Instrument Recognition Software Team

Business Requirements Document

1. Preface
    a. State why we are interested in a Sound Recognition app:
        i. To identify unique actors in audio in order to accurately label sources. These labels can be then employed to sort, recommend, or identify clips of interest.

    b. What technological innovation and depth we plan to bring to solving the problem:
        i. How is our product different from those on the market?
        There are almost no such other applications as ours that can isolate specific sounds from an instrument or person (quick Google search reveals this).

2. Appendix
    a. User Persona (Company)

        Sony

        - A Japanese company headquartered in Tokyo, founded in 1946
        - Owners of the largest music entertainment business in the world
        - One of the leading companies in the consumer and professional markets
        - Markets include music entertainment business, video game console business, video game publishing business

3. Mini Business Plan

   Templates: https://www.aha.io/roadmapping/guide/templates/business-plan

   a. Strategy

      https://docs.google.com/spreadsheets/d/1QSmDPwvA-vOqgjDZWgzgaRLkXOs9uSb-X5EBAiI8ejI/edit?usp=sharing

   b. SWOT

      https://docs.google.com/spreadsheets/d/1kqMIU1tsJnGAJXuvhZZIgA_ly-J_G0pgV7Wpru6wXdM/edit?usp=sharing

      i. Swot Analysis

         1. Are there better solutions already?

            There are similar solutions but none of the market solutions overlap with our idea.

         2. Could there be better solutions?

            Our main goal is to improve previous solutions to the same problem in a way that has never been successfully done before.

         3. How is (or is not) your solution a unique solution to the problem?

            Our solution is a unique solution because there are no other applications that process sound in such an amount of detail.

c. Market Segments

https://docs.google.com/spreadsheets/d/1ScOxyVzmmoE2-QqbGdjs71EV9-FFm9r7hDX_hO8v0cg/edit?usp=sharing

d. Primary Market Research

i. Interview potential company representatives

Potential interview questions:

What is your name and role in the company?

What is the main focus of your company in the market?

Can you provide an estimate on the number of users?

How engaged do users ten to be with new features after release?

How much of the user engagement is in the music industry?

e. Secondary Market Search

https://docs.google.com/document/d/1ce41sWhG6KvXc8Ytuz9TNQEfUJ43JpoAoRpOULt997k/edit?usp=sharing

f. Commercialization Strategy

i. Patent the product / technology

ii. Provide for sale through a well-known platform / online service

iii. Partner with researchers

g. Monetization Strategy

i. Revenue from initial fees to purchase the product

ii. Revenue from monthly fee which charges the consumers once a month

iii. Revenue from advertisements

4. Total Solution

a. Describe our solution

Help users identify instruments in sound snippets through comparing the sound spectrums using machine learning.

b. Explain clearly how the solution meets the user, business or market needs

Users can identify instruments used in music segment and find other songs that use said instruments. The market does not have a model that would precisely identify an instrument based on the sound spectrum comparison.

c. Provide solution alternatives and show trade off analysis

An alternative solution would be to use visual recognition instead of sound recognition that determines the instruments used in a song based on what player played, problem with this is that it would require an mp4 file instead of an mp3 file since you would need visual images to determine the instruments used in the songs.

d. How did we decide to choose the particular approach we did?

We decided to choose the particular approach because we thought that it would be the most efficient way to determine what instruments will be used in the songs. Since the sound spectrum is measurable, this allows us to determine sound frequencies and know which instruments it came from based on the frequency.

5. Optional

a. We may elect to solve a complex problem needing an extensive solution, all of which cannot be solved within CECS 491

Our solution is so extensive that we will have to scale down for the purposes of finishing within the time frame of CECS 491.

b. We can select a part of the solution identified from market research to be implemented in CECS 491

We will create a solution that will cover only one or two parts of the complex problem.

c. Which parts of the total problem is our solution responding to? Which parts remain unsolved? What is our rationale for our decision?

Our solution is responding to detecting a single instrument within a song. The unsolved parts of the problem include implementing that solution for

more than one instrument, processing multiple songs at a time, and providing future song recommendations.

6. Analysis:

(a) What is the state of the art research currently.

There is no research on the specific solution we are trying to implement but there are similar solutions.

(b) What is a reasonable deliverable for your team.

A female/male voice recognition program by the end of the semester.