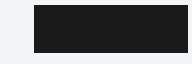




# HYDRO HARVEST

Presentation by: Alejandro Garcia, Billy Yang, Fariha Islam, Nelson Molina, Roberto Alatorre, Sarah Liu and Juan Tlilayatzi

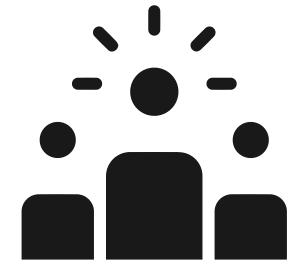
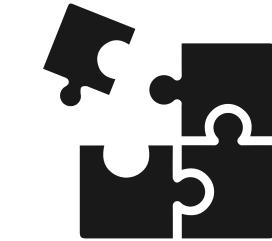
Team 4



# Introduction

- Hydroponic self-sustaining tower is a vertical farming system designed to optimize space and resources.
- Hydroponic is a soil-less method of cultivating plants using water and nutrient solutions.
- The tower structure allows for vertical stacking of plants, maximizing the number of plants grown in a limited area.
- It incorporates innovative techniques to minimize water and nutrient consumption while maintaining optimal growing conditions.

# GOAL



To build a Self Sustaining  
Hydroponic tower system  
for plants that will

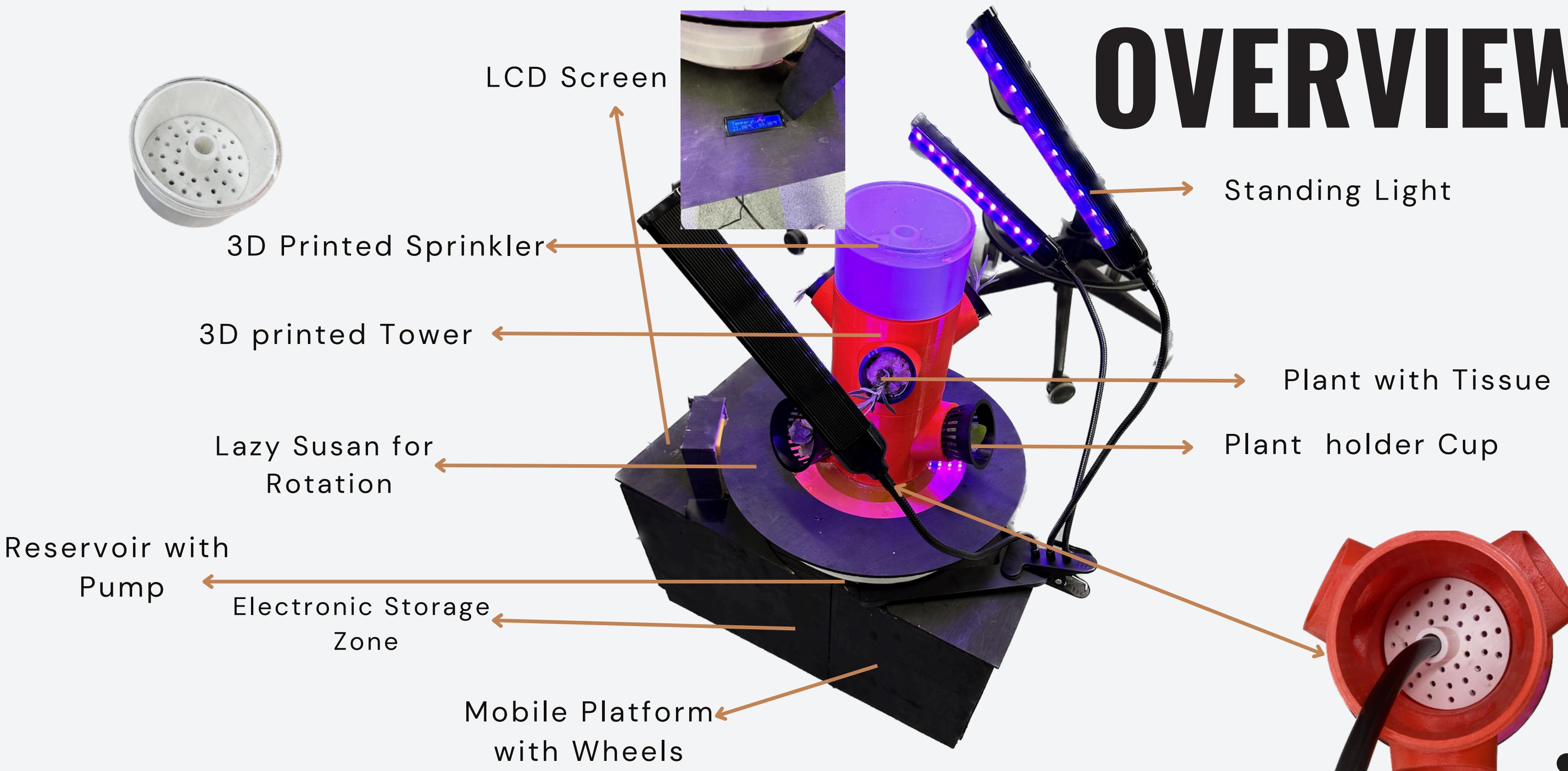
- Conserve Water
- Manage Nutrient level
- Optimize Energy use
- Maximize Space



