Lab 2 - Team Sapphire

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Version 2

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1 Introduction

Team Sapphire has created Sapphire Sounds to solve the issue of noise complaints between tenants. We hope that this device will allow people to live peacefully around others while also respecting boundaries. Sapphire Sounds will be the way for tenants and landlords to establish respectful relationships.

1.1 Purpose

This document lists the requirements and specifications for Sapphire Sounds, a sound monitoring application.

1.2 Scope

Sapphire Sounds monitoring device is a way to fix the issue of noise complaints in close quarters residencies. This small, yet powerful device allows for tenants to log any noise complaints they have with proof and gives landlords the ability to set up a rewards system.

1.3 Definitions, Acronyms, and Abbreviations

dB (Decibel): A unit to measure the intensity of sounds.

Noise Event: An occurrence when decibel thresholds are reached for a specific duration. Used for reporting.

Noise Sensor: A physical device that monitors sound levels without recording audio.

Report: A structured report generated by the system, detailing the noise event.

Threshold: A predefined decibel level, which if exceeded, will trigger a noise event

Tenant: A resident or occupant of a shared or multi-unit housing space using the system to manage and monitor noise activity.

1.4 References

American Public Health Association. (2021, October 25). Noise as a public health hazard. https://www.apha.org/policy-and-advocacy/public-health-policy-briefs/policy-database/2022/01/07/noise-as-a-public-health-hazard

Minut. (n.d.). Minut. http://www.minut.com/

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Team Sapphire (June 5, 2025) Sapphire Sound – Lab 1 retrieved October 29, 2025 from https://zboudreaux99.github.io/Sapphire-Sound-Monitoring-Website/labs/

1.5 Overview

Section 2 of this document gives an overview of Sapphire Sounds.

Section 3 lists organized requirements.

2 Overall Description

2.1 Product Perspective

Sapphire Sounds will be able to connect to an app via Wi-Fi and provide an easy to traverse user interface. Through the app, rental owners will be able to view the log history for each tenant and even provide incentives to tenants that follow noise policies. The application will be built with React.js and Node.js. This will allow for features such as the devices sensors, database, and notification system to be implemented.

2.2 Product Functions

Sapphire Sounds will have decibel monitoring, an alert engine, a data analysis engine, and decibel meter communication. These functions allow for the decibel sensor to activate and trigger alerts that will send notifications to the property manager's email. Historical sound data will then be analyzed for patterns in real time which can be viewed through the application.

2.3 User Characteristics

Sapphire Sounds have two types of users: tenants and landlords. Tenants are to have the device in their living quarters where the device will activate. Tenants will have the ability to look at their noise level history and review rewards that were given. The landlords can implement the rewards system that is built into the application. Landlords and property managers can see the noise level history for each tenant.

2.4 Constraints

N/A

2.5 Assumptions and Dependencies

N/A