

GAMUT

PROJECT PROPOSAL

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Project Definition

Gamut is about visualizing multiple audio signals generated from different musical instruments on a single screen in a live performance.

Goals & Objectives

My goal in this project is to create a simple, modern and elegant looking audio visualizer that responds to all activity by the musical instruments. In addition to that, the end product should be user friendly for the musicians to use without any complications.

Target Audience/User

Music business is not just about the music anymore in the era we live in. It is a combination of visuality and sound. Lots of professional musicians pay huge amounts of money for special effects and shows on stage in order to make it a complete show and for spectators to have a great experience. Professional musicians ranking high in the business are able to afford all of these elements in their shows but that usually not the case with the musicians who play in small venues. Those people are the target group of the project. They are usually amateur or semi-professional musicians who try to keep up with the music business and grow their fan base. This project designed to make life easier for the musicians who want to support their stage performance with quality visuals but cannot afford expensive stage gear.

Background Information

I am an amateur musician and enjoy music. Also, as a designer I enjoy visuality. For me, combination of both means doubling the enjoyment. This is why I always liked the idea of audio visualizer. However, as I started to dig deeper into them I realized most of them are not great at visualizing the audio precisely. From the technical point of view, they visualize the audio signal exactly but in reality, when you listen the music and watch the visualized output of it most of the time it really does not feel like they are in a harmony. You cannot really see the feelings expressed by the music on the visual. I believe just like instruments played or vocals combine and create a song, therefore in order to capture the essence of the music with a visualizer, you have to see every sound created.

The idea of this project came up with this problem in mind. When the projects finished, we will be able to see the music and the visuals as a harmonious whole. Professional visual effect designers can make this possible but they design visuals for the sounds given to them and they usually charge more than any amateur musicians can afford. There are no real-time visual generators that can truly represent the sound. This project will solve that problem in a much more affordable way.

As a result of working on this project, I will improve my skills on programming and this project will help me combine 3 areas I am interested in the most. Music, Design and Technology. However, my biggest gain will be having an idea and realizing it as a result. In this process, I will be learning how to realize a simple idea that is in my head with improving my researching, design and programming skills.

There are several audio visualizers that my project's target audience is using currently. A company called SoundSpectrum has two popular softwares called G-Force and WhiteCap. These two softwares are both real-time music visualizers. They both analyze the audio signal coming from the computer's input and create visuals according to that signal flow in real time. The difference between them is, in G-Force you can customize the visual output more than WhiteCap. Other popular real-time audio visualizer is VSXu. It lets you create patterns and customize the visuals and then again by analyzing the audio signal in real time, it creates visuals according to what patterns you created. The main difference between them and visualizers in music playback softwares such as Winamp and iTunes is that they do not need previously recorded audio signal to visualize. They can create visuals in live situations.

The intention of the project is creating an audio visualizer that can show what each instrument is playing on a single screen and acting as a whole. Differently put, like how every instrument play different things but as a result they create a song.

Detailed Project Description

When the project is ready, we will see a visual interpretation of a song that is being played live. In this interpretation, it will be possible for us to see what sounds coming out of every instrument as abstract visuals. Similar to how every instrument play different things but when they are combined it makes a song, generated visuals of instruments will also create another visual element when they are combined. Each instrument will send their signal to the computer through a recording interface. The visualizer I will design, analyze them and create a visual output.

The end product will be a application that can generate visuals. The flow will start with instruments plugged into a mixer. Then, the mixer will send audio inputs from each channel to the software. The software will analyze every single channel according to the loudness and sound spectrum in the audio signal and create responsive visuals for them in the background. Later, the software will combine all the visuals created for each channel and create a single visual according to the visual

structure I will design. That final visual will be what we are seeing on the screen. The visuals will be shown in a clean looking design. Various sizes and colors of dots will be representing notes that are played by the instruments. I choose dots because it represents the note shape simplified as a geometric shape. A circle. And when it is filled it becomes a dot.

Scope of the Project

My project will feature, representation of the every note played by every instrument, beautiful visualization of the music, an already designed visual pattern. It will also help musicians to enhance their show on stage. However, it will not feature customization of the visual pattern by the user and it will not be a cross-platform software.

Required Know-how and Resources

To be able to fetch audio signal simultaneously from different channels I need a multi-channel recording audio interface such as Alesis Multimix. These kind of audio interfaces can record multiple channels of audio simultaneously. This feature is crucial for my project because otherwise I will not be able to visualize each instrument on it's own.

Skills in programming are crucial for this project. I have to learn an audio visualizing software from scratch. The software I will use during this process is Max 6. I chose Max 6 because; with the Jitter it is a great platform to work with audio and visuals together. Also, since it is node based, it will make my life easier than writing lines of codes. I will start by researching how I can visualize audio. Then I will learn how to use Max 6 by watching tutorials and lessons until I am ready to start working on my visualizer. After that, I will try to make a very simple but working version of a visualizer. In other words, just a simple system that can react to the audio signal. Then, I will start designing the visual structure of my visualizer following with implementing the designed visual structure to the basic version. After they are all set, I will try and test the software with different instruments and different genre of songs in order to finalize it.

Difficulties & Risks

There are several challenges I can face while working on this project. In order to have a quality end product, this project need some visual design and coding skills. The difficulty I could face while I'm designing the visual part is that I have to create a visual structure for lots of possible scenarios. Since it will produce visuals real-time there is no way of controlling them. I have to create a structure that will show all the instruments playing on a single screen and the visuals on the screen should look appealing at all times. The biggest challenge I will face during this process is on the coding part of the project. I have no background in coding and in order to accomplish my goal I have to learn a programming language that is the most suitable for this project.

