Lab 1 Outline - Team Sapphire

Christiney Ponton

CS 411W

Professor T. Kennedy

06 October 2025

Draft 1 – Final Ver.

Table of Contents

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. An example of team Sapphire is shown in Figure 1.

Figure 1: Team Sapphire

1.1 Societal Problem

Many people live in close quarters in rental properties. This has led to an increase in noise complaints throughout the years and it's worsening as complaints are either ignored or handled in an unsatisfactory manner.

1.2 Problem Solution

The Sapphire Sounds monitoring device is a great way to circumnavigate this issue. This small, yet powerful device allows for tenants to log any noise complaints they have with proof and gives landlords the ability to easily tackle this common problem.

2 Sapphire Sounds

The Sapphire Sounds device can be used to record noise above a specified level and sends notifications to the landlord. All recorded noise complaints will be saved to the accounts history page to see if there is any consistency with the noise and how loud the noise was. Sapphire

Sounds will have a variety of key features and function components that will shape how the application completes tasks and its interactivity. The goal is to give tenants and landlords peace of mind when it comes to noise complaints because everyone should feel comfortable in their own homes.

Sapphire Sounds' Logo shown in Figure 2.

Figure 2: Sapphire Sounds Logo

2.1 Key Product Features and Capabilities

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 most important feature of any digital device is its security. Sapphire Sounds will never store personal data, nor will it save what little information it collects in the front end of its software.

2.2 Major Components

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.

3 Identification of Case Study

Sapphire Sounds is being created for those living in close quarter rental properties and their landlords. This will offer them peace of mind in hopes of creating better living practices with the anticipation that even homes in suburban areas, such as rental homes, will use Sapphire Sounds in the future. Landlords will also be able to offer rewards to tenants that uphold rules about noise complaints. This reward system is what separates Sapphire Sounds from other devices. Landlords will have a device that is easy to use with feature that will allow them to fairly assess tenant noise complaints while also building a better professional relationship with them via the reward system.

4 Glossary

- 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.

5 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/

RentEye. (n.d.). RentEye. http://www.renteye.com/