Lab 2: Sapphire Sounds

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Table of Contents

Listing of Figures

No table of figures entries found**.**

Listing of Tables

No table of figures entries found.

1 Introduction

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to formally define the functions, features, and constraints of the Sapphire Sounds system. This document serves as a mutual understanding between the development team and stakeholders, outlining what the system will accomplish and how it will operate at a high level. It will guide the design, implementation, testing, and evaluation of the product to ensure all project goals are met consistently.

1.2 Scope

Sapphire Sounds aims to resolve noise-related disputes in shared living environments by introducing an objective, privacy-conscious monitoring system. The product integrates a mobile and web application with a small noise sensor that measures sound levels without recording audio. When noise persists above a set threshold, the system generates time-stamped reports that property managers can use to verify complaints fairly. Tenants can view their noise history, receive real-time alerts, and earn rewards for maintaining quiet behavior. By replacing subjective reports with clear, verifiable data, Sapphire Sounds promotes more peaceful, transparent, and cooperative living communities.

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

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1.5 Overview

The remaining sections of this SRS provide a detailed description of the Sapphire Sounds system. Section 2 presents an overview of the system's design, including its major functions, product perspective, and user characteristics.

2 Overall Description

2.1 Product Perspective

Sapphire Sounds is a mobile and web-based application paired with a small, non-invasive noise sensor. The system measures sound intensity in shared living spaces to provide objective, privacy-conscious verification of noise complaints. It addresses the limitations of subjective reporting by giving both tenants and property managers access to clear, time-stamped data. The sensor connects through Wi-Fi to log decibel readings, while the app allows users to view alerts, histories, and reports.

2.2 Product Functions

The main functions of Sapphire Sounds include monitoring decibel levels, generating time-stamped incident reports, sending real-time alerts to tenants, and allowing both tenants and property managers to access historical noise data. Tenants can also view their noise history and earn rewards for maintaining low noise levels, while managers can verify complaints through the recorded logs. The system operates through continuous data collection, automated analysis, and secure synchronization between the sensor hardware and the application backend.

2.3 User Characteristics

Sapphire Sounds serves two main user groups: tenants and property managers. Tenants interact with the system primarily using it to monitor their noise activity, receive alerts, and manage rewards. Property managers use the application to review noise logs, access time-stamped reports, and resolve disputes based on objective data.

2.4 Constraints

N/A

2.5 Assumptions and Dependencies

N/A