



Clean Water and Sanitation

25-03-2022

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Overview

This project aims at increasing awareness among people about the water they have in their surroundings by giving them a hands-on experience. Thus, making them more involved in the process and taking action for nature.

Goals


1. Spread awareness regarding the standard of water you can consume.
2. To provide a hands-on application that can check the quality of water.
3. To make people aware of the quality of water bodies have.
4. To put more pressure on people and the government to clean the polluted water bodies.
5. Make people across the world feel more connected and transparent.
6. To provide people with a way to clean the water using substances they can have access

Specifications

This application will enable normal users to check the quality of water in water bodies and then encourage them to share that data with the whole world. So, that anyone can check water quality of water bodies across the world. This application uses machine learning to perceive through the camera the water and then rates them on a scale of worst to best.

Process of checking and uploading the water quality

This process is very simple. Firstly, take any container and wash it properly so that the container is clean and then let it dry for some time and then take a white paper (white A4 paper will be best) and put it at the bottom of the container. Then scan it through the app and it will give the water a rating and it will encourage the user to post it on the social media



platforms as well. This will increase the awareness regarding the water quality in that locality and also put pressure on the government to clean that body.

How we will ensure the quality of data is correct or not

To ensure the accuracy and reliability of the data that is being uploaded on the application we will build a peer reviewed system. And an option to report the data in case it is seeming false. In that case our team will send our own volunteers to verify the data.


Steps to make water drinkable (If possible):

1. Filter water: Water filtration is one of the oldest ways known to help clean water for drinking purposes. There are thousands of filters on the market but only a handful of common filter materials are utilized. The smaller the pore size for water molecules to pass through and filter out the contaminants, the better.

a. Paper or cloth filters are simple but basic types of materials used as a filtration unit. Most of these are used as pre-filters to strain out the larger particles. They usually are not enough to filter out the smaller, disease-causing organisms.

b. Ceramic filters are probably the most abundant on the world market today. They are cheap, relatively durable, and can be manufactured with small enough pores to get out a lot of the contaminants. Some are better than others. Always check for the pore size. Again, generally the smaller the better.

c. There are also several homemade water filtration systems that can be constructed with locally available materials such as sand, gravel, cement, and charcoal. These can be made into family or even community filtration systems. A good example of this is the up flow bio sand filter- Google it!



d. A simple sedimentation period (letting the water sit and the larger particles – called flocculants – settle to the bottom) combined with a filtration unit can help get a lot of bad things out of your water.

2. Disinfect or purify water using either chemical purification and heat treatments.

a. Boiling is probably the oldest method for purification and is still used today all over the world. Boiling water, if done correctly, is one of the surest ways to purify water. Slowly bring a pot of water to a rolling boil and let it boil for one minute (with a cool down period of 20+ minutes) to kill most harmful bacteria and organisms.

b. The most common chemical purification method for water treatment is sodium hypochlorite (chlorination). Add 2 drops of 4-6% chlorine to one quart of water, mix it well and let it stand for 30 minutes. There are other chemicals used in water purification such as silver and iodine as well.

c. Solar purification using glass or plastic bottles exposed long periods of time (at least 6 hours) to strong sunlight can purify water. This is a bit more tricky and takes longer if the sunlight is intermittent or there is a lot of flocculent in the water.

d. Other means of water purification include irradiation with UV lights, pasteurization, and reverse osmosis (technically a filtration technique).

3. Finally, you can make safe drinking water using a combination of the above two ways: filtration and purification. In actuality, there are only two things you can do to water to make it drinkable-filtration and purification- but I add this third way because it is common to see combo systems when it comes to producing good drinking water.

In short, the common process to cleaning water for drinking is this:



Straining – Storage/Settlement – Filtration – Disinfection

When you hear of someone inventing a new way to obtain clean drinking water, I bet you will find, if you search deep enough, that they do the very same things described above (or variations thereof).

The great thing about filtering and purifying water? It can be done, in most cases, with locally available resources and materials.