

# **VRC Reverse** **Engineering** **Online Challenge**

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When we first saw the Reverse Engineering online challenge we wanted to take apart and explore a computer keyboard, but due to happy circumstances we had the opportunity to take apart a 70in flat screen tv. This is our documentation of doing so.

## Steps:

The first thing we did was remove parts on the back panel so we can get a look at all of the hardware inside.

Next we removed the hardware on the inside, motherboard, wires, etc.

After that we flipped it over and started taking apart the borders and then took the screen off.

After that we took out the paper sheets underneath the screen

Next we took out the light strips and the wires connecting to the strips

## Parts:

- Back panel
- Light strips
- Speakers
- Wifi module
- Motherboard
- Circuit board

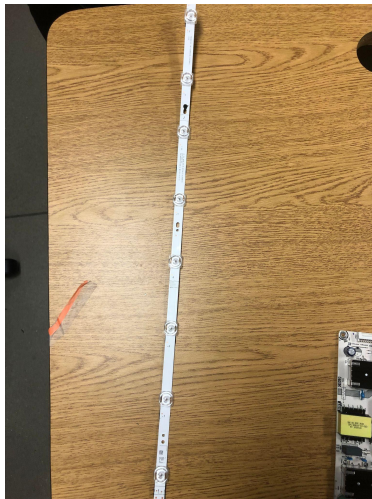
- Screen
- Base
- Wires
- Holder
- Screws
- Ribbon cables
- Light strip holders
- Light reflectors
- Light strip wires
- TV cable
- Back paper sheet
- Shiny plastic sheet
- White plastic sheet
- Frame

### Explanation:

Back Panel - this is just a protective cover for most of the hardware inside



Light strips - these produce light towards the screen so it will project the image/video





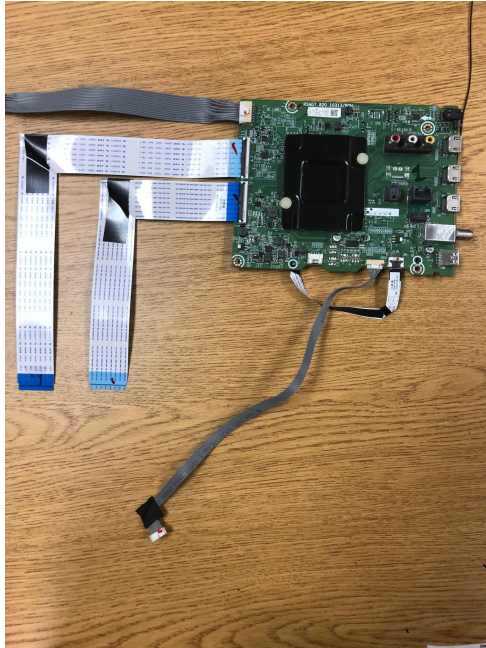
Speakers - the speakers produce vibrations in the air which create sound. Different frequencies produce different sounds.



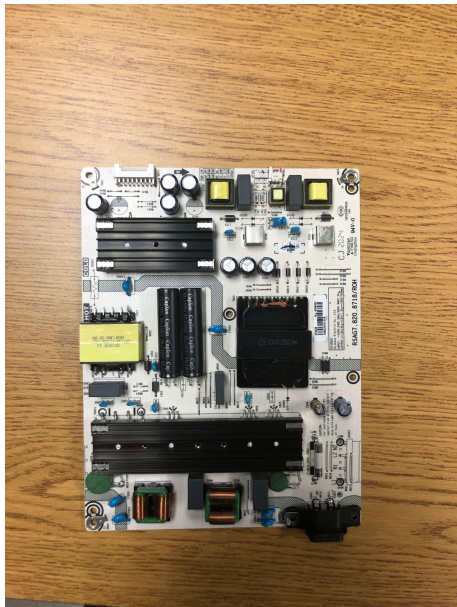
Wifi module - this is what lets the TV connect to the wifi so that we can run stuff like netflix and hulu on our TV's. It's also what lets you control the TV with a remote. Without it you'd have to switch channels with the buttons on your TV and you wouldn't be able to watch netflix.



Motherboard - the motherboard tells the TV what to do and gives it a passage for information to travel through, like a train station



Circuit board - the circuit board relays electricity in an effective manner.



Screen - the screen displays the lights so that it creates an image and we can “watch TV”



Base - the base holds everything together so it doesn't just fall apart.  
(the black part)



Wires - the wires allow electricity to travel and relay electricity throughout the TV





Holder - it's this small plastic part that was holding a bunch of the wires and ribbons together.



