

SDG 11

SUSTAINABLE LIVING

A compact, affordable hydroponics starter kit in the urban environment adapted to residential needs.



NUTRIDOME

RESIDENTIAL
HYBRID
HYDROPONIC
GREENHOUSE



PROS OF HYDROPONICS

Water saving

- more efficient farming is needed with under 1% fresh water available globally
- Lowers the consumers costs

No soil

- More attainable for urban living
- More efficient on water usage without soil

Fast growth

Quick yields

Less disease

Less pesticides

Less plastic usage

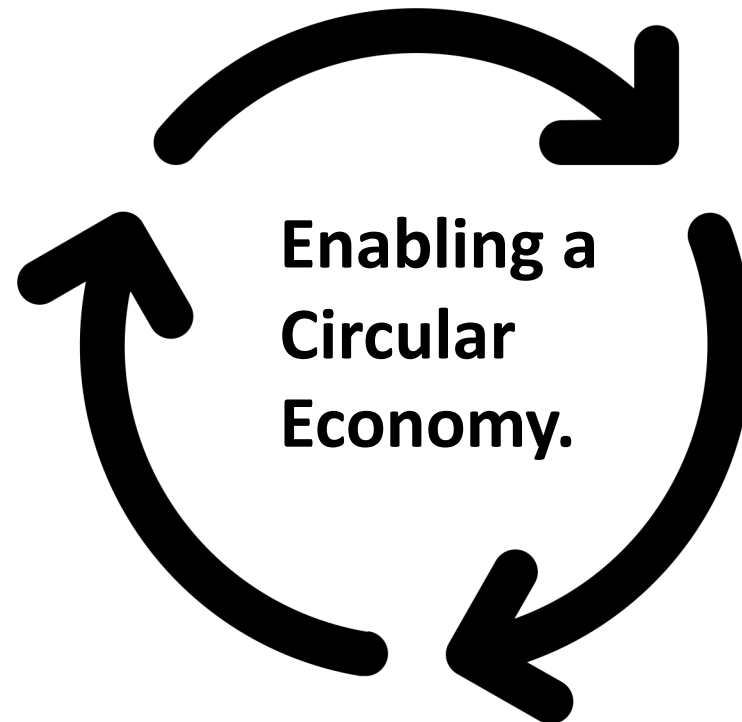
Higher yields

Affordable

Less food transportation

More nutrients for the consumer

Educational within self sustaining food chain



SDG 11

Promoting health
in urban living

Solving
Urban farming
Limitations

Enabling
Sustainable living

Enabling Self
sufficient diets

Promoting less
Landfill & waste

DIY SELF SUSTAINED KITS INCLUDE

1. The structure
2. App Set up details user guide
3. Varied seedling starter Packs that pair well
4. PH water testing kit
5. Hydroponic Food Nutrients starter pack
6. DIY handbook accompanied in app for sustainability which guides creating own food nutrients making use of composting and food nutrient mixes.

Very acid (pH 5.0 to 5.8)	Moderately acid (pH of 5.5 to 6.8)	Slightly acid (pH 6.0 to 6.8)	Very alkaline (pH 7.0 to 8.0)
azalea blueberry celeriac chickory crabapple cranberry eggplant endive heathers huckleberry hydrangea Irish potato lily lupine oak raspberry rhododendron <u>rhubarb</u> shallot sorrel spinach spruce wild strawberry sweet potato watermelon white birch	bean begonia Brussels sprouts calla camellia <u>carrot</u> collard greens corn fuchsia garlic lima bean parsley <u>pea</u> peppers pumpkin radish rutabaga soybean squash sunflower tomato turnip viola	asparagus <u>beet</u> bok choy broccoli gooseberry grape kale kohlrabi lettuce mustard muskmelon oats okra onion pansy peach <u>peanut</u> pear peony <u>rhubarb</u> rice spinach Swiss chard	acacia bottlebrush cabbage cauliflower celery Chinese cabbage cucumber date palms dusty miller eucalyptus geranium oleander olive periwinkle pinks pomegranate salt cedar tamarisk thyme





SECTION A



Hydroponic System

Automated system linked to pump and LED lighting which runs around the circumference of the structure.

SECTION B



Centre

The centre space will make use of root produce which will flourish in the controlled environment.

