ORGANNERY PROJECT

Raphaël Mouneyres

AUDIOTRONIC
Organnery Project
`raphael@audiotronic.fr`

ABSTRACT

Organnery is a customised Debian GNU/Linux image for ARM processors, including the Aeolus synthesiser and the applications it requires to run as a dedicated audio system.

1. INTRODUCTION

1.1. History

AUDIOTRONIC company is a repair business specialized in musical instruments electronic repairs.
Among the instruments we can repair are electronic pipe organs often found in churches, houses of worship or private homes.
Some of these organ can be quite old (more than 40 years old), or in a non-fixable state.

As a solution to have these organs work like new, Organnery project was born to turn these old consoles into playable instruments at reasonable cost compraed to a new organ without throwing them to the trash.

At the same time a deeper understanding of the pipe organ sound simulation was necessary and pushed us in anlaysing the power of the chosen sound engine and defining a roadmap to make it even better.

Figure 1: example of finished organ conversion.

2. PROJECT

1.2. Hardware

The Raspberry Pi board has been chosen as the initial CPU because of its great development community, affordable price and worldwide availability. Should a Raspberry Pi fail, it is easy to obtain a replacement, and by the time that happens there is likely to be an improved model available.

Organnery can use any class-compliant USB sound card. Specialised I2S sound cards designed for the Raspberry Pi can also be used.

Dedicated hardware such as a frontpanel can be added to enhance functionnality of the instrument, access to low level functions, or design headless instruments.

1.3. Software

The GNU/Linux distribution is built using "dibby", a tool created by 64 Studio.
https://github.com/64studio/dibby

The audio generator is Aeolus an open source software created by Fons Andriaensen. It was first presented at the Second Linux Audio Developers Conference in Karlsruhe, Germany in 2004.

Contributions where made to Aeolus source code to enable important missing features, and extend the MIDI capabilities.
Source code is available on this repository :
https://git.audiotronic.fr/Organnery/aeolus

Some scripts and customisations make the whole thing a ready to play instrument with non technical users in mind.

1.4. Future

More Stops sounds are on their way, ambisonic output has been tested at SCRIME's dome, binaural output adds great immersion; many options will be added to the system which has already been qualified superior in sound quality compared to existing solutions, unless the organ has been properly voiced.
Details about currently done and expected enhancements will be presented during the tech talk.

We want to build a network of certified technicians who can install and maintain Organnery systems.
A dedicated website has been published :
https://www.organnery.com/