DHF Review Signature Page

Reviewer	Signature	Date

Senior Design History File

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Last Modified: September 8, 2020

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3 Project Problem Statement

3.a Preliminary Description

An automatic garden monitoring and care system that utilizes a wireless modular design in order to fit a variety of use cases and scenarios. The system will be able to provide detailed information about garden vital statistics and use this information to automatically care for the plants.

3.b Detailed Problem Description

TBD, detail should include

- Functionalities
- Features to fulfill embedded minor

4 Team Description

4.a Team Members

The group includes three students: **Alan Trester**, **Sadie Gladden**, and **Zuguang Liu**.

Alan Trester ...

Sadie Gladden ...

Zuguang Liu is an Electrical Engineering student who has past Co-op experience in industrical system design, embedded system hardware design, and simple machine learning implementation. After finishing a Bachelor's Degree with a Embedded System minor, he continues to pursue a Master's Degree in Electrical Engineering.

4.b Technical Advisors

We have contacted Dr. Zachariah Fuchs and Dr. Carla Purdy for advising this project.

Dr. Zachariah Fuchs (fuchsze@ucmail.uc.edu) is the professor for Introduction to Mechatronics. He has extensive knowledge on embedded system design, sensor fusion, robotics and control systems. We believe he could advise us on the overall system architecture as well as specific conponents in the system.

Dr. Carla Purdy (purdyc@ucmail.uc.edu) is the professor for Embedded Systems with years of experience in Microcontroller and Microprocessor Design. She is also the advisor on Embedded Systems Minor. Her expertise will help us justify the project related to Embedded Systems, in order to fulfill the minor requirement for Alan and Liu.

Confirmation from the advisors are pending.

5 Design Activities

5.a List of Attributes

describes desired quality measures

5.b Objective Tree

a hierarchical tree of relevant objectives that the design is to satisfy

5.c Pairwise Comparison Charts

consider which design criteria are most important such as cost, quality, expected product life, reliability, manufacturability, aesthetics, safety, etc. Compare alternative designs to find best one with respect to all these criteria.

5.d Design Specifications

5.d.1 Physical Aspects

specify physical characteristics and/or physical constraints

5.d.2 Interfacing Issues

Specify the ports for connecting to external systems and for connecting parts within the system

5.e Functional Description

Master block diagram [black box level] Functional block diagram [transparent box level]

5.f Task Assignments

A Mechanical tasks: Block diagrams Design drawings B Electrical/Electronic tasks: Block diagrams Circuit designs

5.g Ghantt Chart

show evolution

5.h Detailed Budget

6 Design Prototyping and Testing

6.a Final Design

6.b Testing Methods

Test Instruments, Methods and Procedures at board level

6.c Standards

Executive Summary for Appropriate Standards Document(s) Summary of How Standard Influenced the Design

6.d Cascade Matrix

Signed Off by Tester(s) for Verification and Validation Test Documentation: Examples: test data, operational screen captures, photos, video, etc.

7 Project Management

7.a Team Charter

7.b Team Calendar

Team Calendar and/or Gantt Chart [final version]—at least week-by-week—this is your PLAN

7.c Team Hourly Budget

number of hours each member will expect to work per week

7.d Work Breakout Structure

with time effort estimations consistent with the person-hour estimates provided in the Team Hourly Budget

7.e Completion Progress

Marking to Estimate Completion: Update Graph Regularly to show Progress; Annotate to Explain Difference from Original Calendar / Gantt Chart—this is what actually happened

7.f Team Effectiveness Surveys

7.g Weekly Team Progress Reports