SECTION C



Floor Space

The floor space will make use of open areas either on cement in courtyards in recycled containers or into the ground in gardens. Discarded offcuts which don't grow in hydroponic systems are cultivated here.



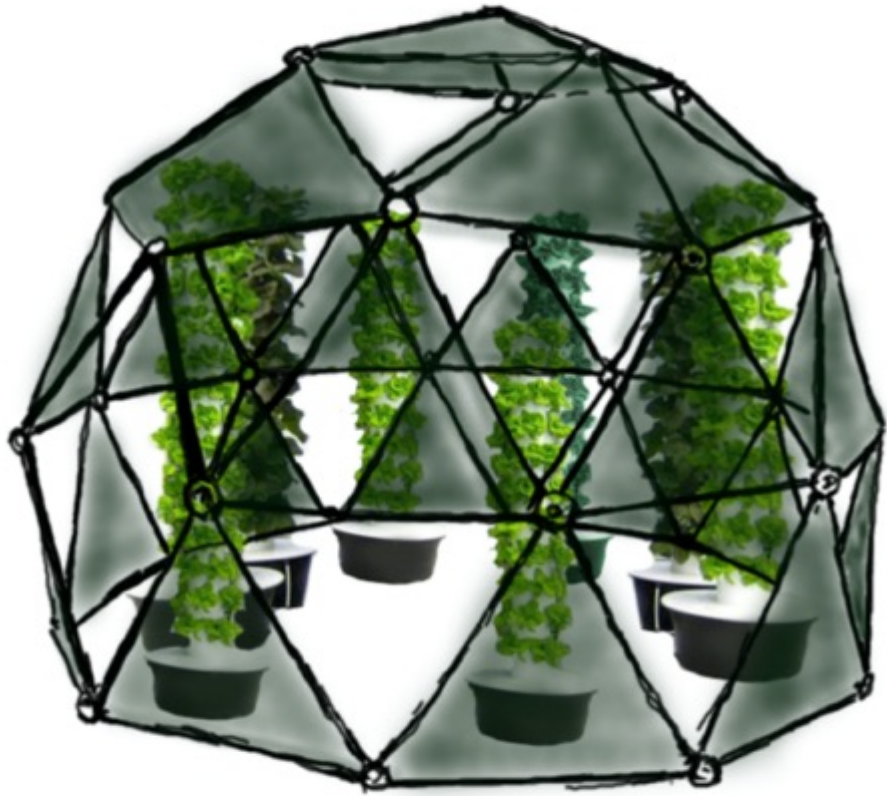
DESIGN OBJECTIVES

1. Modular for compact transportation
2. Versatile use
3. Energy efficient
4. User Friendly
5. Remote care from app with auto settings
6. Maximising small spaces

