

mindTunes

W4840 - Project Proposal

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Abstract—As a semester project for the Embedded Systems Design course (W4840) we propose the design of a multimedia chat client, that will function over a Local Area Network. Apart from the standard text messaging, this client will also have a voice transfer function. Furthermore, the user can record his own clips and store and organize them in a flash memory card. The user interface will enable the user to view and rename the existing clips, as well as add his/her own.

1 INTRODUCTION

The main scope of this project will be to enhance an existing chatting client which was developed for the course laboratory (and which can work efficiently through a LAN) with a voice transfer ability, as well as with a recording ability and a file system for the storage of clips. The main objective of this course, which is to develop a platform for dealing with recording and storing voice clips, can offer the chance for a solid background for signal processing for audio applications.

2 RELATED WORK

The two starting points for the project will be:

- The recently developed Ethernet chat
- A sampling-compressing-decoding scheme (to be developed)

3 MAIN DELIVERABLE

This project will consist of the following parts (stated along with their interfaces):

- A audio sampling and storing scheme (using the Altera-II ADC) (hardware and software)
- A LAN chat client (software) with audio support
- An external memory (hardware)
- A file browsing system (software)

4 PLAN OF ACTION

The actions to be made for the completion of the project can be split into two parallel paths. The first will be the recording and encoding/decoding of audio signals, using the "Audio In" port of the Altera-II board. This will require the use of an external microphone, along with the development of required code in both VHDL and C. Furthermore we need to develop an environment for browsing, opening and storing files in a flash memory (a component which is also external).

The two paths will meet at the end of the project, when they will be combined to offer the chance for an audio-supporting chat client, along with the appropriate file browsing/storing interface.

5 MILESTONES

Listed below is an approximate floorplan for the work progress. Furthermore, we list some (approximated) dates that will serve as guidelines for our work.

- 03/07 Complete the ADC
- 03/14 Complete the MP3 compression
- Milestone 1
03/28 Complete the memory interface
- Milestone 2
04/04 Complete the filesystem
- 04/11 Complete the testing
- Milestone 3
04/25 Complete the prototype

6 CONCLUSION

The particular project requires a mixture of software and hardware design in order to successfully complete both a sampling-and-storing and a browsing-and-opening interface. The main application of the two will be on a chat client, which will be based on previous class work and will be enhanced with voice support.