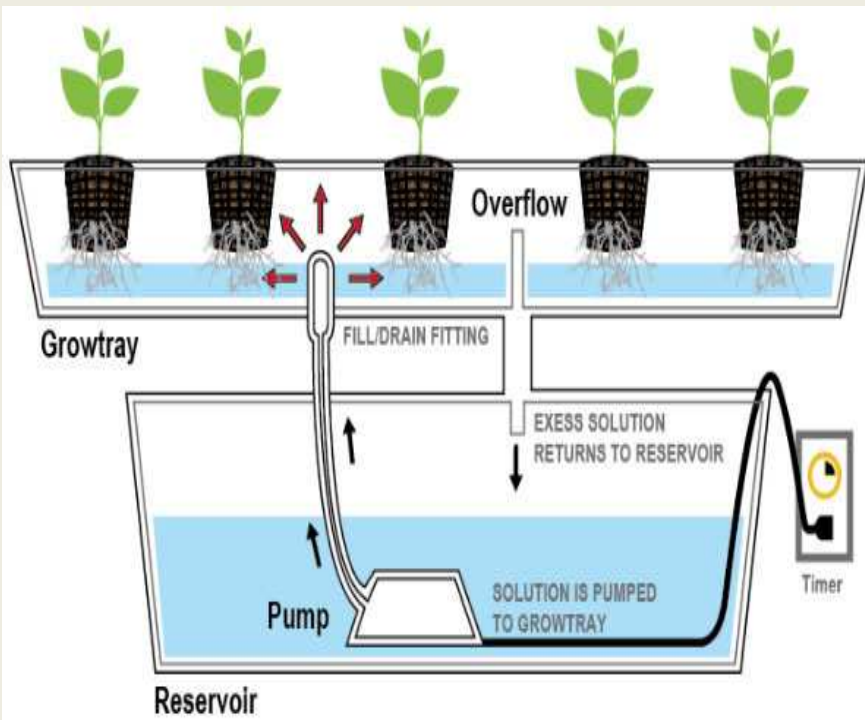


EE-595: Capstone Project - Team # 7

HydroHome



<http://hydroponiacs.com/hydroponic-growing-techniques-deep-water-culture-ebb-flow-flood-hydroponics/>

- Knuechie Moua



- Gabriel Merriman



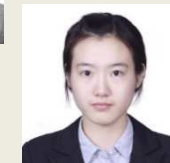
- Vinnie Stepnock



- Teng Tu



- Shiyuan Fan



- Jumanah Almurdhi



EE-595: Capstone Project - Team # 7

HydroHome

1 Purpose of Product

- HydroHome is an automated at home small scale hydroponic system. Hydroponics is the process of growing plants in a soilless medium and using a nutrient rich water solution to feed and water the plants.

2 Features

- Automated pH sensor and adjuster
- Automated nutrient level sensor and adjuster
- Light sensor to determine grow light needs
- LCD display and multiple user inputs to manage automated features.

