IPRO 336 | Implementing the Plant

Chicago's Vertical Farm

ILLINOIS INSTITUTE OF TECHNOLOGY

THE PLANT

Problems

- Amount of farmland in urban areas and further is decreasing while population in increasing.
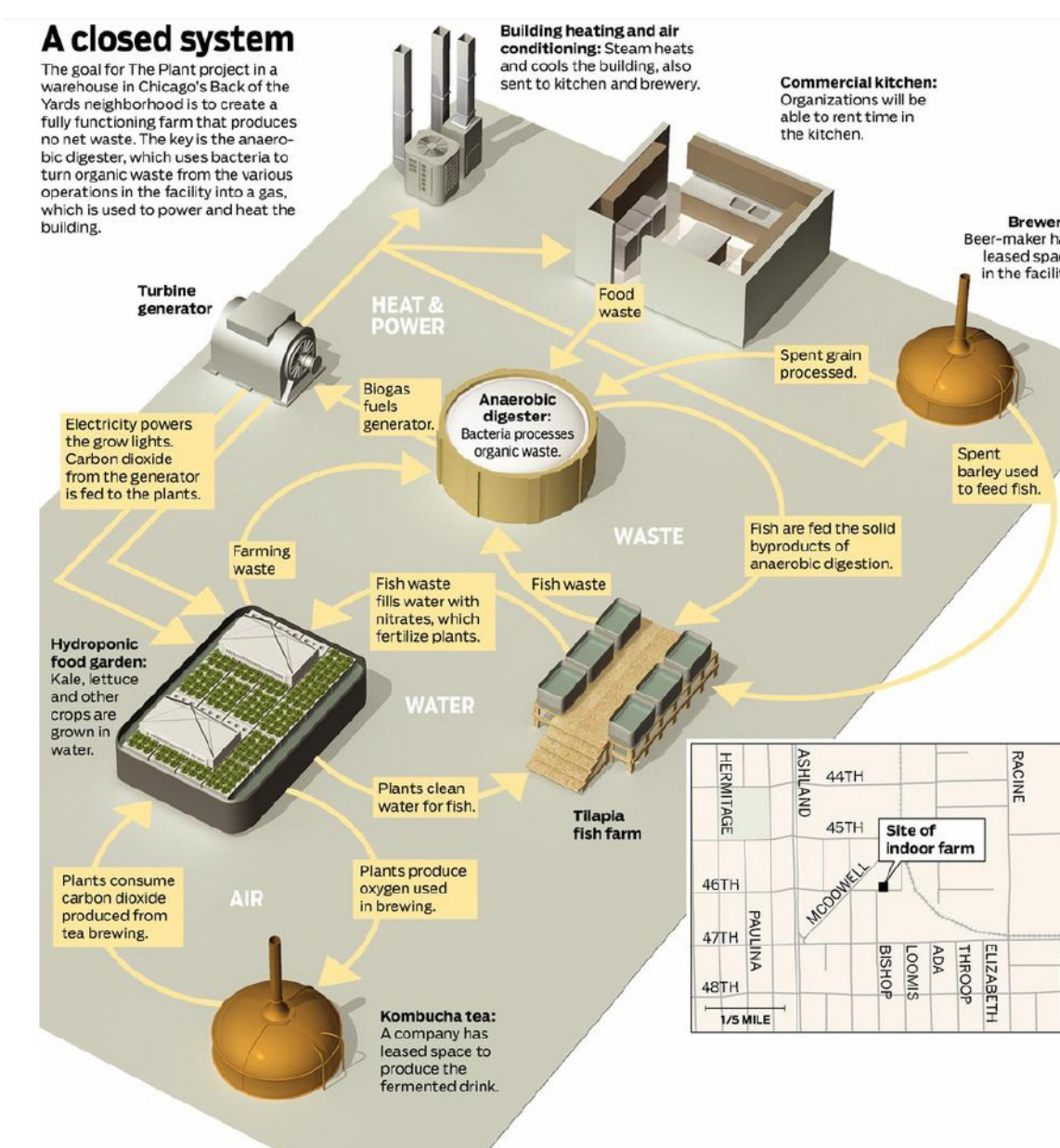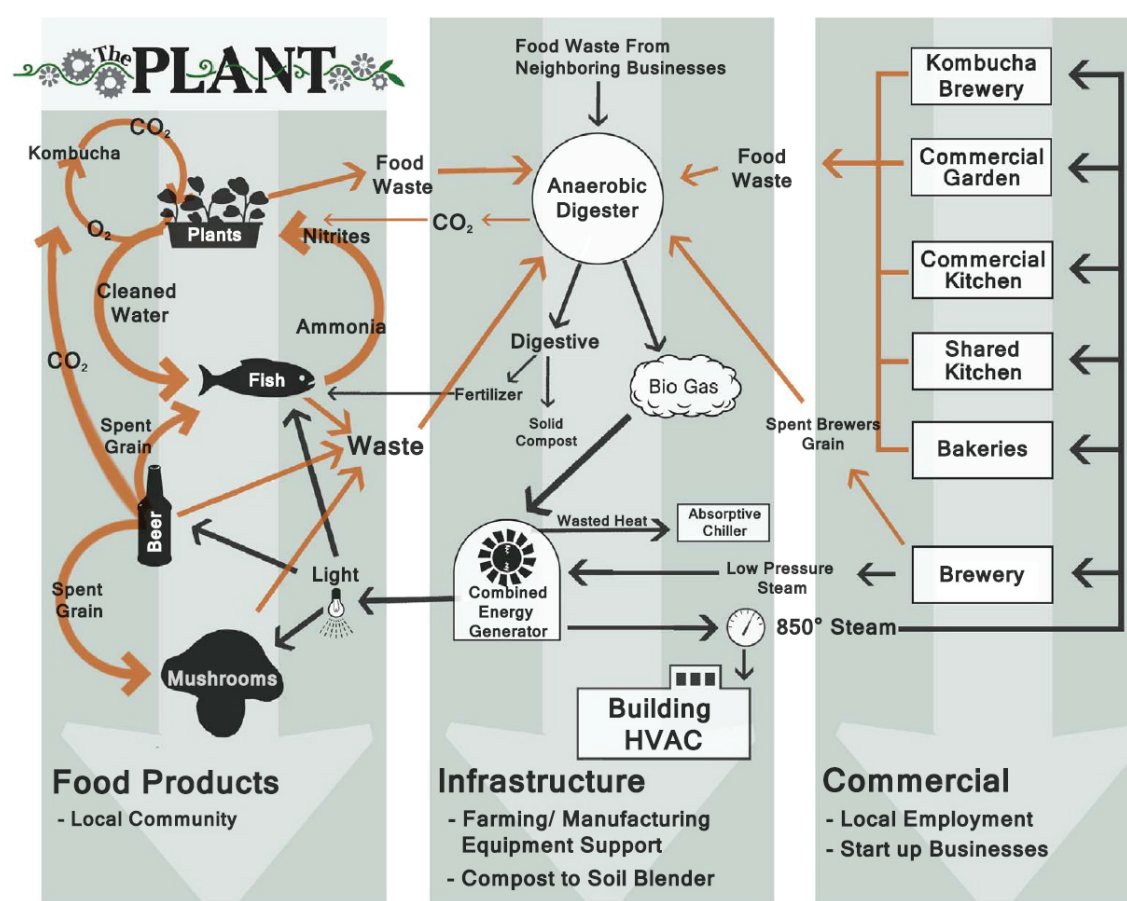- Grown food must be transported long distances.

