Final project initial concept – Micro-greenhouse Microcontroller project.

CPE185 Lab, Spring 2018

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Lab Days (Tuesday Morning, Wednesday Nights, & Thursday Nights)

Jeremy Shaw – Wednesday Night

Vadim Babiy – Wednesday Night

Wesley Nguyen – Tuesday Night

Daniel Bracamontes – Thursday Night

1 Micro - Greenhouse control system

2 Project Description

This project aims to create a control system for a tiny, plant-based ecosystem. It will be a system that monitors the relative health of the plants (humidity, water levels, light levels), disperse necessary materials to support plant life (water), mechanically controls the environment (fans and heaters, basically), and reports on all taken actions (present/upload data). This is a comprehensive project which utilizes microcontrollers, microcontroller peripherals, and microcontroller code to observe and care for a small ecosystem.

3 Main Sub-Functions

3.1 Ecosystem monitoring – Bracamontes

This is an overall system of sensors which monitor the temperature, humidity, and light levels.

3.2 Plant care – Shaw

This is an electromechanical system which adjusts the amount of light and water to the plant(s), based on information gathered from the ecosystem monitoring functions.

3.3 Environmental care – Babiy

This is an electromechanical system which attenuates the environmental factors of the ecosystem, adjusting humidity, heat, airflow, etc via means of controlling heating elements, fans, and vents.

3.4 Data gathering and reporting – Nguyen

A system which collects and reports on the overall health of the ecosystem, and individual plants. Also monitors the overall level of consumable supplies (water, electricity?). This may use sensors from the ecosystem monitoring function, along with other sensors and means of collecting, formatting, and reporting data.

4 Block Diagram of Project