Project Charter

Ara Anner

Megan McGinnis

Liam Nestleroad

Austin Ritz

Justin Murillo

Filip Nedelkov

Gabriela Tolosa Ramirez

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1. Introduction

Background Information

LoopSketch is a collaborative software platform that makes it easy for musicians, producers and beat makers all over the world to connect, create music together, and publish content to a central marketplace. LoopSketch will be part of a new category of music collaboration software, filling the gap between traditional recording software and real-time jamming applications. Users build songs together remotely by recording, sharing and layering loops of music with each other in real-time, capturing the feeling and flow of an in-person session, without having to worry about latency.

Business Needs/Opportunities

Most of the music collaboration software currently available does not alow users record audio from their own Digital Audio Workspace (DAW). LoopSketch aims to be an improved music collaboration software where musicians can easily collaborate using a DAW of their choice. With a user interface that is easy to navigate, Loopsketch aims to be a music collaboration software that brings people together all around the world who share a passion for music.

There is also a large market for loops and using them to create songs. Eventually, LoopSketch would allow people to buy and sell loops on a large marketplace and use them to create their own music.

As part of the Senior Capstone, our team will be developing a functional prototype matching the requirements listed in this document. Because of the time restraints associated with the course and other obligations, these requirements are subject to change as the application is developed. These changes will be agreed on by both the team and the project sponsor.

2. Objectives and Scope

High Level Requirements

- Jam Mode

  - Jam with loops
  - Save jam 'kits' from loops

- Mix Mode

  - Arrange loops into song with collaborators (e.g. Figma for musicians)

- Ability to Open/Create/Edit projects

Project Scope

In Scope

- A working prototype that satisfies the high level requirements

- Audio pipeline from a DAW directly into LoopSketch (low latency)

- Ability to save projects on the cloud

- Basic mixing features within Jam mode

- Basic User Interface

Out of Scope

- In-app loop marketplace

- Advanced mixing features within Jam mode

- Chatting features (Audio and Video)

- Polished user interface

- Mobile app for basic recording functionality

3. Project Approach

General Approach – Solution Delivery Process

The Senior Capstone team will be utilizing an AGILE methodology, completing one task at a time and testing it (see timeline).

Assumptions

- The Senior Capstone team will not be expected to provide funding for any part of the project. This includes any AWS credits needed to run the application.

- The Senior Capstone team will not be expected to provide any support for the project beyond the end of the Senior Capstone class.

- Each individual member of the Senior Capstone team will not be expected to regularly exceed 12-16 hours of work on the project per week.

Constraints

- Our team is composed of 7 developers with limited project experience

- The project must be completed by April 2022.

- Each developer has limited time to dedicate each week (12-16 hours).

- Each developer has limited experience in the libraries and methodologies being utilized.

Project Changes

All changes to project scope and requirements will be reviewed by the project team. Approval for changes these changes will be made at the discretion of the project team based upon the potential impact to the project timeline and resources.

4. Project Plan

Key Deliverables

- Installers or executables for MacOS and Windows

- Code in remote Git repositories

- Documentation

  - Design and Architecture
  - Source Code Documentation
  - QA
    * Description of test plan and results
    * Known issues and how to deal with malfunction states
  - System Administration
    * Any Login / Administration information needed to manage project infrastructure
    * Description of how new releases / changes are deployed
  - Summary of lessons learned and recommendations for future work

Timeline

1. Functioning Interactive UI - UI is responsive and understandable.

2. Record and play audio - users are able to record audio and play it back to themselves.

3. Pipeline audio from DAW - users will be able to take audio created within a DAW and utilize it in LoopSketch.

4. Looping audio and overlaying loops - user will be able to loop audio and create various loops that play at the same time.

5. Sharing audio between users - multiple users will be able to create and share loops.

6. Creating and mixing loops - users will be able to create, mix, and share loops.

7. Final revisions and clean up - tying up lose ends within the scope.

8. *If time permits* - Outside of scope items such as 'in app loop marketplace,' 'advanced mixing features within jam mode,' 'chatting features,' and a polished UI.

5. Resources

Labor Costs

Due to the nature of the course, there will be no associated labor costs with the project.

Hardware/Software Costs

The development of the application will utilize open source software. If software is required to be purchased for the development for the application, it will be the responsibility of the Project Sponsor to purchase said software.

Software and Libraries

Software to be utilized (subject to change):

- Backend

  - **Pyo**: dedicated Python module for digital signal processing
  - **Flask**: Micro web framework for python
  - **Node.js**: JavaScript runtime environment
  - **Conda**: Package/environment management system
  - **SQLite3**: Relational database management system
  - **Boto3**: AWS SDK for Python

- Frontend

  - **Electron**: Framework for creating desktop apps with web technologies
  - **React**: JavaScript library for building user interfaces
  - **WebRTC**: Real-time communication for applications and websites

Roles and Responsibilities

The team has decided not to have strict specified roles for this project, such as a project manager. The team will take on a multitude of responsibilities across various parts of the project and development process, all of which will overlap.

6. Authorization

Approved By

_____   Date:_____

Project Sponsor's Name