Benefits

- Helps sustain growth of cities
- Year-round supply of fresh produce
- No crop failures
- Restoration of ecosystem
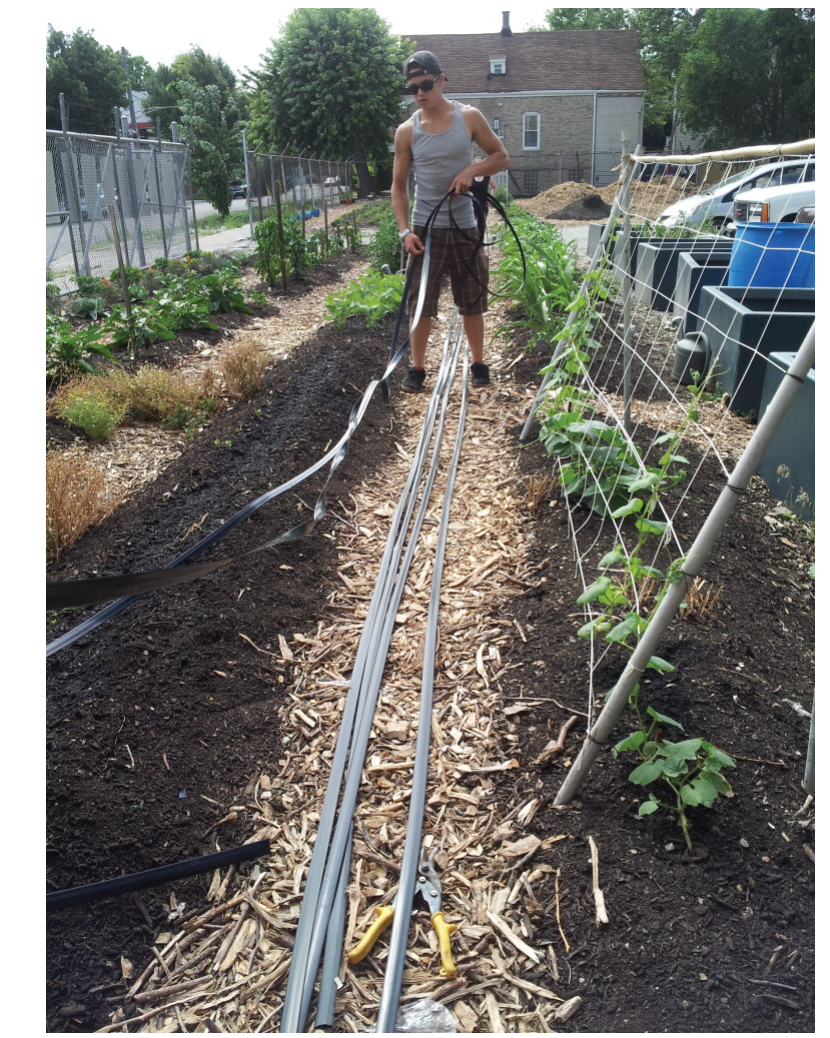