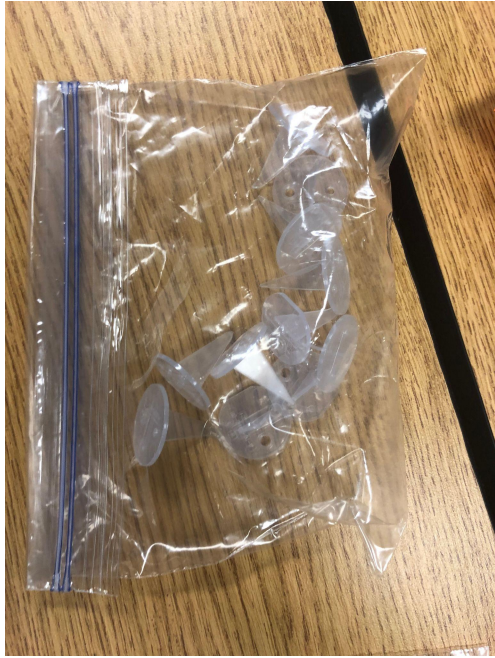
Screws - the screws make sure the base and parts don't just fall off and there's different sizes of screws for different parts of the TV



Ribbon cables - the ribbon cables are used for data transmission and communication.



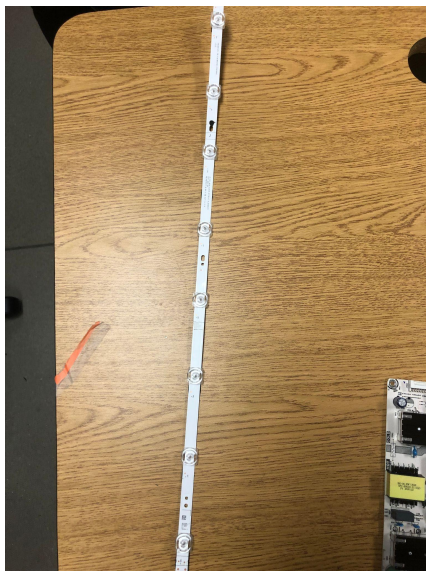
Light strip holders - the light strip holders hold the light strips in place so they don't move around inside the TV



Light reflectors - they are these little plastic disks on the light strips that reflect the light through them and then reflect that through the screen creating an image. If these disks were not there it would just be light dots on the screen. (the plastic pieces)



Light strip wires - these wires have tiny little lights on them which is reflected through the light reflectors which in turn is reflected onto the screen



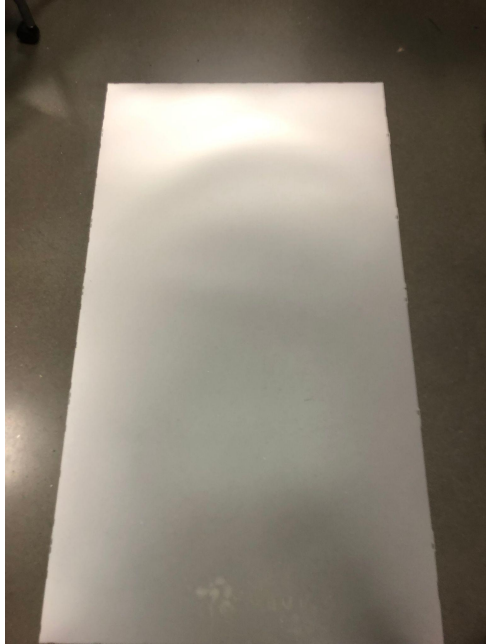
TV cable - the TV cable gets external power and transmits that power into usable energy for the TV (black cable)



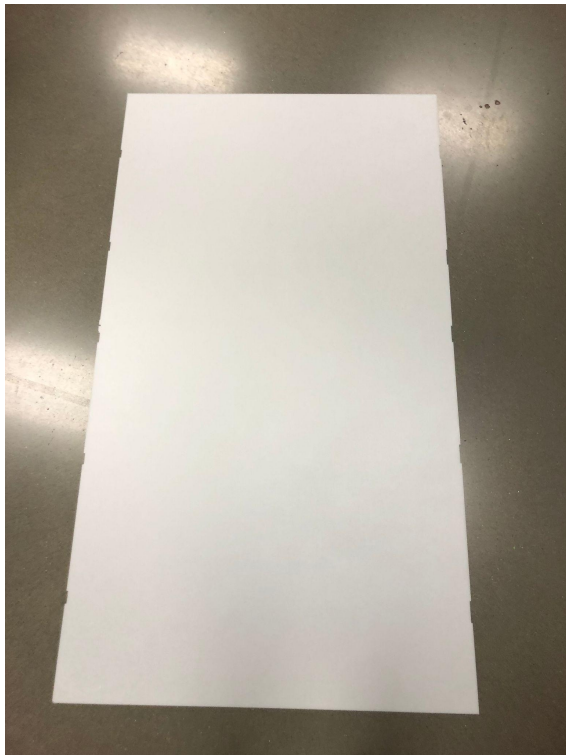


White back paper sheet - the back paper sheet covered the light strips and acted as a sort of heat protection to them

Shiny plastic sheet - this sheet further reflected light through it and cleaned it up more to show more of a image/video



White paper sheet - this acted as a protection to the shiny plastic sheet



Frame - the frame holds the screen and the base together kind of like tape

