

*"GROWING THE FOOD OF THE FUTURE AT QUEEN'S UNIVERSITY"*



**QVFT**  
VERTICAL FARMING TEAM

## INFORMATION PACKAGE

# ABOUT US

## INTRODUCTION

Founded in Sep. 2019, QVFT is Canada's first student-led university vertical farming design team. Vertical farming is a hyper-efficient, sustainable food cultivation method which is projected to become a major contributor to global food production in the coming decades.

Our mission is to develop a functional, small-scale vertical farm. Drawing inspiration from the best current commercial practices, our goal is to gain a foothold as an innovator in a rapidly expanding industry.



# WHY VERTICAL FARMING?

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## THE PROBLEM

Unsustainable agriculture has taken an enormous toll on the environment. Given the ongoing threat of climate change, global food security in the coming decades will largely depend on our ability to adapt and overhaul existing cultivation practices.

## THE SOLUTION

Vertical farming is a cultivation method in which crops grow in an indoor, urban, climate-controlled facility. This approach is associated with dramatically reduced water consumption, slashed transportation costs, organic produce, massive improvements in per-acre land productivity, increased plant productivity, and the freedom to cultivate crops in any location, year-round. These benefits are made possible through controlled-environmental agriculture (CEA), which allows for the artificial optimization of environmental inputs such as lighting, temperature, moisture, and nutritional availability.