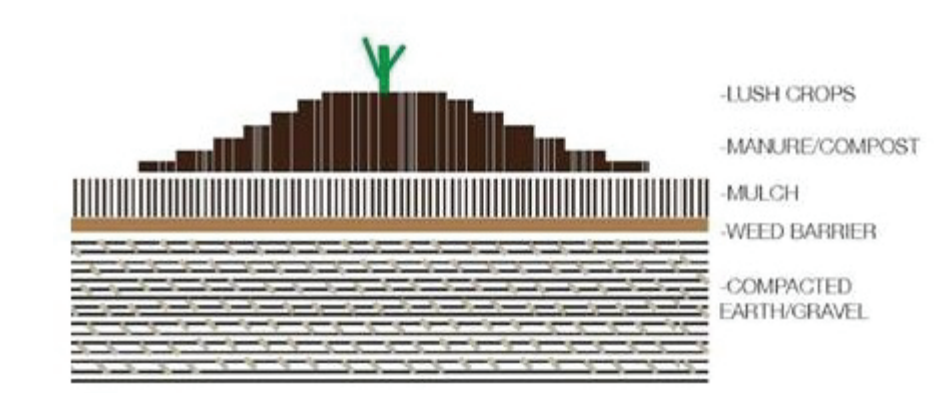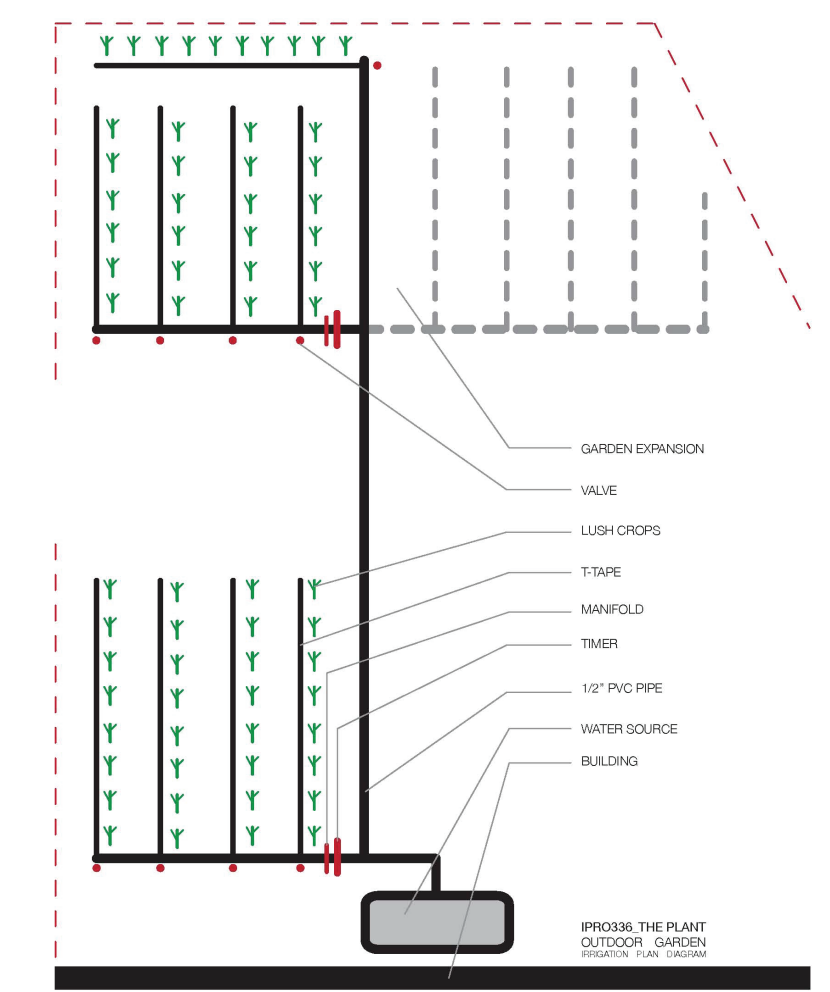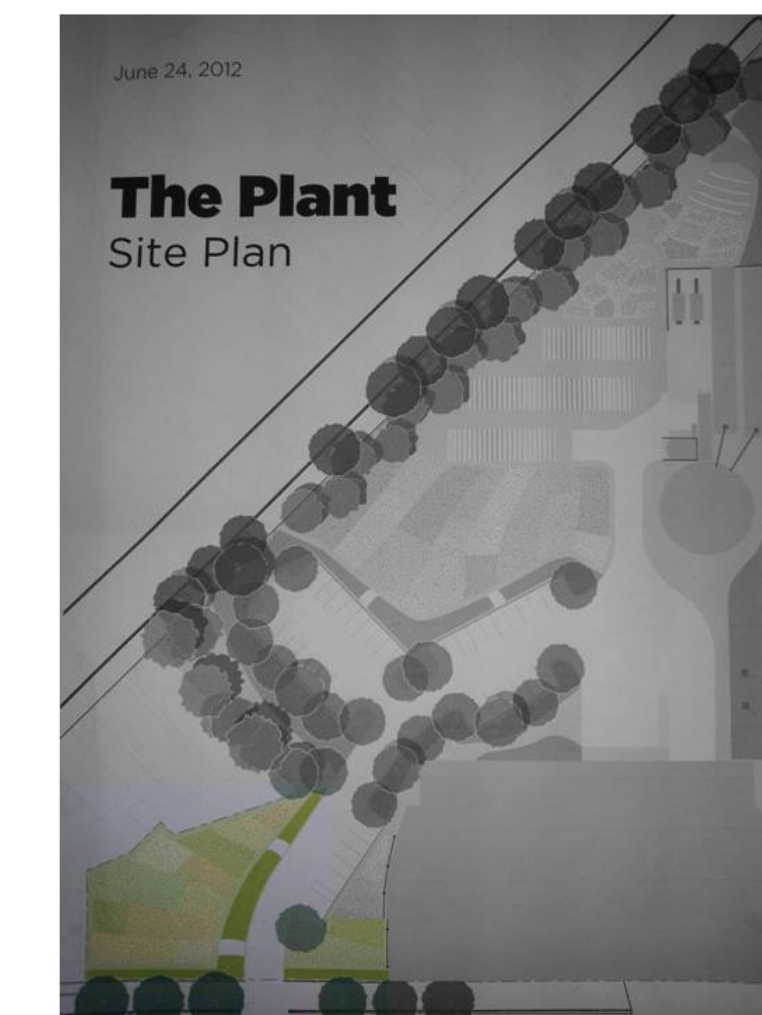- Petroleum based machinery, such as tractors, are not necessary

