

Waste Reduction

Background

Every household conducts a wide range of activities that contribute to waste production on a daily basis. Reducing waste can be as simple as making the choice to replace paper towels with reusable cloth or choosing to avoid purchasing bottled water in lieu of using a reusable bottle. These might look like small steps towards waste management, but if everyone became more aware of their environmental impact and choices, collectively we may begin to have a positive impact on our planet and its future.

Problem Statement

Analyse your surroundings and identify situations where excess wastage is a clear problem. While there are numerous domains that could fall under this theme, we have narrowed down the sub-themes to five broad possibilities of waste generation:

- **Food** - Wastage of food is a common problem. Food waste is the single largest source of household waste. The methane gas released by wasted food alone is more powerful than carbon dioxide.
- **Water** - Excess drainage and dripping faucets are the most common problems in our daily life. Each day, gallons of fresh water is used for residential landscaping, and around half of that is lost to evaporation or runoff.
- **Energy** - Energy is wasted through heat and leaks because of inefficient technology. The wasted energy includes oil, coal, natural gas, and renewables.
- **Packaging** - Most packaging waste is not biodegradable and can last for decades in landfills, which can lead to polluted soil and drinking water. Packaging includes glass bottles, plastic containers, aluminium cans and many more.
- **Transportation Waste** - Discarded cars and tires contain hazardous substances, including antifreeze, brake fluid, oils and rubber. These materials release toxins that pollute water, air and soil.

Goal

Come up with a solution that aims at reducing waste aligning with one of the sub-themes (as mentioned in the problem statement). Your solution could address:

- Recycling discarded items before they end up in landfills
- Reducing waste at the source by reducing consumption (identify effective ways in which consumption of waste-generating components can be significantly reduced)
- Proposing effective alternatives that will diminish the impact of waste on environment (for example, replacing non-biodegradable substances with biodegradable options)

We would like to see how your solutions will make a difference. If it reduces consumption, it's helpful to know what kind of impact it can make or by how much has the waste reduced, as a result of the activity in discussion.

These are few pointers to help you get started, we encourage you to not hesitate or limit yourselves to these ideas. We look forward to your team approaching innovative frontiers in addressing this issue!

Potential sources

- <https://www.kaggle.com/datasets/techsash/waste-classification-data>
- <https://www.kaggle.com/c/waste-classification/data>
- <https://www.kaggle.com/datasets/mannmann2/what-a-waste-global-dataset>