ENTRANCE



RESIDENTIAL HYBRID HYDROPONIC GREENHOUSE

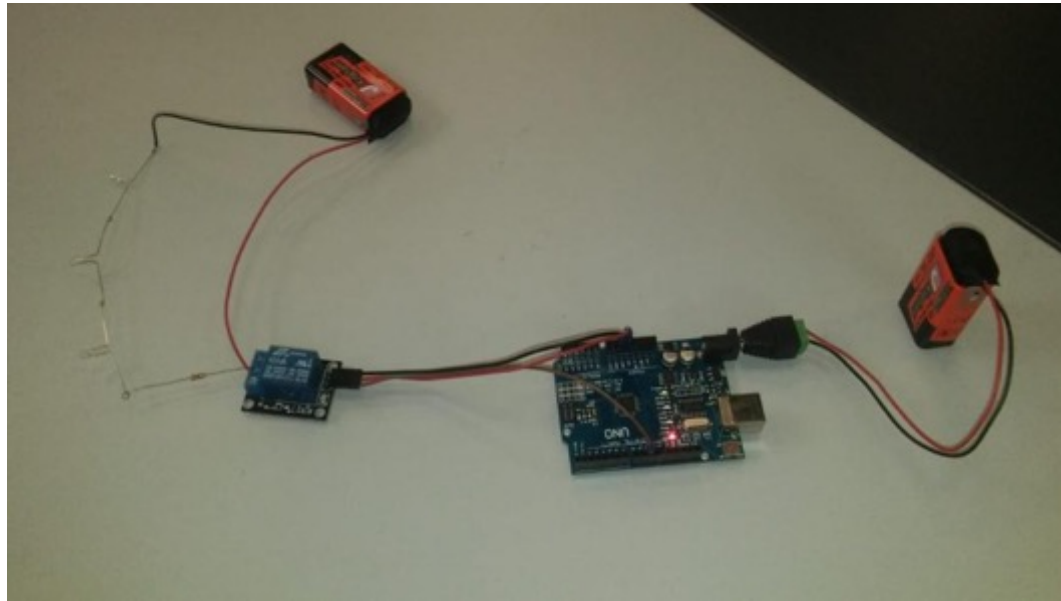
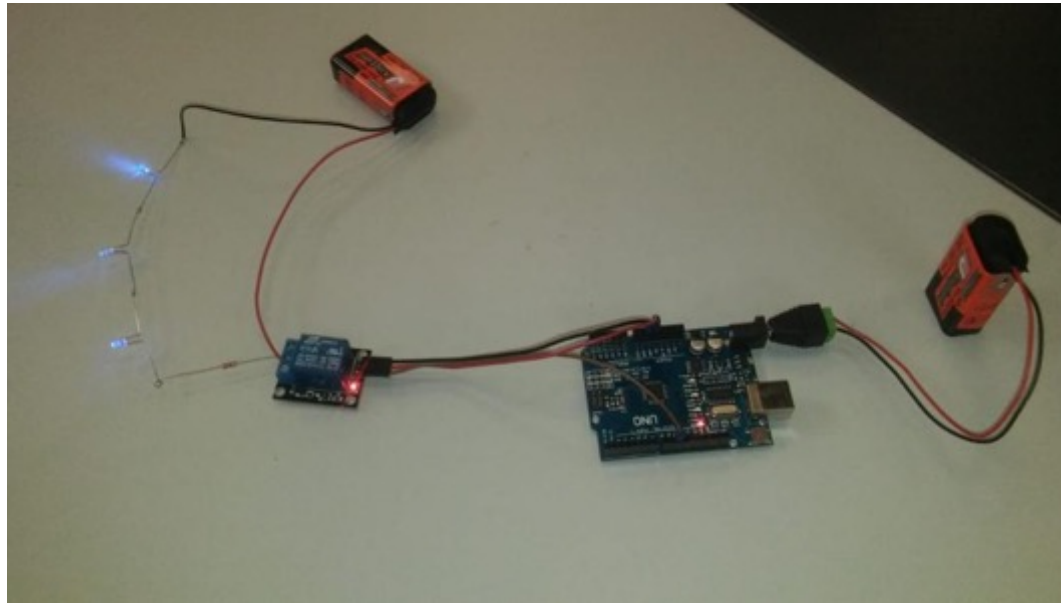


RESIDENTIAL HYBRID HYDROPONIC GREENHOUSE

Base section utilized for additional potted vegetables which require soil for growth As well as the centre structure.



PROTOTYPES



LEFT
LED Controlled lighting

RIGHT
Hydroponic pump system



ABOUT PROJECT

The project collaboration was with the
Tshimologong Makerspace in Johannesburg, South Africa.

SDG Challenge Africa 2020 Hackathon

Africa2020 is a pan-African and multidisciplinary project focusing on innovation in the arts, sciences, technology, entrepreneurship and the economy. For this season, La Cité des sciences et de l'industrie, **the Carrefour numérique² and 12 FabLabs in Africa** organise a Global hackathon. The **SDGs Challenge for Africa2020** will take place in 8 African countries at the same time and online for French residents (due to the lockdown).

Source:

<http://www.cite-sciences.fr/en/explore/learn/carrefour-numerique2/evenements/sdg-challenge-for-africa2020/>

CONTRIBUTORS

Siphiwe Ngwenya /

Siphiwe is a Data Scientist from Ivory park, CEO of a tech start-up called Naki Technologies. He is a solutionist who enjoys a challenge and writing code.

Jessica Michelle Le Roux / Visual Artist

Jess is an interdisciplinary visual artist with great interest in environmental concerns. Her practice is geared towards driving mindfulness within the butterfly effect we leave on the earth and within society.