Project Definition and Scope

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The proposal is for an open source polyphonic wavetable synthesizer and an Audio FX plugin that is very modular in nature and very easy to learn for people new to sound design and music production.

Problem Statement:

While music production may seem a very easy task on the surface to other people, it is an engineering degree in itself. The sheer amount of audio related concepts that you need to learn when you are you in a pursuit of being a producer is comparable to that of a degree. They need to learn mixing, mastering, sound design, music theory and even marketing to some extent.

While there are many hands on learning tools for learning various web development related concepts, there clearly is a dire need of tools to learn various things related to audio engineering. My project tries to simplify the process of learning sound design for people new to it.

Hereby, I propose simple-synth,a synth that is very easy to use for the beginners and has all the features that a newbie in the field will require to learn when they are learning sound design.

Objectives:

1. A simple yet feature reach synthesizer that has all the basic building blocks of a modern day synthesizer.

2. Should be easy to use so that any newcomer will not be overwhelmed by the amount of parameters he/she has to learn.

3. Should be able to save their learnings by saving all the presets that they have made by their learnings.

4. Easy to install and setup requiring hassle free setup

5. Standalone app which is independent of the DAW which makes it very easy to use for people without any access to such expensive softwares.

Relevance to ICT Domain:

This project is especially very related to the ICT Domain since now I can now apply all the knowledge that I have gained through learning subjects like DSIP, Signal and Systems, DSA using C++, ICE and ADC.

This project was heavily dependent on the concepts of Digital Signal Processing which included topics such as Oscillators, LFOs, Filters, Convolution, Compression etc.

Feasibility Analysis:

Technical Feasibility:

1. I will be using the JUCE Framework which is a standard C++ based framework that is both open source and free to use for non-commercial use. It has been adopted by the likes of Netflix and also audio-tech giants like ROLI and Modalics.

2. The build tool will be CMake because of it's ability to compile with cross-platform compatibility.

3. C++ would be the best language of it having very low level and real time audio processing compatibilities as compared to other languages such as python.

4. There will be also a requirement for external DSP libraries as writing those libraries from scratch is not the scope of this project.

Economic Feasibility:

Since this project is open-source in nature, there will be no additional costs for deploying and mantaining it, however the licensing of the JUCE application will cost some dollars per month.

Ethical Considerations:

Since I as a developer isn't taking any data from the user without their consent, there aren't many ethical considerations to take into account.

However, there always needs to be a agreement between me as a developer and the person whose code I am using in my project.

Market/User Needs Analysis:

These are the people who fall into the bucket of intended audience/users for this project.

1. Sound Designers
2. Music Producers
3. Audio Engineers
4. Mixing and Mastering Engineers
5. Music Researchers/ Writers (people involved in the academic side of music and it's related research)

Novelty:

1. Lack of simple to use and easy to learn synthesizers and which are cost effective and beginner friendly, my one being a unique one.

2. A less processor heavy approach with less features as producers don't need to have all the effects to just implement some basic sounds.