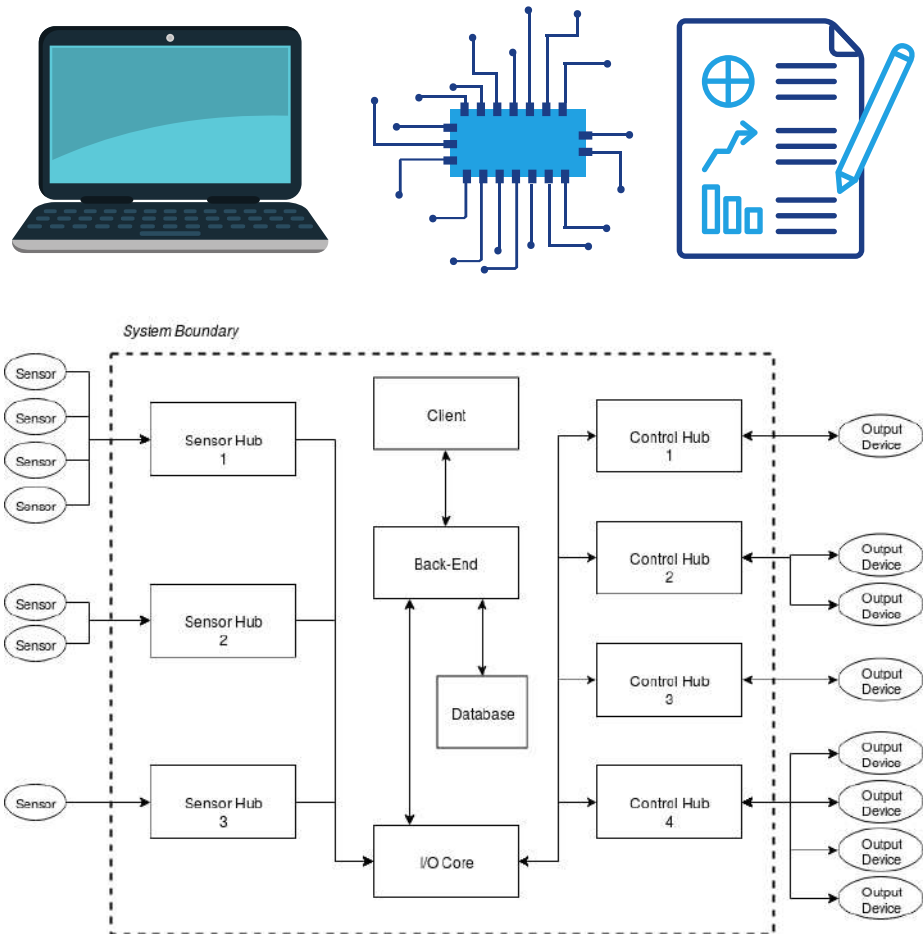




# WHAT WE DO

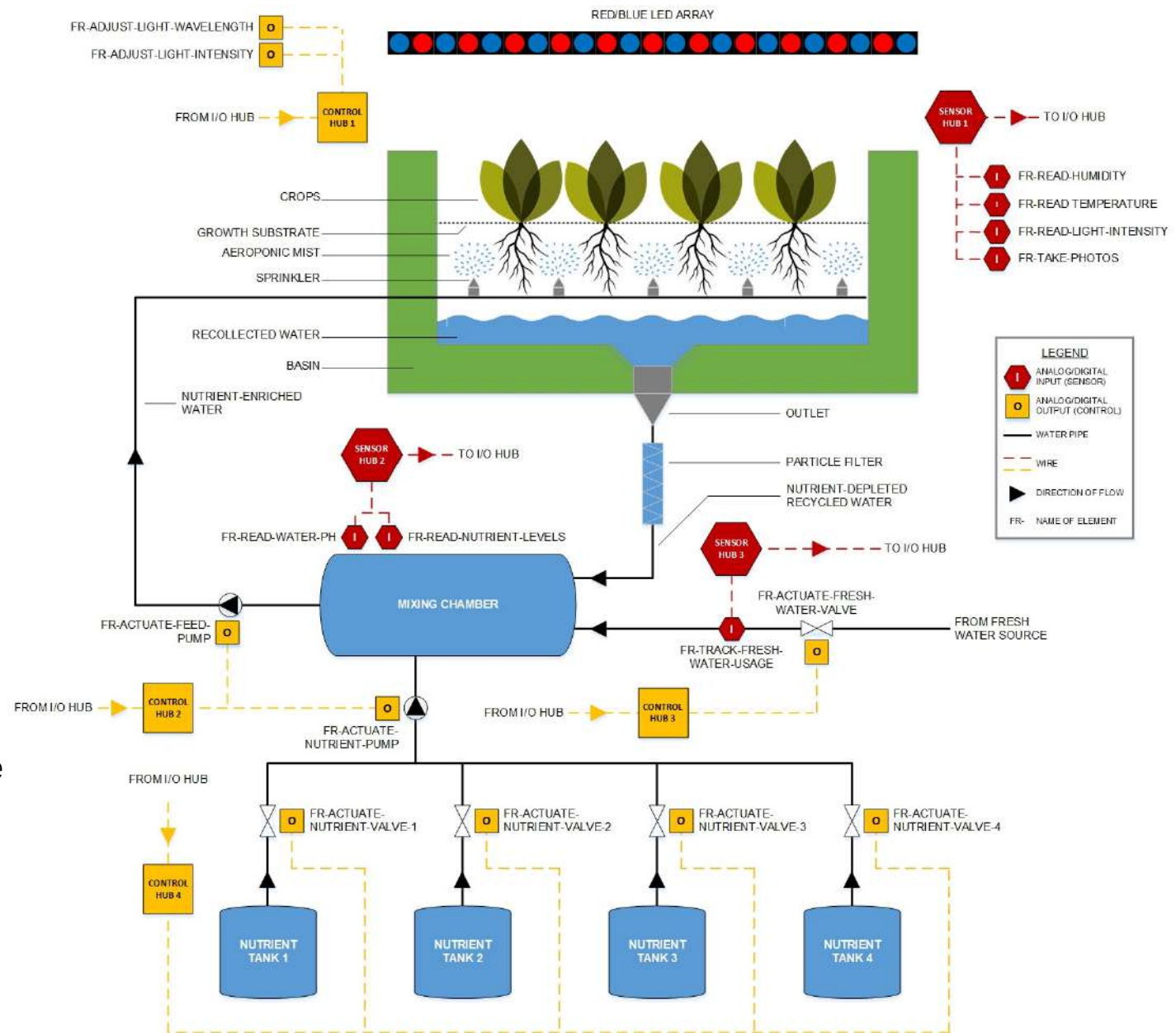
## CONTROLLED-ENVIRONMENT AGRICULTURE (CEA)

CEA is a method of optimizing plant growth conditions by means of an integrated, software-controlled sensory network. Our proposed system (see right) aims to control, monitor, and maximize farming yield by comparing realtime environmental data to pre-set environmental targets, and adjusting the internal growing environment accordingly. The CEA system will serve as the central control hub for the lighting, irrigation, fertigation, ventilation, and climate control systems.



# AEROPONICS

Aeroponics is a cultivation method in which nutrients are dissolved in water (fertigation) and misted directly onto roots via spray nozzles. Crops rest on a thin, porous substrate, through which their roots dangle in a basin below. Requiring no soil, this approach allows the grower near-complete control over the specific nutrient mix a plant receives. Shown at right is an early-stage schematic of our proposed design.



## CONTACT US



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## OUR PARTNERS



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