

Environment

Sensors

Camera

pH sensor
Ultrasonic Distance sensor
Water Temperature sensor
Air Temperature sensor
Carbon Dioxide sensor
Humidity sensor
Electrical Conductivity sensor

Actuators

Thermoelectric Cooler
Refrigerative Cooler
Humidifier and Dehumidifier
2x Solenoid Valve
6x Water Pump (1 for circulating
Nutrient Solution and 5 for Dosing
System)
pH Buffer
Air Pump

Arduino Nano

Raspberry Pi 4

ThingSpeak

Arduino Mega

Graphical User
Interface (GUI)

