

Global Study Program

Cooperative Learning Abroad

2012

Tomorrow's plant factories

Seinäjoki University of Applied Sciences
Chiba University



GREEN KIOSK

Tomorrow's
Plant
Factories



The word “kiosk” often refers to small stands or shops selling a variety of goods, such as newspapers, tobacco, beverages, snacks and the like. They are usually to be found in town squares, parks and other urban locations where they serve the needs of busy commuters. In Japan, “kiosk” is the proper name given to stalls located inside train stations operated by the Japan Railway Company (JR), but, in recent years, these structures are gradually being replaced by larger convenience stores. This change is due to the rise in performance of mobile phones which enable passengers to read the news online, and have therefore provoked the decrease in sales of printed newspapers. The “eki-naka” (in-station) convenience store model is also preferred for the greater diversity of product assortments that it offers.

In this workshop, participants will make proposals for the preparation of plant factories in cities



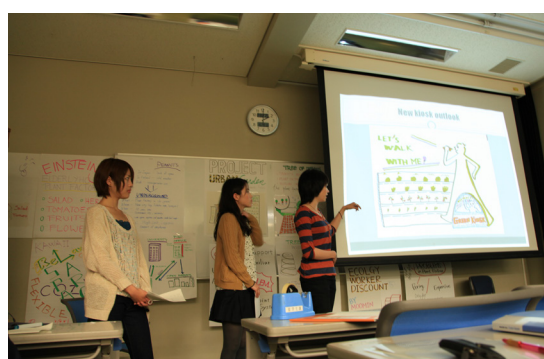
The term “plant factory” usually conjures an image of large-scale, suburban, industrial structures. However, more recently, plant factories of smaller sizes have been built inside restaurants and other types of spaces where people buy or consume plant-based products. In South Korea, for example, Lotte supermarkets include plant factories that promote food safety and attract customers. In Japan, a few restaurants, such as SUBWAY in Tokyo’s Marunouchi district or LA BEFANA in the Caretta Shiodome shopping mall, have also made use of small plant factories for publicity. In addition, the building of a plant factory inside the lobby of Sakakibara Memorial Hospital represents a first in world research about the soothing effects of plants on hospital visitors and patients.

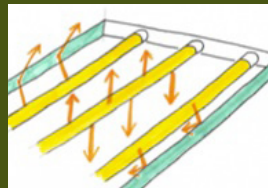
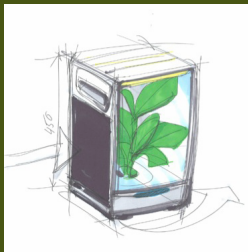
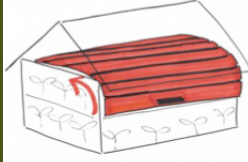
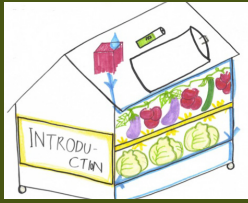
The objective of the Green Kiosk workshop was for Finnish and Japanese students to work together and devise business models for the operation of convenient small plant factories to be located in urban areas.



Schedule

- Sun.** Arrival and Orientation for Seinajoki Students
- Tue.** Self introduction & Prior Study presentation
- Wed.** Workshop 1 & Field Trip to Kashiwanoha campus
- Thu.** Workshop 2
- Fri.** Workshop 3
- Mon.** Workshop 4
- Tue.** Field survey
- Wed.** Workshop 5
- Thu.** Workshop 6
- Fri.** Final Presentation





Elderly Home Plant Factory

by einsteins

Concept: A plant factory located in the basement of an elderly home. The factory is equipped with large wall screens placed in the living room area and informing the residents of the ways to use the factory. Additional small-sized, mobile factories of various types would also be placed around the elderly home.

Inspiration: Increasing elderly populations and the need of elderly homes are subjects of debate that are shared by both of our countries, Finland and Japan. Making the lives of elderly home residents enjoyable has become, by extension, an equally important topic for discussion. The elderly home plant factory would fulfill two objectives: to grant the elderly autonomy over their food consumption, and to offer them opportunities to communicate with each other while being actively engaged in a socially meaningful project.

Descriptions of small-sized plant factories:

- 1) one-plant factory to place in individual rooms equipped with a digital photo frame on the side.
- 2) both compartments of the factory are irrigated through a pipe connected to the roof of the factory; a cordless battery is also fitted on the roof to allow easier recharge.
- 3) the two compartments are separated by a system of lamps that send light in both directions. Light is then reflected by mirrors covering the upper and lower surfaces in order to make the most of the energy supply.
- 4) the cover of the factory is equipped with a round handle for easier use.

