Project Report

Conor Holden

February 15, 2021

Abstract

Stuff about Pipes

Contents

1 Introduction

- Create a virtual instrument for the Uillean pipes
- not many there in advance
- Create a VST plug-in that can be used in digital audio work stations

2 Analysis

2.1 How Uillean Pipes Work

2.2 Physical Modelling Synthesis

- Original Plan
- Mathematical Model of the Sound Wave (not simulation)
- Fairly easy on string instruments
- Uillean pipes relatively obscure
- out of scope for the project

2.3 Subtractive Synthesis

- Maynooth university thingy
- reasonable successful in pre-made synths
- would end up created a regular but limited subtractive syntheses

2.4 Additive Synthesis

- Sounds made up of many different sine waves
- Fast-Fourier transform
- need samples, too complex

2.5 Additive Synthesis

- simplest
- relies on quality of samples

3 Design

- Drone and chanter
- voices
- juce

4 Implementation

- classes
- juce plug-in layout
- Synthesiser and voices
- Param tree ==¿ parameter id all caps
- connection to parameter

5 Evaluation

6 Conclusions

7 Appendix

8 Appendix 1 - How to use Juce

9 Appendix 1 - Music Example