# DESIGN

>>>

# OVERVIEW



# MATERIALS

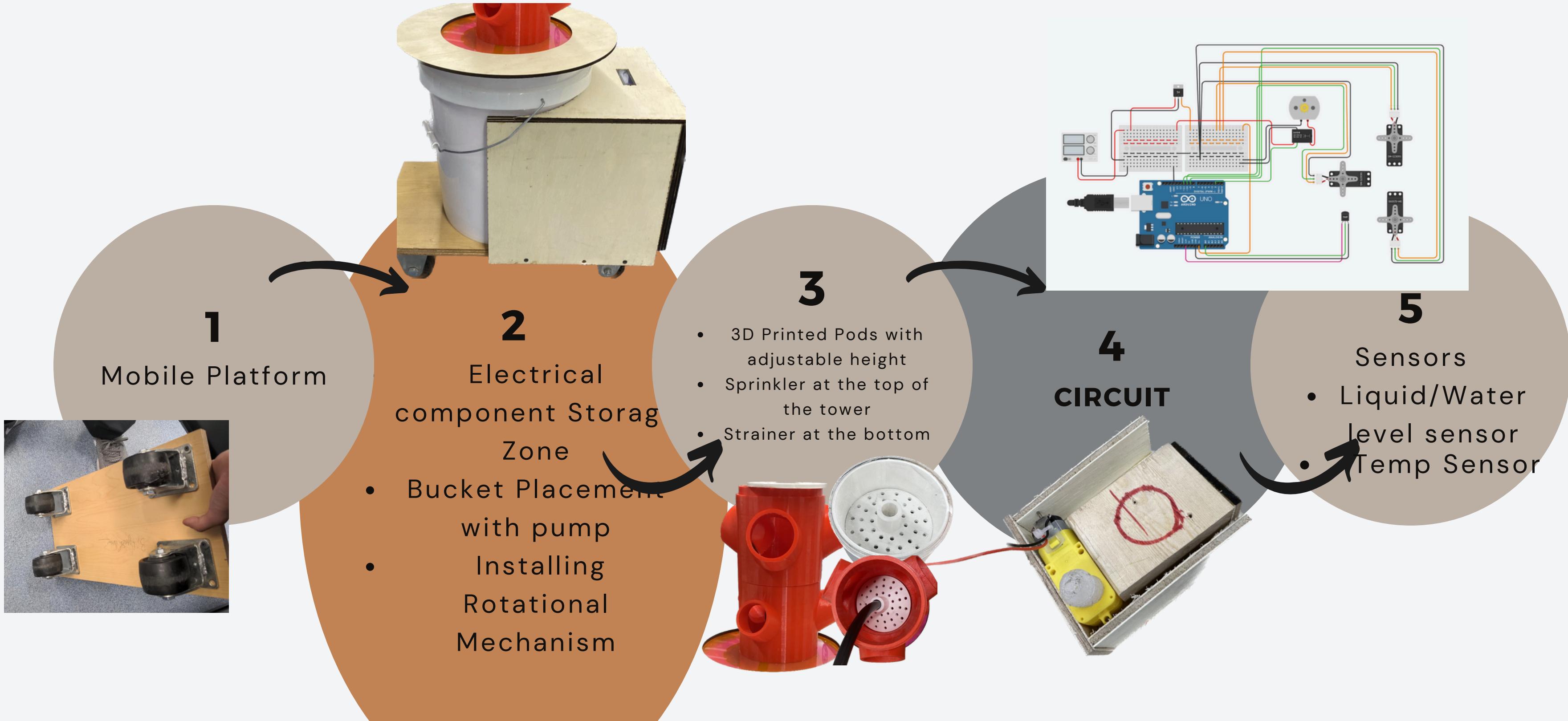
- 1 Plywood
- 2 Acrylic
- 3 Silicon
- 4 Arduino Board

3	Lazy Susan Bearing
4	air pump
5	nutrient solution
6	light fixture
7	Seeds
8	<b>water level sensor</b>
9	<b>LCD screen</b>
10	Silcon
11	growing cups
12	<b>speed regulator</b>
13	<b>Conductivity sensor</b>
14	<b>Temperature and Humidit</b>
15	<b>Servo motor for rotation</b>
16	Buck converter
17	1-Channel 5v DC relay
18	Tubing (TotalPond Vinyl Tul
19	bucket
20	12v Powersupply
21	PCB protoboards
22	Terminal blocks
23	Node MCU