Objectives

- Outdoor Garden-expanding garden and design and implement a large-scale irrigation system
- Indoor Garden-design and implement plumbing for water circulation in 2 tier hydroponic growing beds
- Urban Canopy-research necessities for optimal plant growth and transportation while expanding the rooftop garden
- Lighting Team-create lighting systems for indoor garden by building and angling reflectors on a motor
- Tech Team- create a data collection database with free/open source software and user-friendly interface
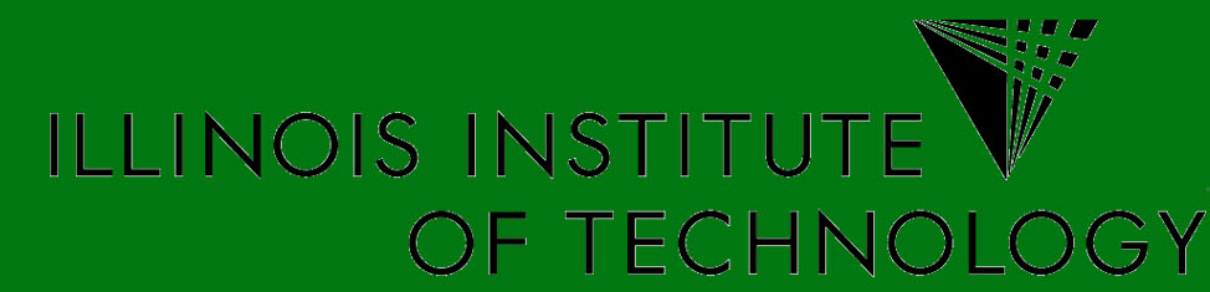
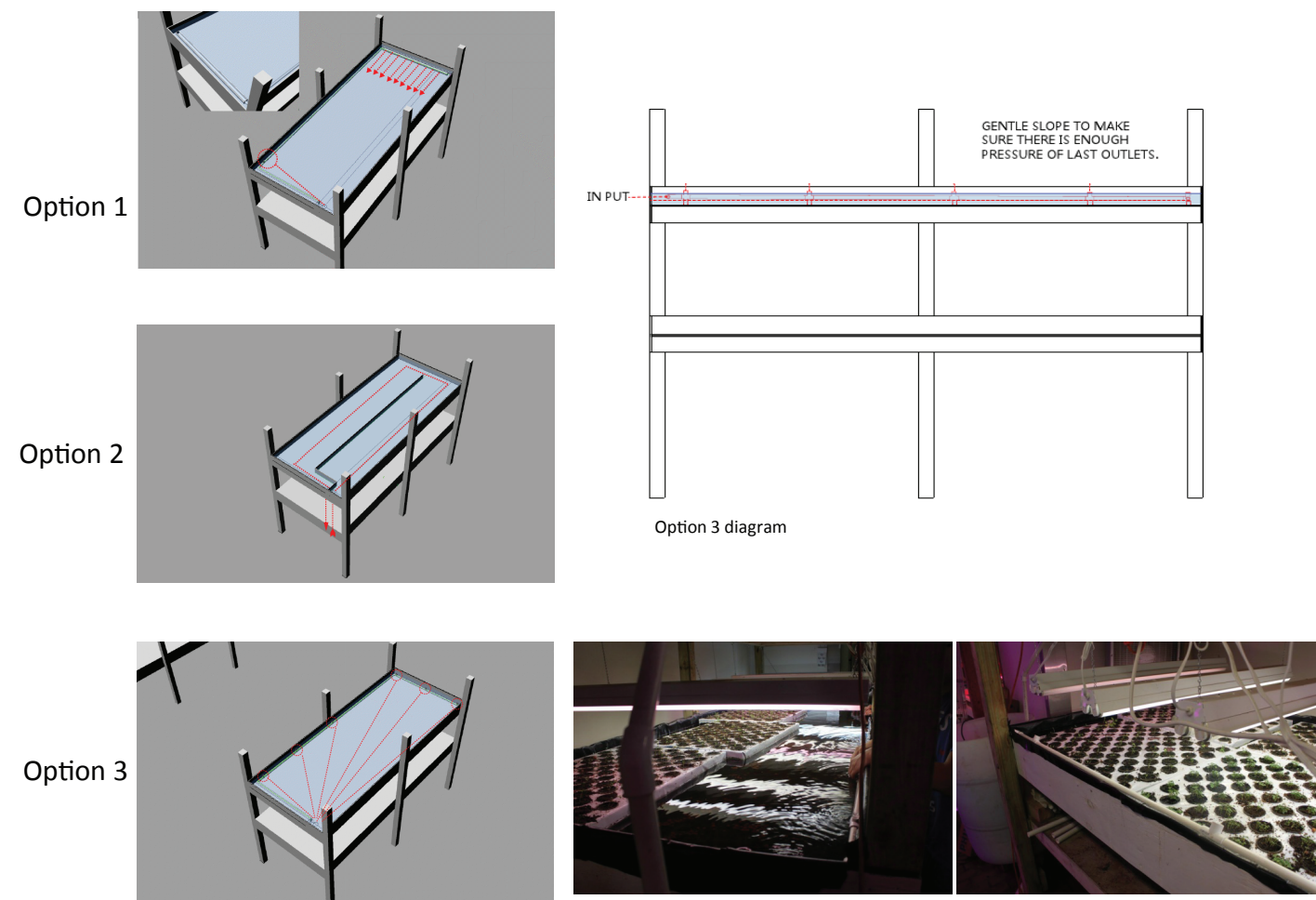## The Plant