3 Market

- USA

EE595-Team7 Key Requirements

1 Cost

- Sales Price: \$100
- Component Cost: \$30
- Assembly & Test Costs: \$20

2 Power Input

- Residential AC Power:
 - Min: 102V
 - Max: 132V

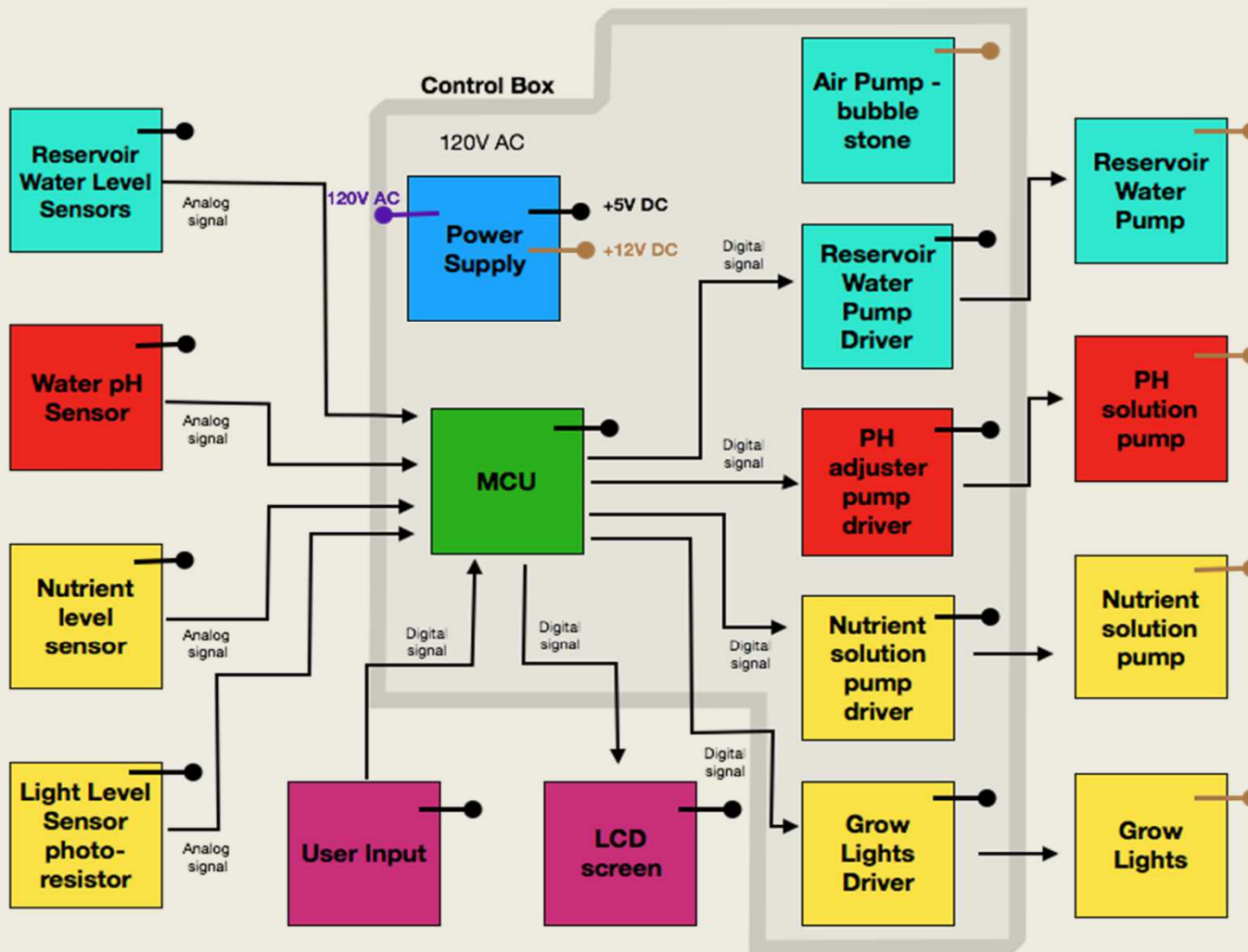
4 Environment

- Indoor
- Operating Temp Range:
 - Min: 0°C
 - Max: 50°C
- Operating Humidity Range:
 - Min: 0%
 - Max: 100%

3 Major Functions, Quantities Measured, Displayed

| Function | Range | Accuracy | Update Rate |
|---------------------|--|------------|-------------|
| pH Sensor | 0 - 14 | +/- 0.1 | 1 min |
| Nutrient Sensor | 0 - 2000ppm | +/- 5ppm | 1 min |
| Light Sensor | 20 - 25,000 Lux | +/- 10 Lux | 1 min |
| Water level Sensor | 0 - 1m | +/- 0.1m | 1 min |
| User Input Settings | 1. Herb setting; 2. Vegetable setting; 3. Flower setting | | |

EE595-Team7 Block Diagram



Block 1: Knuechie
Reservoir water level sensor, water pump, air pump

Block 2: Gabriel pH sensor, pH adjuster

Block 3: Vinnie
Nutrient Sensor, light sensor, nutrient adjuster

Block 4: Teng User input, LCD screen

Block 5: Shiyuan
MCU

Block 6: Jumanah
Power supply