Memorandum

To: Darlene Kilian
From: Christoph Reinsch, Patrick Gehring, Alexander Rotzsch
Date: April 23, 2012
Subject: Digital audio compression on the basis of MP3

We hereby provide the requested proposal which is due on April 23, 2012. It contains information about schedules, general approaches and the content that we are going to present in our seminar on May 21, 2012.

Background

Because of the wide variety of different faculties represented in our seminar, we choose an interesting topic for everyone. It is not necessarily connected to their professional but their personal life, due to the fact that everybody is used to play MP3 music at home or on the road. We want to give them a peek on how it is possible to bring hundreds of music CDs to their small MP3 device.

Proposal

In the report, we will provide an insight into the development of digital audio compression on the basis of the MP3 format. Furthermore, we will explain the structure of MP3 files, the function of different bit rates and the effects they have on the listener. To confirm our findings we will present some audio samples to the students and let them gain an impression of the method.

Benefits

The main benefit we are hoping to achieve is to undertake an engagement in an academic context on a topic that is both part of our studies and personal enjoyments. We would like to give our audience the possibility to have a better knowledge of a technical achievement that everybody uses as a matter of course whilst only a few take their time to look behind the scenes. Last but not least, it will make us talk. ☺

Feasibility

We do not expect any problems for the report. It will be done by the deadline date.

Procedure

In order to write the report, we will use the following sources of information:

1. We will take consolidated knowledge out of the internet from various reliable sources.
2. Additionally, we will use specialist literature.

Results

In the end we will have at least four pages of text. This includes several graphics for illustration of the encoding and decoding process. (Besides there will be some audio samples to show the differences between compressed and raw audio files.) To clarify the technical language used in the report, we will append a glossary.

Information Sources

We have already acquired two books related to digital audio processing from the university's library. Furthermore, we did an extensive research on the internet where we encountered several interesting websites especially for specific information about MP3. We decided to use three of the most relevant websites which you can find in the tentative bibliography.

Graphical Aids

The following is a tentative list of graphics we intend to use in our report:

File structure	illustration
Bit rates	diagrams
Difference VBR/CBR	diagrams

Project Schedule

The following is the tentative schedule for the report:

April 23	Proposal uploaded; begin research.
May 7	Complete research.
May 14	Shape up information.
May 21	Presentation to the audience.
June 18	Written report uploaded.

Our Qualifications

Below are the qualifications that will help us to work out the report:

- We are first year students in Media Computer Science at the University of Applied Sciences Dresden.

Alexander Rotzsch:

- I am proficient with Mac OS X, Windows XP / 7, Unix/Linux, Visual Studio, Word, Excel, Power Point, Photoshop, and AutoCAD.
- Being a musician for computer games for many years I have a good knowledge of digital audio issues on different platforms like video game consoles, old and new computers and handhelds.

Patrick Gehring:

- I am familiar with PCs since many years. I use all kind of Office software, different programing environments and special audio applications like Audacity.
- Besides I learned a lot about audio compression in my seminars.

Christoph Reinsch:

- I am quite familiar with computer programming, website design, video editing and with a number of web applications, including Dreamweaver, Adobe Photoshop, Adobe Premiere and FTP programs.
- Moreover, I have always been interested in audio tools like FL Studio or WaveLab.

Tentative Outline

1.0 Definition
2.0 History
    2.1 Development
    2.2 Standardization
    2.3 Going public
    2.4 Application
3.0 File structure
4.0 Bit rate
    4.1 VBR
    4.2 CBR
5.0 Encoding and decoding audio
6.0 Audio quality
7.0 Design limitations
8.0 ID3 and other tags
9.0 Licensing and patent issues
10.0 Alternative technologies
11.0 Conclusion

Tentative Bibliography

1. Ruckert, Martin. Understanding MP3: syntax, semantics, mathematics, and algorithms. Wiesbaden : Vieweg, 2005.
2. Ken C. Pohlmann. Principles of Digital Audio - Sixth Edition. Tab Electronics, 2010.
3. http://www.iis.fraunhofer.de/en/bf/amm/diemp3geschichte/funktion/index.jsp
4. http://en.wikipedia.org/wiki/MP3
5. http://en.wikipedia.org/wiki/Audio_compression_(data)#Audio