# Personal Food Computer (HOME)

## What is a Food Computer?

The FC is an enclosed controlled environment, used to generate exact climate conditions for cultivation of any plant; without regard to global climate location.

The computer is connected to sensors inside the enclosure monitoring various climate conditions, and allowing manual or automatic modifications to vary the plants’ development. All data from “climate recipes” to the final harvest results are logged in a database to be openly shared with other farmers around the globe; allowing the exact plant to be grown literally anywhere in the world.

## What is the purpose of a PFC?

A personal food computer is a table-top sized FC designed for experimentation, education, and personal use.

The PFC brings new world changing technology into the reach of everyday persons. Including young people, who never could’ve imagined being a “farmer”.

By making the PFC attainable to more people, that’s more research, more data, more recipes to be saved, compared, and implemented in the future all over the globe.

## Who can build a PFC?

Anyone can build a small personal food computer. MIT Open Ag team has publicly shared the instructions to build a table top sized Personal Food Computer. Many schools, grade school through high school, have been building them as class projects.

[“Build](http://forum.openag.media.mit.edu/top) a Food Computer” https://www.media.mit.edu/posts/build-a-food-computer/

# Personal Food Computer (Information)

## Plant’s Paradise | Climate Recipe

Climate Sensors: carbon dioxide, air temperature, humidity, dissolved oxygen, potential hydrogen, electrical conductivity, and root-zone temperature, and more.

A climate recipe consists of tried, tested, and proven set conditions within the monitored growing chamber to yield specific results from individual plants. The harvest produced from a set “Climate Recipe” allows identical plants to be grown anywhere in the world regardless of the natural climate of the region.

|  |  |
| --- | --- |
| light\_intensity\_blue | 0 |
| water\_electrical\_conductivity | 0 |
| water\_potential\_hydrogen | 6 |
| hours | 0.001 |
| air\_temperature | 30 |
| air\_humidity | 75 |
| light\_intensity\_white | 0 |
| air\_carbon\_dioxide | 1000 |
| light\_intensity\_red | 0 |

This table shows the variable controlled by a climate recipe “General Greens”; the variables can be controlled by time ranges as well. (link below to original full recipe code).

## Recipes for Life | Open Phenome Project

Current technology of indoor or vertical farming is quite protected by those involved; but the MIT Media Lab Open Agriculture (OpenAg) hopes for a worldwide open-sourced digital library, like Wikipedia for farming, to promote transparency with networking and education. OpenAg hopes to create an open dialog between the food computers to share successful climate recipes around the globe.

As more and more individuals test and perfect climate recipes in their small personal food computers the ultimate outcome is an Open Phenome Library – a comprehensive database relating environmental inputs and species-specific phenotypic outputs, that will serve as a catalog for both scientists and growers.

## “There’s an App for That” | OpenAg Brain

The Open Agriculture Initiative is currently hosting an online community on GitHub, already allowing Food Computer “Engineers” to share their coded recipes. From the OpenAg Recipe Bag an individual may download someone else’s code and import it into their own Food Computer to create an identical climate for the identical crop production.

The OpenAg Brain allows all users to post and share innovative ideas, recipes, solutions, and even instructions with the rest of the world of “future farmers”.

Example of Recipe Code for “General Greens”: [openag\_recipe\_bag/general\_greens.yaml](https://github.com/OpenAgInitiative/openag_recipe_bag/tree/5cff00bfcee22f58669bb08b6f44d9b31760f7d4)

## “I want to be a farmer.” | Future Farmer

One of the most incredible benefits of this personal food computer has to be the involvement of young people. Very few young people today say, “I want to be a farmer when I grow up”, even generational farming families are seeing their youth move into new career paths, rather than continue in the “family business” of farming. This aspect of technology merging with farming is engaging young people into a field they never knew they could be a part of.

This new technology of perfecting “climate recipes” to has the potential to create an entirely new generation of farmers of the future.

Sources:

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*Photos:*

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