Aviator Design Document

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Professor: Ryan Beasley

Figure 0.0.1: [Caption]

Contents

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Revision Log

Date	Revision	Changes
5/3/2024	v0.1	Initial Release
[Copy]	[and]	[Replace]

Table 1: Revision Log

Glossary

- **3D audio technology** Simulation that creates the illusion of sound sources placed anywhere in 3 dimensional space, including behind, above or below the listener.
- **API** Application Programming Interface.
-

1 Introduction

1.1 Executive Description

Retro nearby flight information display.

1.2 User Stories

2 Design Requirements

2.1 Requirements

1. [Type here **DD1+**]
2. [Type here **DD1+**]

2.2 Factors Influencing Requirements

2.2.1 Public Health, Safety, and Welfare

1. The display must not interfere with user's well-being by, for example, displaying at excessive luminosity or updating rapidly in a distracting manner.
2. The device must not infringe on any person's reasonable expectation of privacy.

2.2.2 Cultural Factors

1. The device must be language-agnostic wherever possible.
2. The design must be culturally neutral cannot presuppose exposure to similar technology.

2.2.3 Social Factors

1. The physical device should be easily replicated with widely available parts.
2. The code for the device must be open-source and well-documented.

2.2.4 Environmental Factors

1. The device should be as durable and environmentally friendly as possible so as not to contribute to e-waste.
2. The device must not contribute to noise or visual pollution of any space.
3. The device must be energy-efficient.

2.2.5 Economic Factors

1. The device must minimize construction and recurring costs.
2. The device must not infringe on right to repair.

3 System Overview

3.1 System Block Diagram

[**DD1+**]

Figure 3.1.1: System Block Diagram

3.2 System Activity Diagram

[**DD1+**]

Figure 3.2.1: System Activity Diagram

3.3 System Mechanical Design (Extra Credit)

[**DD3+**]

Figure 3.3.1: System Mechanical Design

3.4 Integration Approach

[**DD3+**] [Theory behind the system design, with reference to subsystem integration within your system – i.e., explain how it is supposed to work, but not whether it did actually work] [Type here]

3.5 System Photographs

[**DD3+**] [Photograph of assembled system, intended to highlight user interaction / controls. If system is split into multiple parts, show a composite of more than one photograph with all key user interactions / controls.]

Figure 3.5.1: [Photo Name]

4 Subsystems

4.1 Subsystem 1: [Subsystem Name]

4.1.1 Subsystem Diagrams

[**DD1+**]

4.1.2 Specifications

1. [Type here **DD1+**]

4.1.3 Subsystem Interactions

[Type here **DD1+**]

4.1.4 Core ECE Design Tasks

[**DD1+** Write tasks and course that helps accomplish that task]

- **ECE xxxxx**: [Type the relationship here.]

4.1.5 Schematics

[Type here **DD2+**]

4.1.6 Parts

- [Type here **DD1+**]

4.1.7 Algorithm

[Type here **DD1+**]

4.1.8 Theory of Operation

[Type here **DD2+**]

4.1.9 Specifications Measurement

[**DD3+** Every specification here should match the specification above.]

1. [Copy specification here.]
   [Explain the specification here. Add photoes if necessary.]

4.1.10 Standards

[**DD1+**]

- [**Standard Name**]: [Describe the standards and explain the connection]

Figure 4.1.1: Subsystem Block Diagram

Figure 4.1.2: [Schematic Name]

4.2 Subsystem 2: [Subsystem Name]

4.2.1 Subsystem Diagrams

[**DD1+**]

4.2.2 Specifications

1. [Type here **DD1+**]

4.2.3 Subsystem Interactions

[Type here **DD1+**]

4.2.4 Core ECE Design Tasks

[**DD1+** Write tasks and course that helps accomplish that task]

- **ECE xxxxx**: [Type the relationship here.]

4.2.5 Schematics

[Type here **DD2+**]

4.2.6 Parts

- [Type here **DD1+**]

4.2.7 Algorithm

[Type here **DD1+**]

4.2.8 Theory of Operation

[Type here **DD2+**]

4.2.9 Specifications Measurement

[**DD3+** Every specification here should match the specification above.]

1. [Copy specification here.]
   [Explain the specification here. Add photoes if necessary.]

4.2.10 Standards

[**DD1+**]

- [**Standard Name**]: [Describe the standards and explain the connection]

Figure 4.2.1: Subsystem Block Diagram

Figure 4.2.2: [Schematic Name]

4.3 Subsystem 3: [Subsystem Name]

4.3.1 Subsystem Diagrams

[**DD1+**]

4.3.2 Specifications

1. [Type here **DD1+**]

4.3.3 Subsystem Interactions

[Type here **DD1+**]

4.3.4 Core ECE Design Tasks

[**DD1+** Write tasks and course that helps accomplish that task]

- **ECE xxxxx**: [Type the relationship here.]

4.3.5 Schematics

[Type here **DD2+**]

4.3.6 Parts

- [Type here **DD1+**]

4.3.7 Algorithm

[Type here **DD1+**]

4.3.8 Theory of Operation

[Type here **DD2+**]

4.3.9 Specifications Measurement

[**DD3+** Every specification here should match the specification above.]

1. [Copy specification here.]
   [Explain the specification here. Add photoes if necessary.]

4.3.10 Standards

[**DD1+**]

- [**Standard Name**]: [Describe the standards and explain the connection]

Figure 4.3.1: Subsystem Block Diagram

Figure 4.3.2: [Schematic Name]

4.4 Subsystem 4: [Subsystem Name]

4.4.1 Subsystem Diagrams

[**DD1+**]

4.4.2 Specifications

1. [Type here **DD1+**]

4.4.3 Subsystem Interactions

[Type here **DD1+**]

4.4.4 Core ECE Design Tasks

[**DD1+** Write tasks and course that helps accomplish that task]

- **ECE xxxxx**: [Type the relationship here.]

4.4.5 Schematics

[Type here **DD2+**]

4.4.6 Parts

- [Type here **DD1+**]

4.4.7 Algorithm

[Type here **DD1+**]

4.4.8 Theory of Operation

[Type here **DD2+**]

4.4.9 Specifications Measurement

[**DD3+** Every specification here should match the specification above.]

1. [Copy specification here.]
   [Explain the specification here. Add photoes if necessary.]

4.4.10 Standards

[**DD1+**]

- [**Standard Name**]: [Describe the standards and explain the connection]

Figure 4.4.1: Subsystem Block Diagram

Figure 4.4.2: [Schematic Name]

5 Bibliography

[Here are some examples. IEEE format can be found on Purdue OWL.]

References

[1] "Data Platform - Open Power System data," Apr. 15, 2020. https://data.open-power-system-data.org/household_data/

[2] Author,"Title," *Journal*,volume,number, page range, month year, DOI.

[3] Author. "Page."Website. URL(accessed month day,year)

6 Appendices

[This section is mainly designed for code. You can directly generate a somewhat decent display of your code file or psuedo code by using the template provided below. You can have as many appendix as you want. In the document, you can refer to the code posted here instead of pasting the whole code in the body.]