# CHECK LIST FOR THE DATA COLLECTION

- Raspberry pi
  - Power cable
- Monitor
  - Power cable
  - HDMI cable
- Keyboard and mouse
- Long black SMA cable
- LWA FEE
- Box for the LWA FEE
- Short black SMA cable
- Power Supply
  - Batteries
  - Bias T
  - Extra batteries (at least 4)
- Car power inverter
- RTL SDR
- Multimeter (to check batteries voltage)
- Level (to keep LWA FEE straight)
- Extension cord

## ***INSTRUCTIONS***

1. Complete check list.

2. Connect raspberry pi and monitor using power supply cables to socket.

3. Plug keyboard/mouse USB receiver into raspberry pi.

4. Plug RTL SDR to the raspberry pi.

5. Using the short black cable, connect RTL SDR to the Bias T (RF).

6. Using the long black cable, connect Bias T (DC+RF) to the LWA FEE (N-S).

7. Check every connection to make sure everything wired or connected.

8. Put the LWA FEE into the box.

9. Fix the orientation of the LWA FEE

***10.*** Turn on the raspberry pi and monitor.

***11.*** Change settings of the monitor screen saver.

***12.*** Turn on the batteries.

***13.*** Check the batteries voltage. (Change batteries if necessary).

***14.*** Start collecting data.

- ***a.*** Create data directory (New folder)
- ***b.*** Do not forget cd to "freq_scan_time.py" file to make code work.
- ***c.*** Run the code below to start collecting data.

  *Python freq_and_time_scan.py--scan_period=0.001 --total_time=0.001 --freq_i=27. --freq_f=114. --df=1. --sleep_time=5. --veclength=1024 --samp_rate=2 --int_length=100 --nint=100 --data_dir=/home/pi/data/(Folder_name)*
- ***d.*** Remover USB receiver to get more accurate data.

***15.*** Turn off the batteries after finish collecting data.

***16.*** Check the data using jupyter notebook.

- ***a.*** Open terminal and run jupyter notebook
- ***b.*** In "data" file, open *LWA-WSU-quick-look.ipynb*
- ***c.*** Put the file name that you saved your data.
- d. Run the code

***17.*** Go through the check list again before heading out.

***<u>Manual Notes</u>***

- GPS location
- Take pictures or write description of the surroundings.

- Try to keep time of the whole process to get approximate time for the future data collection (assemble, collecting data, dissemble).