Hardware Report
Audio360

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1 Revision History

Table 1: Revision History

Date	Developer(s)	Change
Dec 21, 2025	Sathurshan, Omar	Report outline.

Contents

2 Introduction

[Explain the prupose of this document. Why it was selected for this project —SS] [Briefly outline the structure of the document —SS]

3 Hardware

3.1 Hardware Requirements

[Write down requirements that applied to hardware from SRS. —SS] [Write down any constraints (budget) —SS]

3.2 Required Hardware Conponents

[List what hardware is required based on the requirements from above section. —SS] [Explain how each hardware acheives each requirements/ why it is needed? —SS] [microcontroller, microphone, Rokid glasses [1] —SS]

3.3 Hardware Selection Process

[Process of selecting hardware to fit requirements and pricing —SS] [performance, cost, timing of shipment, etc. —SS] [Aleternative hardware —SS] [Include links to hardware source —SS]

3.4 Hardware Specification

[Include specification table of each hardware. —SS] [Include links to manufacturing documentation whether online or in this repo —SS]

3.4.1 STM microcontoller

3.4.2 Microphone

[Go over each pin —SS]

3.4.3 Rokid AR glasses

4 Theory

[This section goes over some theory, that will help understand the hardware integration section —SS]

4.1 I2S Communication Protocol

[Explain what is I2S? How it represents data? —SS]

4.2 Micophone Synchronization

[Explain what mic Synchronization is. Why is it important? —SS] [How can multiple microphones be Synchronized on the same clock —SS]

5 Hardware Integration

5.1 Wiring

[Provide images and explanation of wiring —SS]

6 Software-Hardware Integration

[Explain this section is to provide more context how software was designed for the hardware. Main point to point out how software engineering is relevant since this is a software capstone. —SS] [System diagram with hardware layer at the bottom —SS]

6.1 Software Architecture

[briefly go over software architecture —SS] [libraries used related to hardware —SS]

6.2 Hardware Abstraction Layer

[Describe the hardware abstraction strategy. (benefits or portability and maintainability) —SS]

6.3 Hardware Interface Implementation

[Overview of manufacturer code —SS] [Point to the hardware layer code. —SS] [What interfacing code had to be implemented and why? —SS]

References

[1] Rokid, "Rokid glasses," 2025. [Online]. Available: https://global.rokid.com/?srsltid=AfmBOoo-Mc8pQf3WkW2WnUC0L6rIWmC9SK6KKv4U_6GXD-AeR2IXig8y