

Commercial indoor farming

A highly efficient solution for lowered cost vertical indoor farming on commercial scale

Problem

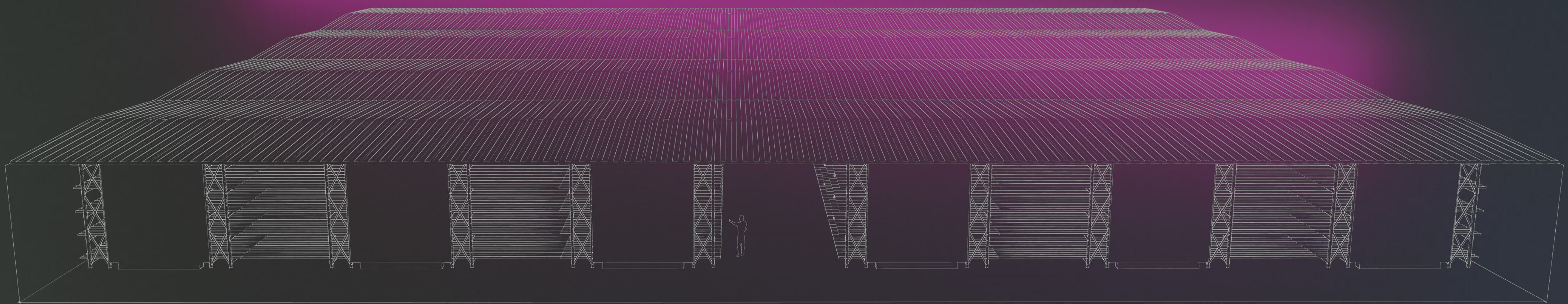
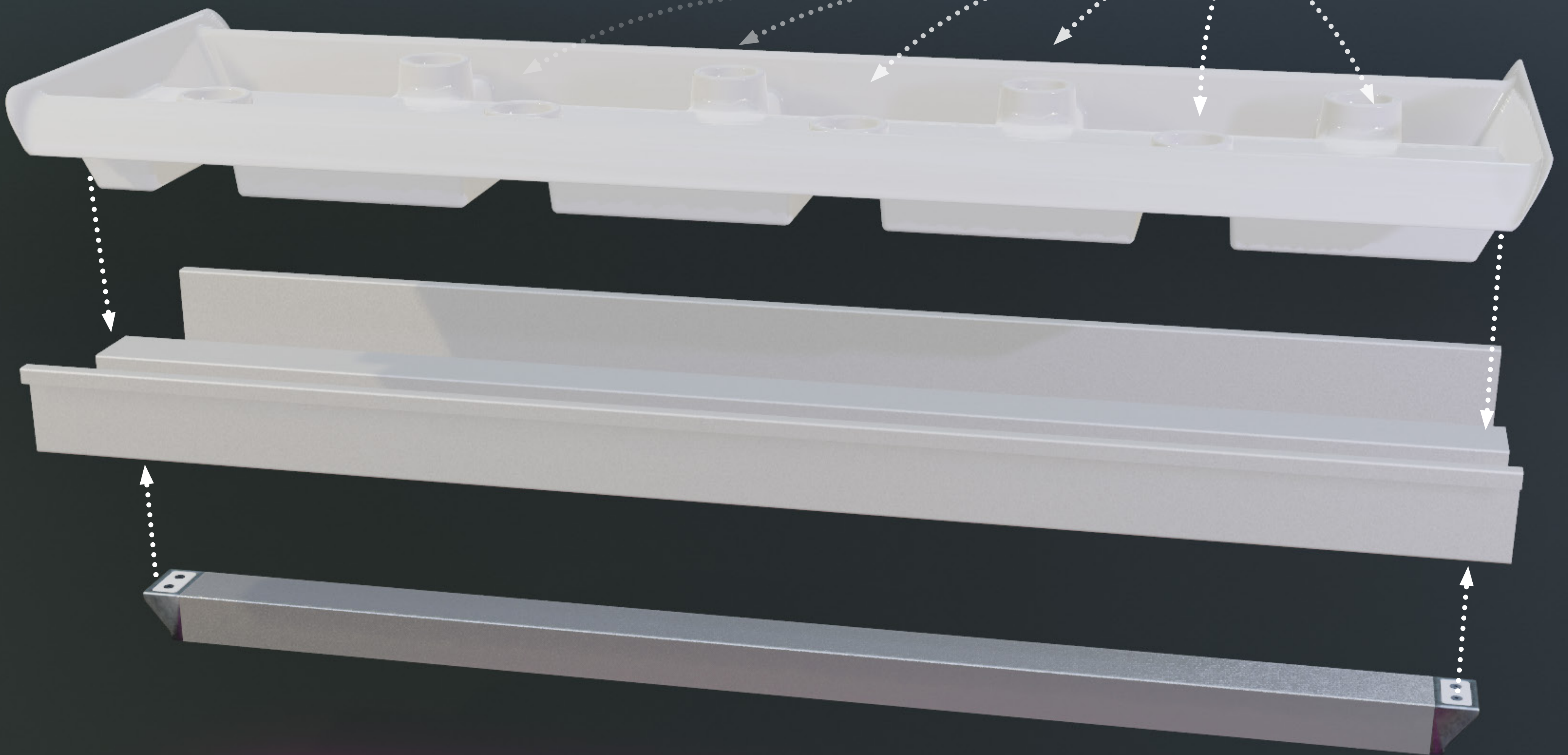
Indoor cultivation by use of climate-cells provides a higher consistency, quality and more reliable method of producing fruits and vegetables in comparison to greenhouse cultivation. These aspects become increasingly important as we face the challenges brought by higher populations and climate change. However, currently the costs of indoor food production are far too high to compete on a commercial scale.

Cost effective climate-cells can be achieved by producing more within the same system without compromising accessibility to the crops or making use of expensive automation and transportation solutions.

Solution

The result of this graduation project proposes a concept which enables highly efficient food production. It does so by producing crops on several layers while minimizing cost through space efficiency, simplifying plant transport and improving the longevity of expensive parts.

Here rafts are used to transport plants on traditional gutters thereby allowing frequent access to the crops for upkeep and harvest. By integrating several components required for cultivation more plants can be grown within the same space. The water within the gutter serves as the nutrient supply to the plant, the transport of the raft and the cooling for the lighting underneath.



Master Graduation project
Integrated Product design
Automated indoor horticulture for large scale commercial food production
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November 2019

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