



## Senior Design 1 Final Report

Author 1<Email 1> Author 2<Email 2> Author 3<Email  
3>

ECE405

Revision 1.1

September 5, 2017

Revision 1.1

Table 1 Document Revision History

Revision	Date	For Revision Change(s) Reason

## Contents

<b>1 Introduction</b>	<b>4</b>
<b>2 Problem Statement</b>	<b>4</b>
2.1 State Customer Need(s) . . . . .	4
2.2 Define Use Case(s) . . . . .	4
2.3 System Boundary . . . . .	4
2.4 Interface Requirements and Definition . . . . .	4
2.5 State Customer-Defined Constraints . . . . .	4
2.6 Requirements and Specifications . . . . .	4
<b>3 Detailed Design</b>	<b>5</b>
3.1 Product Design Map . . . . .	5
3.2 Conceptual Design Alternatives . . . . .	5
3.3 Criteria for Selection and Testing Among Alternatives . . . . .	5
3.4 Design Alternatives Verification Plan . . . . .	5
3.5 Design Alternatives Validation Plan . . . . .	5
3.6 Risk Mitigation . . . . .	5
<b>4 Component Definition and Planned Build</b>	<b>6</b>
<b>5 Test Plan</b>	<b>7</b>
5.1 Test Procedure . . . . .	7
5.2 Physical Testing and Analysis . . . . .	7
5.3 Full System Testing and Analysis . . . . .	7
<b>6 Cost</b>	<b>8</b>
6.1 Bill of Materials . . . . .	8
6.2 Cost Analysis . . . . .	8
<b>7 Project Plan and Timeline</b>	<b>9</b>
<b>8 Conclusions</b>	<b>10</b>
<b>9 Lessons Learned</b>	<b>11</b>
<b>10 References</b>	<b>12</b>
<b>11 Appendix A - Design Process Decomposition</b>	<b>13</b>
<b>12 Appendix B - List of Tables</b>	<b>14</b>

<b>13 Appendix C - List of Figures</b>	<b>15</b>
<b>14 Appendix D - Proof of Purchase</b>	<b>16</b>

## **1 Introduction**

## **2 Problem Statement**

### **2.1 State Customer Need(s)**

### **2.2 Define Use Case(s)**

### **2.3 System Boundary**

### **2.4 Interface Requirements and Definition**

### **2.5 State Customer-Defined Constraints**

### **2.6 Requirements and Specifications**

### **3 Detailed Design**

#### **3.1 Product Design Map**

#### **3.2 Conceptual Design Alternatives**

#### **3.3 Criteria for Selection and Testing Among Alternatives**

#### **3.4 Design Alternatives Verification Plan**

#### **3.5 Design Alternatives Validation Plan**

#### **3.6 Risk Mitigation**

## **4 Component Definition and Planned Build**

## **5 Test Plan**

### **5.1 Test Procedure**

### **5.2 Physical Testing and Analysis**

### **5.3 Full System Testing and Analysis**

## **6 Cost**

### **6.1 Bill of Materials**

### **6.2 Cost Analysis**



## **7 Project Plan and Timeline**

## 8 Conclusions

## 9 Lessons Learned

## 10 References

## **11 Appendix A - Design Process Decomposition**

## 12 Appendix B - List of Tables

### List of Tables

1	Document Revision History . . . . .	2
---	-------------------------------------	---

## **13 Appendix C - List of Figures**

### **List of Figures**

## **14 Appendix D - Proof of Purchase**