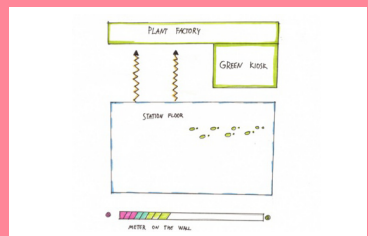


Green Step

by fantastic four

Concept: A type of kiosk located in train stations and selling healthy snacks, juices, jellies etc. made of plants grown in factories built in the station itself. The plant factories are powered by the train commuters themselves through energy generating tiles covering the station floor. Customers are attracted to the green step kiosk by sounds and lights produced by their steps, and by the wall indicator that shows how much energy is produced for every second.

Inspiration: The idea was to bring the plant factory into Japanese daily life. Since Japanese living in large urban areas use mainly trains to commute to work, and considering that some Tokyo train stations have already been experimenting with power generation floorings, the thought of a plant factory located into a train station sounded logical.





Cake Shop

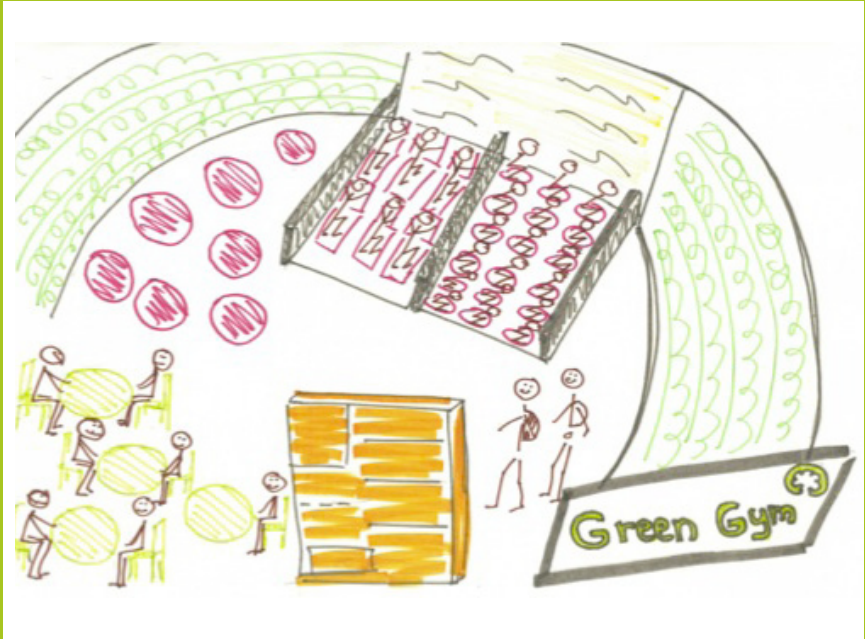
by moomins

Concept: An original cake shop that sells edible flowers grown at an adjacent plant factory. The flowers are used to decorate the cakes and are also sold as infusions or as chopstick stands. A list of over hundred different edible flowers is available for the customer to choose from, in addition to samples for tasting.

Inspiration: Edible flowers are popular in Finland and make for a healthy diet. Yet, people who buy them usually do not know where these flowers come from. Having a cake shop next to a plant factory functions both as an advertisement for the positive role played by plant factories and as an assurance for the cake buyer that these flowers are fresh and pollution-free.



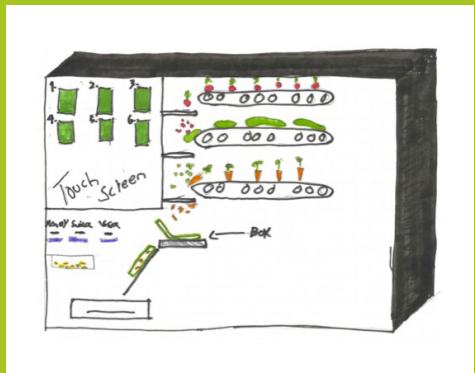
Additional feature: In order to motivate customers to grow their own plants, a "secret bag" is given for free for every cake bought at the shop. This bag contains a small plant cultivation kit composed of a seedling, sand, fertilizer and plastic bottle. The customer is encouraged to grow his or her own plant and bring it back to the shop for a discount on the next purchase.