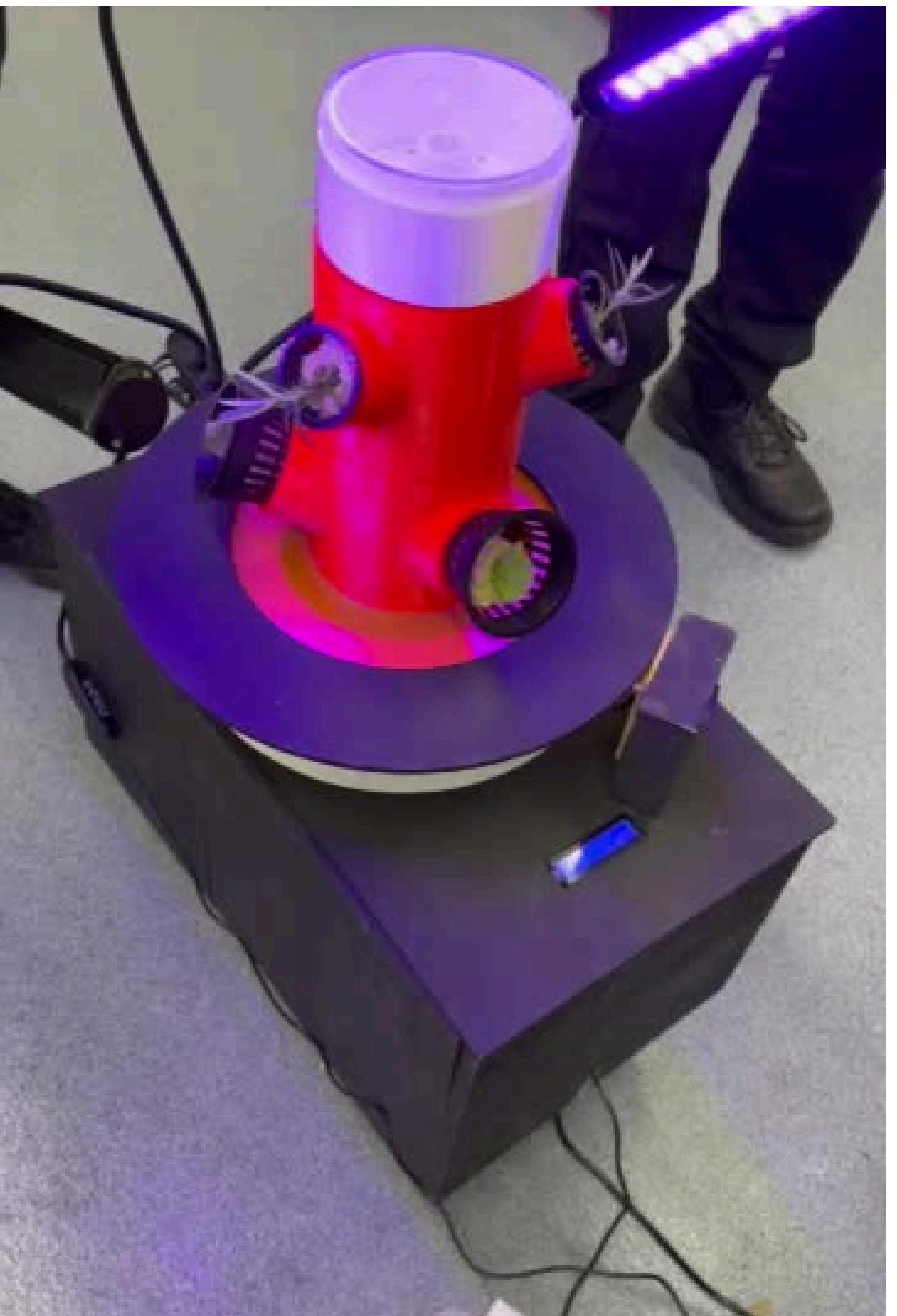
# TOOLS

- 1 3D Printer
- 2 Laser Cutter
- 3 HandDrill
- 4 Clamps
- 5 JigSaw

# DESIGN PROCESS



# DEMOSTRATION



# KEY FEATURES ACHIEVED

01

HYDROPONIC SELF-SUSTAINING TOWERS USE RECIRCULATING SYSTEMS THAT MINIMIZE WATER WASTE.

02

HYDROPONIC SELF-SUSTAINING TOWERS UTILIZE VERTICAL SPACE, ENABLING HIGHER PLANT DENSITIES PER UNIT AREA

03

STRATEGICALLY LED LIGHTING SYSTEMS POSITIONED INTO THE SYSTEM TO SUPPLEMENT NATURAL LIGHT TO ENSURES THAT PLANTS RECEIVE ADEQUATE AND UNIFORM LIGHTING.

04

THE MOVABLE PLATFORM INCORPORATES AN ELECTRONIC STORAGE ZONE SURROUNDING THE RESERVOIR. ALLOWS EASY RELOCATION AND MONITORING SYSTEM PARAMETERS.

05

THE SENSORS ALLOWS TO CONTROL PARAMETERS OF THE SYSTEM

# NEXT

The nutrient feeder ensures a consistent and reliable supply of nutrients to the plants, promoting optimal growth and development.

## NUTRIENT FEEDER WITH SERVO

The conductivity reading indicates the concentration of dissolved salts, through which we can keep the nutrient solution within desired range.

## PH SENSOR

The water level sensor will monitor and manage the water level in the hydroponic system's reservoir.

## WATER LEVEL SENSOR

# THANK YOU

*Shoutout to CIPASS, Mohammed,  
Francesca, Christine, Petr, Nadia and  
Keanu*

