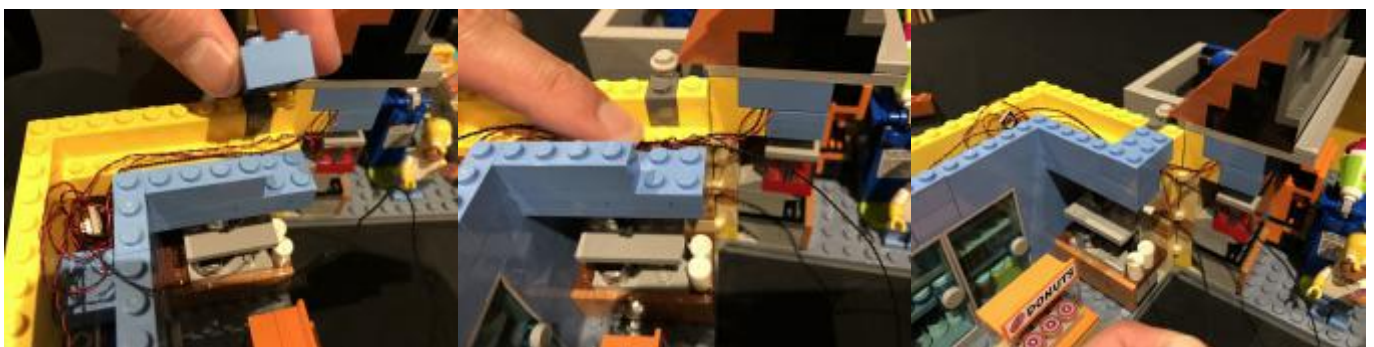
48.) Take the final 30cm connecting cable and then connect this into a spare port on the expansion board.



49.) Neatly place the expansion board and all cables into the corner space in between the fridges and wall ensure the 30cm cable is left out.



50.) Pull the 30cm cable back up to the other side and then secure this down by disconnecting the blue 2x3 brick and then reconnecting it over the top of all 4 cables. Ensure they are all neatly laid in between studs.



51.) Ensure the rest of the cables are neatly tucked in between the walls before reconnecting back the roof section.



52.) Take the centre roof piece and place it on its side so that we can access underneath of it. Take 4x **Strip Lights** and use the adhesive backing to stick them onto the provided **LEGO 1x6 Plates**. Install the 4 strip lights to the following positions and connect a 15cm cable between all of the strip lights (total of 3x 15cm cables required).



Secure the 15cm cables underneath the strip lights by looping them and laying them underneath. (If you aren't using 1 x 6 bricks you will have to glue the strip lights over the cables with super glue)

53.) Finally, connect the centre roof section lights to the rest of the lighting circuit by taking the hanging 30cm cable and connecting it to the left port of the striplight in the top corner. Place the centre piece back to the top of the roof in its original position.



This finally completes the LED lighting circuit for your Lego Kwik-E-Mart.

Now turn on your kit, turn off the lights in your room, and Enjoy!