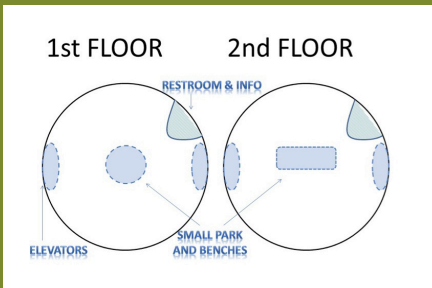
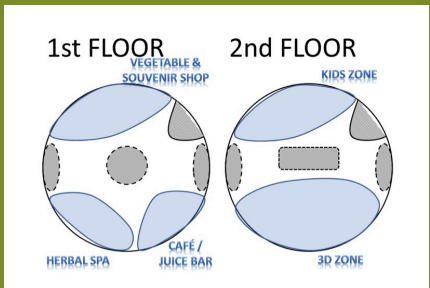
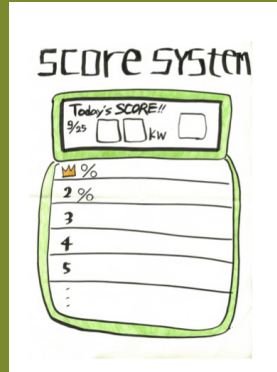
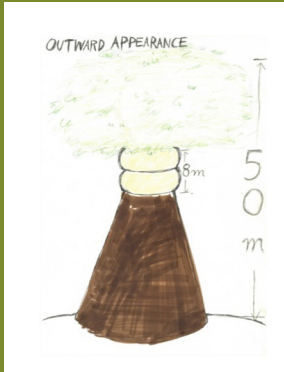
Green Gym by peanuts

Concept: Green gym combines a working out environment with a plant factory. Electricity produced by people training on the gym equipment such as treadmills, rowing machines etc. powers up an adjacent plant factory. Plants grown in the factory are then used to make healthy food sold to the customers of the gym through special vending machines directly connected to the plant factory.

Additional features: While working out, the customers of the Green Gym can observe the process of production of plants inside the factory through large glass walls. The vending machines use an eco-friendly point system, called ELECO



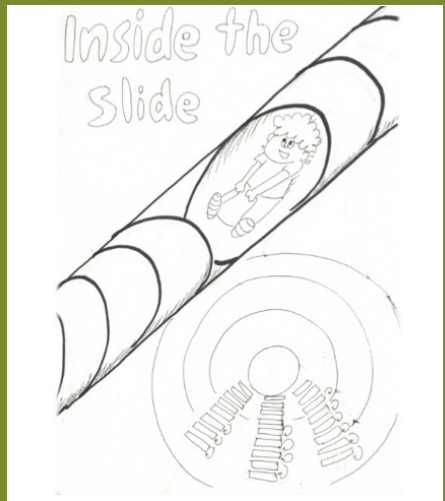
(electricity + ecology), that gives them discount prices depending on how much energy they have produced. Finally, some of the vending machines are salad dispensers showing the process of harvesting, cutting and making salads from vegetables grown inside the factory.

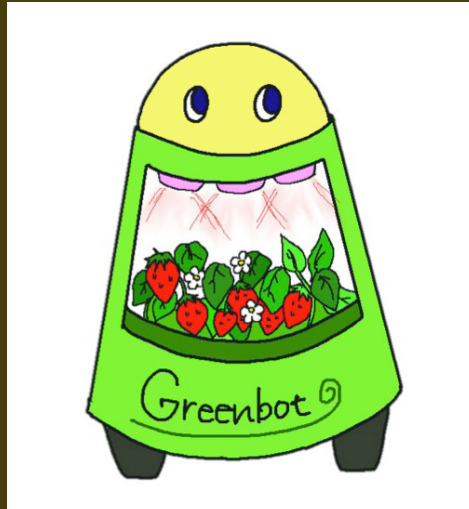
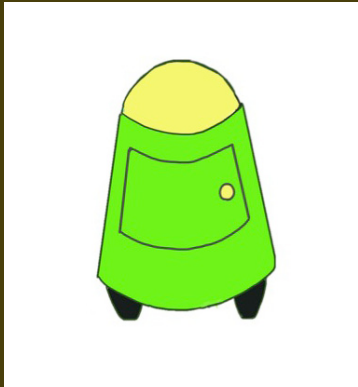


Tree of Dreams

by tree of dreams

Concept: An amusement park attraction placed in a tree-shaped, 50 meters tall building. In the central section of the building (the trunk of the tree), there is a plant factory with transparent walls. Slides surrounding the factory allow children to go from the top of the tree to the bottom. These slides are equipped with rolling cylinders generating energy which is then used to run the factory. The synthetic leaves of the tree collect rain water that is recycled in the basement of the building to be sent to the factory. Four elevators provide access to the upper two floors where various attractions await the park visitors: stores, a café and juice bar, a herbal spa a kids zone and a 3D zone.





