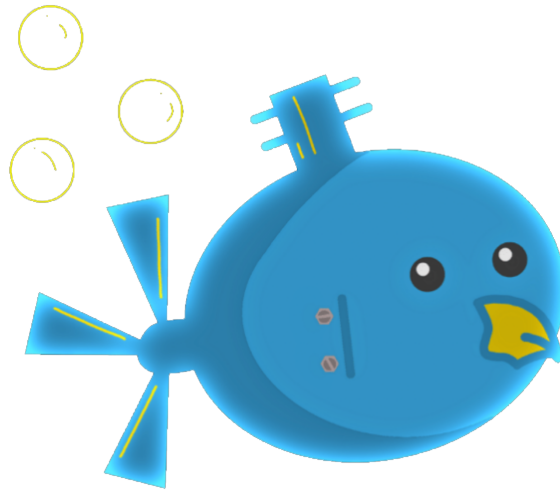


CALIFORNIA STATE UNIVERSITY, LOS ANGELES

---

# Software Design Document

---



ROBOSUB

*Members*

Thomas BENSON, David CAMACHO, Bailey CANHAM, Brandon CAO,  
Roberto HERNANDEZ, Andrew HEUSSER, Hector MORA-SILVA,  
Bart RANDO, Victor SOLIS

Thursday 2<sup>nd</sup> March, 2023

# Table of Contents

<b>Table of Contents</b>	<b>2</b>
<b>Revision History</b>	<b>3</b>
<b>1 Introduction</b>	<b>4</b>
1.1 Purpose . . . . .	4
1.2 Document Conventions . . . . .	4
1.3 Intended Audience and Reading Suggestions . . . . .	4
1.4 System Overview . . . . .	4
<b>2 Design Considerations</b>	<b>4</b>
2.1 Assumptions and Dependencies . . . . .	4
2.2 General Constraints . . . . .	4
2.3 Goals and Guidelines . . . . .	4
2.4 Development Methodology . . . . .	4
<b>3 Architectural Representation</b>	<b>4</b>
<b>4 System Architecture</b>	<b>4</b>
<b>5 Policies and Tactics</b>	<b>4</b>
5.1 Specific Product Used . . . . .	4
5.2 Requirements Traceability . . . . .	4
5.3 Testing the Software . . . . .	4
5.4 Engineering Trade-Offs . . . . .	4
5.5 Guidelines and Conventions . . . . .	4
5.6 Protocols . . . . .	4
5.7 Maintaining the Software . . . . .	4
5.8 Interfaces . . . . .	4
5.9 System Deliverables . . . . .	4
5.10 Abstractions . . . . .	4
<b>6 Detailed System Design</b>	<b>6</b>
6.1 Name of Module . . . . .	6
6.1.1 Responsibilities . . . . .	6
6.1.2 Constraints . . . . .	6
6.1.3 User Interactions . . . . .	6
6.1.4 Resources . . . . .	6
6.1.5 Interface/Exports . . . . .	6
<b>7 Detailed Lower Level Component Design</b>	<b>6</b>
7.1 Name of Class or File . . . . .	6
7.1.1 Classifications . . . . .	6
7.1.2 Processing Narrative(PSPEC) . . . . .	6
7.1.3 Interface Description . . . . .	6
7.1.4 Processing Details . . . . .	6
7.1.5 Design Class Hierarchy . . . . .	6
7.1.6 Restrictions/Limitations . . . . .	6
7.1.7 Performance Issues . . . . .	6
7.1.8 Design Constraints . . . . .	6
7.1.9 Processing Detail For Each Operation . . . . .	6

<b>8 Detailed Lower Level Component Design</b>	<b>6</b>
8.1 Name of Class or File . . . . .	6
8.1.1 Classifications . . . . .	6
8.1.2 Processing Narrative(PSPEC) . . . . .	6
8.1.3 Interface Description . . . . .	6
8.1.4 Processing Details . . . . .	6
8.1.5 Design Class Heirarchy . . . . .	6
8.1.6 Restrictions/Limitations . . . . .	6
8.1.7 Performance Issues . . . . .	6
8.1.8 Design Constraints . . . . .	6
8.1.9 Processing Detail For Each Operation . . . . .	6
<b>9 User Interface</b>	<b>6</b>
9.1 Overview of User Interface . . . . .	6
9.2 Screen Frameworks or Images . . . . .	6
9.3 User Interface Flow Diagrams . . . . .	6
<b>10 User Interface</b>	<b>6</b>
10.1 Overview of User Interface . . . . .	6
10.2 Screen Frameworks or Images . . . . .	6
10.3 User Interface Flow Diagrams . . . . .	6
<b>11 Database Design</b>	<b>6</b>
<b>12 Database Design</b>	<b>6</b>
<b>13 Requirements Validation and Verification</b>	<b>6</b>
<b>14 Requirements Validation and Verification</b>	<b>6</b>
<b>15 Glossary</b>	<b>6</b>
<b>16 Glossary</b>	<b>6</b>
<b>17 References</b>	<b>6</b>
<b>18 References</b>	<b>6</b>

## Revision History

Version	Description	Date
1.0	First release of Software Design Document.	9 December 2022

Table 1: Revision History

# **1 Introduction**

## **1.1 Purpose**

## **1.2 Document Conventions**

## **1.3 Intended Audience and Reading Suggestions**

## **1.4 System Overview**

# **2 Design Considerations**

## **2.1 Assumptions and Dependencies**

## **2.2 General Constraints**

## **2.3 Goals and Guidelines**

## **2.4 Development Methodology**

# **3 Architectural Representation**

# **4 System Architecture**

# **5 Policies and Tactics**

## **5.1 Specific Product Used**

## **5.2 Requirements Traceability**

## **5.3 Testing the Software**

## **5.4 Engineering Trade-Offs**

## **5.5 Guidelines and Conventions**

## **5.6 Protocols**

## **5.7 Maintaining the Software**

## **5.8 Interfaces**

## **5.9 System Deliverables**

## **5.10 Abstractions**

## **6 Detailed System Design**

### **6.1 Name of Module**

#### **6.1.1 Responsibilities**

#### **6.1.2 Constraints**

#### **6.1.3 User Interactions**

#### **6.1.4 Resources**

#### **6.1.5 Interface/Exports**

## **7 Detailed Lower Level Component Design**

### **7.1 Name of Class or File**

#### **7.1.1 Classifications**

#### **7.1.2 Processing Narrative(PSPEC)**

#### **7.1.3 Interface Description**

#### **7.1.4 Processing Details**

#### **7.1.5 Design Class Heirarchy**

#### **7.1.6 Restrictions/Limitations**

#### **7.1.7 Performance Issues**

#### **7.1.8 Design Constraints**

#### **7.1.9 Processing Detail For Each Operation**

## **8 User Interface**

### **8.1 Overview of User Interface**

### **8.2 Screen Frameworks or Images**

### **8.3 User Interface Flow Diagrams**

## **9 Database Design**

## **10 Requirements Validation and Verification**

## **11 Glossary**

## **12 References**