Outdoor Garden

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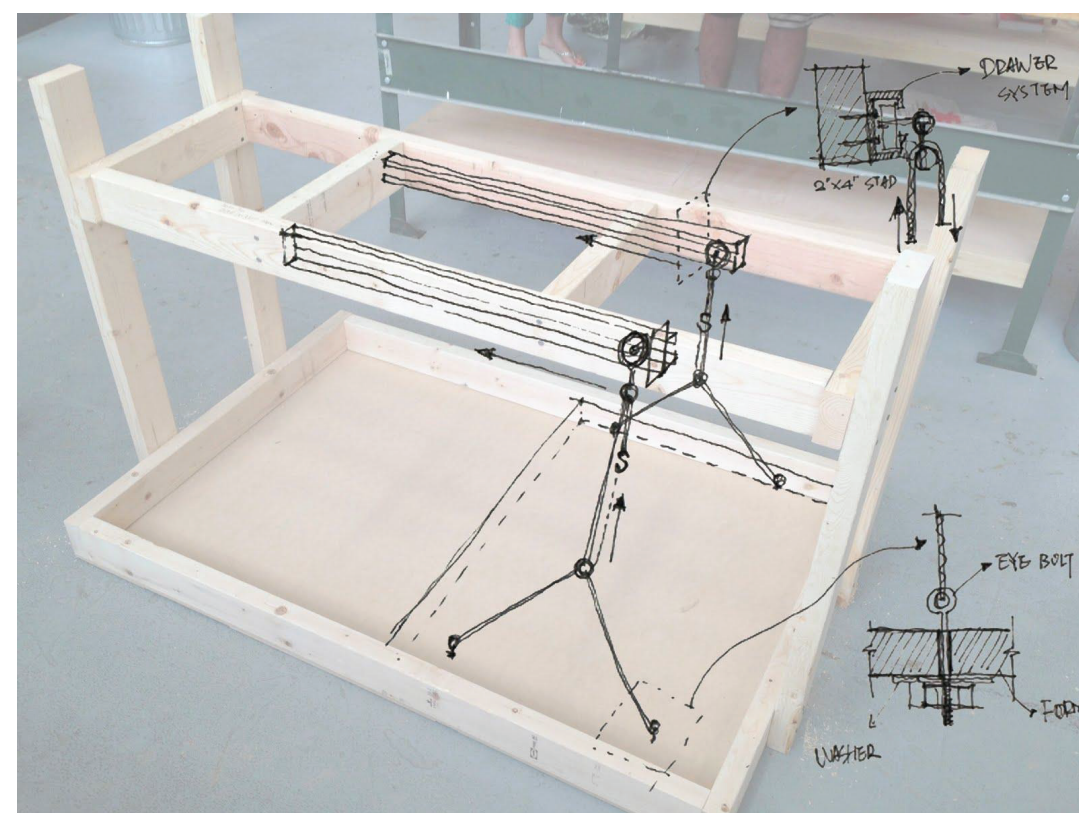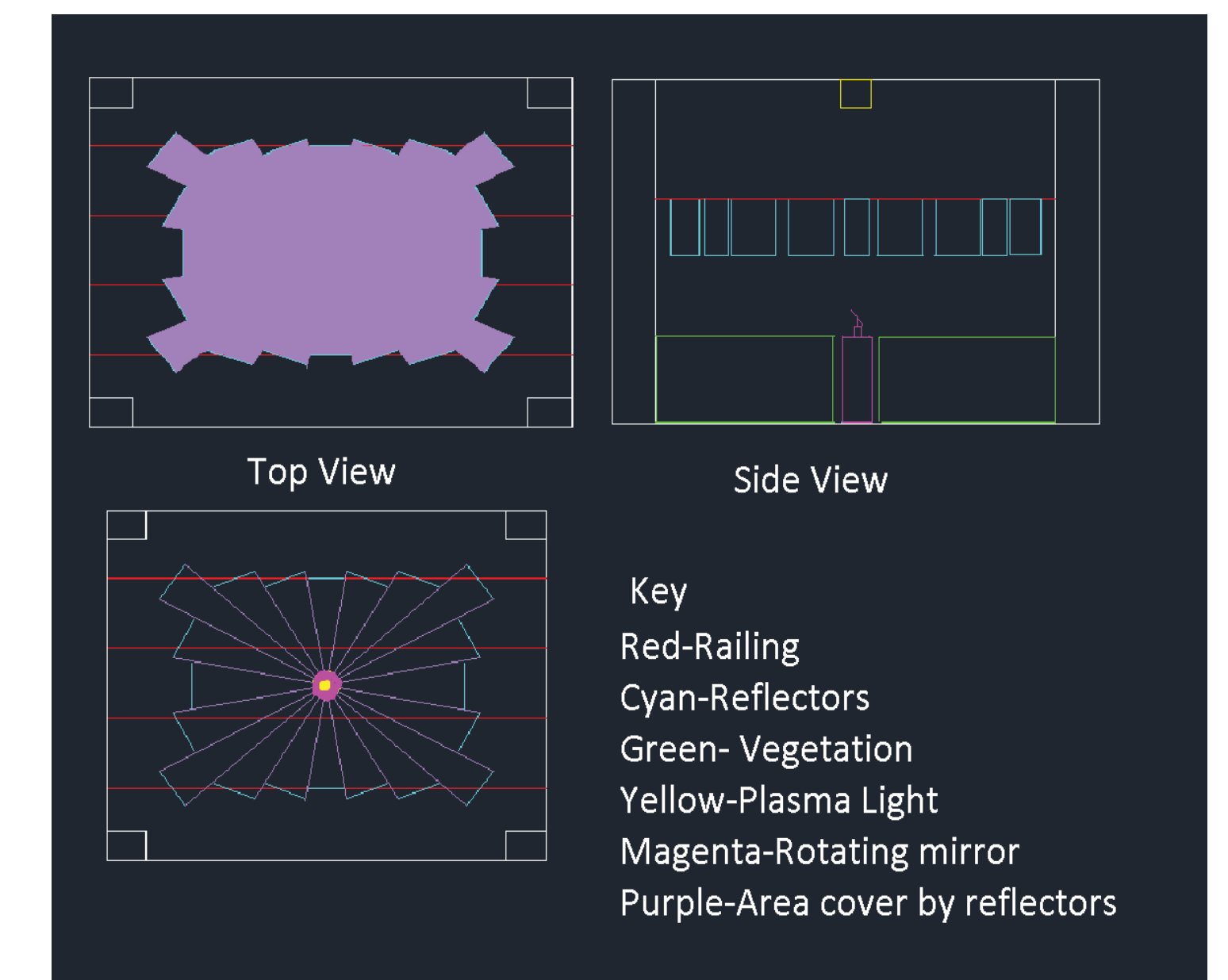
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Indoor Garden

Option 1

Option 2

Option 3

GENTLE SLOPE TO MAKE SURE THERE IS ENOUGH PRESSURE OF LAST OUTLETS.

Option 3 diagram

Urban Canopy

Lighting Team

Top View

Side View

Key
Red-Railing
Cyan-Reflectors
Green- Vegetation
Yellow-Plasma Light
Magenta-Rotating mirror
Purple-Area cover by reflectors

Computer Team

Export data to Excel Spreadsheet

User Input
HTML 5

Store data in a PostgreSQL database

xlwt

django
Communicate between interface and database with Django

PostgreSQL

RPy

R
Graph data with R