**Carbon Footprint dataset for smart devices/home. Important links**

1. <https://www.mdpi.com/2071-1050/10/9/3027>

(Good images and graphs)

1. <https://ghgprotocol.org/life-cycle-databases>

(not sure if public accessible, if yes, then can be used)

1. <https://www.apple.com/environment/pdf/Apple_Environmental_Responsibility_Report_2019.pdf> (Excellent can be used in report atleast)
2. <https://wimvanderbauwhede.github.io/articles/frugal-computing/> (great source for background info, sir referenced it in class too – Esp for IOT devices/smart)
3. <https://reboxed.co/blogs/outsidethebox/the-carbon-footprint-of-your-phone-and-how-you-can-reduce-it> (Extremely relevant – for phone usage n tips too)
4. <https://profilebooks.com/wp-content/uploads/wpallimport/files/PDFs/9781788163811_preview.pdf> (great pdf – for sure can reference, extract data)
5. <https://profilebooks.com/work/how-bad-are-bananas/>
6. <https://www.ed.ac.uk/files/atoms/files/pc-carbonfootprints-jh-ecci2.pdf>
7. <https://www.apple.com/environment/pdf/products/iphone/iPhone_12_PER_Oct2020.pdf>
8. <https://www.mdpi.com/2079-9292/9/3/464/htm>   
     
   a) All links are good, need to see how much data we can extract from these – that’s all.

b) See how to add a simple image/graph/viz to the 6 tips in bold

c) take any energy relevant or C02 emission relevant dataset and try integrating it in tableau for data viz! Priority

d) Logo/name decide – in the end

e) backend features decide – need frontend first!

**TIPS TO REDUCE Carbon Footprint**

1. **Extending the life span of your computing and smart devices would help reduce carbon emissions from production of these devices**:

**Shape

Description automatically generated**

We can easily miss out on the main causes of our digital carbon footprint by focusing on carbon footprint of sending emails, using mobile networks, using Wi-Fi, text messaging among other trivial usage of smart devices. Meanwhile, the carbon emissions emitting from the production of computing devices far exceeds those caused by their usage.

Chart, pie chart

Description automatically generated

For laptops and similar computers, manufacturing, distribution and disposal account for 52% of their [Global Warming Potential](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/global-warming-potential) (i.e. the amount of CO₂-equivalent emissions caused). For mobile phones, this is 72%. This means that extending the computing life of your devices and gadgets should become a priority. We need to think carefully about our laptops, phones, and smart devices life span.

1. **Don’t take automatic upgrade:** When it comes to phone usage, the end goal it to reduce the amount of energy consumption.

**A close-up of a machine

Description automatically generated with medium confidence**

***Meet Dave, Apple disassembly bot. Apple can make your iPhone as good as new.***

However, opting for a reconditioned model when you need to change mobile phone, enable a new-to-you smartphone without the 80 percent odd of carbon emissions associated with production. That’s a far higher figure than you’ll achieve by never making a WhatsApp call or streaming over Wi-Fi rather than mobile networks.

1. **Reduce your mobile networks usage and turn off Wi-Fi when not needed could reduce the carbon footprint of your smart devices a lot:** Recent data gathered on annual energy consumption of computing shows that, apart from production, the next main cost of carbon for your laptops, tablets and IOT devices is network utilization. Fixed access networks wired and Wi-Fi are estimated to consume 900TWh and 500TWh respectively, while mobile networks consumes 100TWh.

**Chart, bar chart

Description automatically generated**

This energy consumption needs to be reduced considerably. Turn off unnecessary auto-backups to the cloud, turn-off mobile internet connectivity when not in use, do same with Wi-Fi and routers at homes.

1. **Support companies that use green electricity:**  The climate change target for CO2 emission is 13GTC02e by 2040 and currently electricity is estimated at emitting 10GTC02e.

**Diagram

Description automatically generated**

**A picture containing text, electronics, projector

Description automatically generated**

With companies like Apple, and Google focusing research on renewable energy like solar and water for powering their data centres, we can perform little acts to support keep the movement for a safer environment. Offer more like on tweets on green electricity, share posts on reusable energy and new approaches to reduce energy consumption from companies.

1. **When purchasing appliances, its useful to know how much energy they consume:**

**A picture containing graphical user interface

Description automatically generated**

Be mindful of the energy efficiency of appliances when deciding to make a purchase. Make conscious effort to use this factor among other criteria like raw materials, product longevity, and labour . Consider LED over Plasma TV. Laptops over Desktops in offices (desktops use 10times more power compared to Laptops).

1. **Appliances older than 5 years old can consume electricity on stand-by mode and it is best to consider unplugging them:**  If you have a **cable box, TV, audio system, printer/scanner,** or**microwave**that’s **more than 5 years old**, then unplug them when not in use. For instance, the cable box in standby mode uses more energy annually than lighting a typical apartment.

**Sarthak Update (Links and datasets)**

1. <https://repository.lboro.ac.uk/articles/dataset/REFIT_Smart_Home_dataset/2070091>
2. https://greenstarsproject.org/2016/12/30/how-to-calculate-carbon-footprint-home-appliances/
3. https://data.london.gov.uk/dataset/smartmeter-energy-use-data-in-london-households
4. <https://www.cdp.net/en/investor/ghg-emissions-dataset>
5. https://www.ericsson.com/en/reports-and-papers/industrylab/reports/a-quick-guide-to-your-digital-carbon-footprint
6. https://en.reset.org/knowledge/our-digital-carbon-footprint-whats-the-environmental-impact-online-world-12302019
7. <https://www.tandfonline.com/doi/full/10.1080/09654313.2017.1294149>
8. https://www.nature.com/articles/sdata2018280
9. <https://github.com/protea-earth/carbon_footprint>

Other Github relevant links for reference – Check **their sources in the readme** of each repo – can be helpful :

<https://github.com/shivam141296/Carbon-Footprint-Calculator>

<https://github.com/MarosMacko/CarbonFootprintCalculator>

<https://github.com/shreya-jpg/WebD_Projects.github.io/tree/master/Carbon_footprint_calculator>

<https://github.com/suvansh-rana/C1O2>

<https://github.com/J0ANMM/carbon-calculator>

<https://github.com/Achiaga/carbon_footprint>