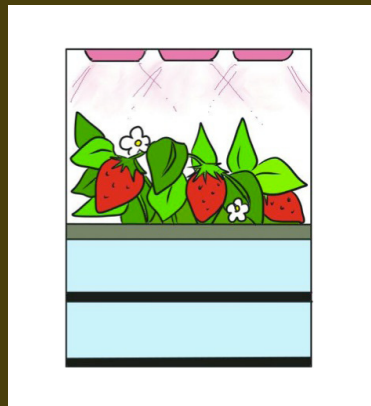
Greenbot

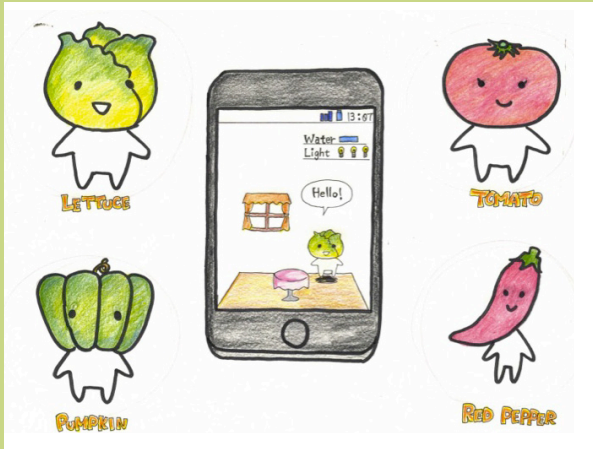
by usagi

Concept: a personal robot built from recyclable materials and containing a mini-plant factory located in its womb. In order to fulfill the greenbot's primary function, that is to educate the public about the benefits of healthy and clean food-supply, the plants are visible through a glass. The robot can deliver a few basic greetings, such as "hello" or "goodnight", and is radio controllable. The battery which allows it to perform its functions is charged by attached solar panels. LED lights and performance indicators are also used to monitor the mini-factory.

Future development: We foresee the possibility of upgrading greenbots through the purchase of accessories, such as interchangeable arms, artificial intelligence, voice recognition or a self-harvesting system. Larger greenbots could also be manufactured to meet the needs of more people at once.

Inspiration: Today automated robots performing various daily jobs, such as lawn mowing and floor wiping, are readily available on the market. Greenbots could be an additional product that offers the opportunity to grow in your own house flowers, small-sized fruits or herbs. Although it may be originally costly to buy, it could be used to teach school children about the ways technology can be of service to nature and ecology.



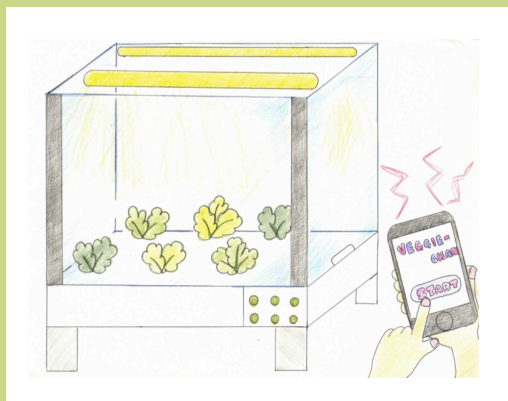


Veggie-Chan by wonderers

Concept: Veggie-chan is a small, aquarium-size plant factory (120CMx70CMx120CM) for private use, which comes with a smartphone application that functions as a controller of the factory. The application allows through an animated character called Veggie-chan to monitor the factory's levels of temperature, water, light and nutrients. The factory itself is equipped with alarm sounds and songs that inform household members of the stages of production and of eventual problems. An automatic mode can also be activated while the plant factory is left on its own for longer periods of time.

Additional features: inspired by the tamagotchi-type of games, we thought that the application should feature game options to educate the owners of the plant factory and to allow them to actively engage with the plant

production process. Three games were devised: 1) a pacman-like game in which a vegetable-looking character collects nutrients while running away from plant eating bugs; 2) a quiz game testing the gamer's knowledge of plants; and 3) a first-person adventure game in which the gamer uses his fingers to pick up nutrients and beat the enemies. Points earned by playing these games can be spent on taking care of Veggie-chan by, for example, buying new furniture for her living space. Exchange of items and points on an internet community website is also a possible additional feature.





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