SmartGrow:
Modular Automated Hydroponics Growing System

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GitHub

Background

- Challenge: how to efficiently bring agriculture indoors
- Solution: make hydroponics smarter, scalable, and easily approachable
- Market: individuals to large communities
- Societal Impact: decrease food-waste, transit fuel, and land use

Design Methods

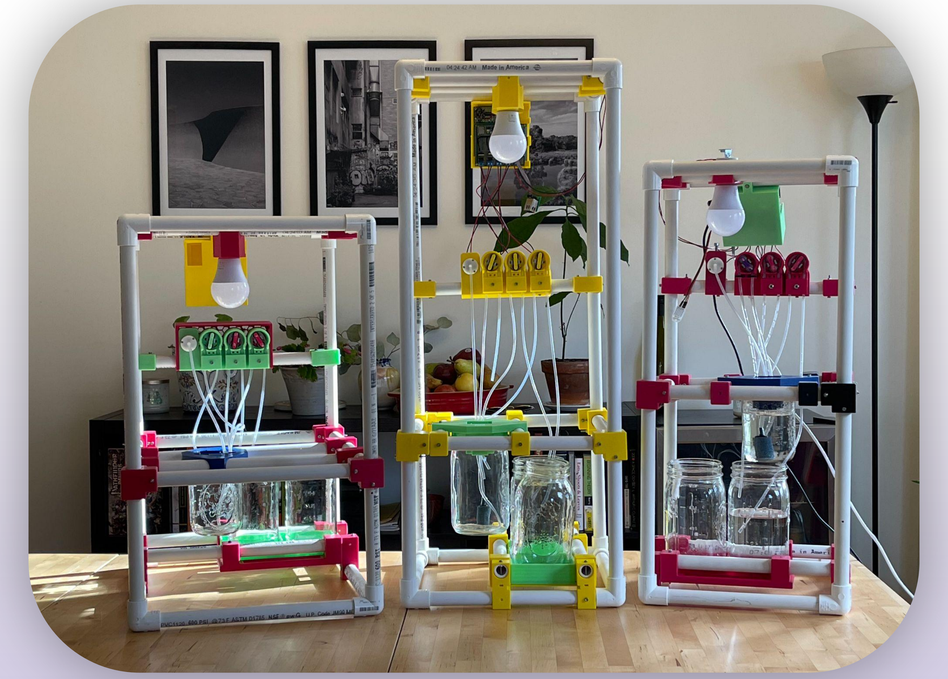
- Custom CADs
- 3D printed components
- Food-safe materials & design
- GrowPods, Networking, GUI all modular
- Arduino framework
- Provide high scalability

GUI Features

- Set Feeding & Light Schedules
- Set parameters for init at a later time
- Save nickname & notes about GrowPod
- Real-time status updates
- Monitors temp, humidity, luminosity
- Status of pumps, power, light
- Reset initialized GrowPod

Next Generation

- Future version can integrate with database of plants and growing params
- Additional modules for water treatment and power delivery
- Integrate sensors with machine learning for optimized growing



GrowPods

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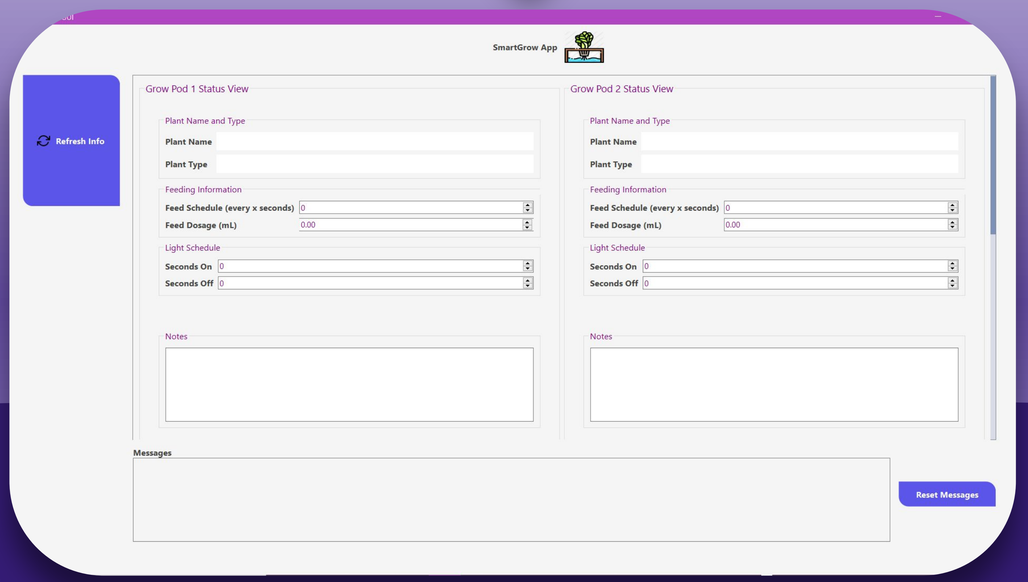
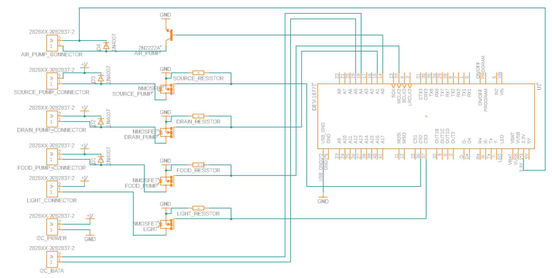
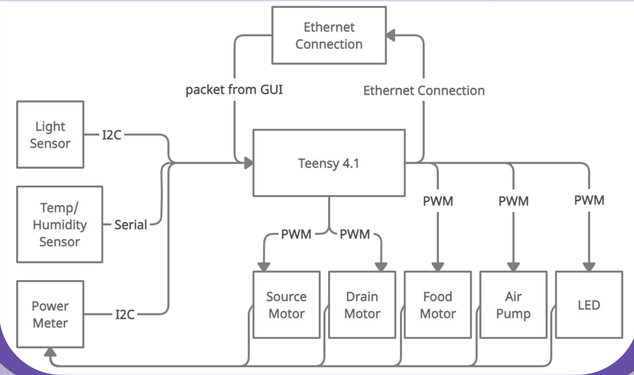
SmartGrow GUI



GrowPod Circuit



GrowPod Embedded System



Ethernet/UDP Networking