

Title	ReMP3 – The Remote MP3 Player
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Document	Proposal
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CSAI Final Year Project : Proposal	
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1. Introduction

1.1 *About Me*

My name is Sacha Barber, I am currently on the final year of a CSAI degree at Sussex University.

This document is a 1st draft proposal of what I would like to submit for my final year CSAI project.

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1.2 *Project Supervisor*

During Year2 Term3, I made contact with Dr Paul Newbury, who has agreed to supervise my project. For the remainder of the ReMp3 project, Dr Paul Newbury will be the project supervisor, and shall be acknowledged as such, in any future report submissions.

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2. Aims And Objectives

The project consists of 2 separate applications, comprising a ReMP3 Server application, and a ReMP3 Client application.

The server application will be used to play and organise MP3 files, where as the client application can be thought of as a remote play list provider. The idea being that the server is a fully contained Mp3 player and organizer, but upon request, can also play remote play lists that have been provided by the client application.

The client application will make use of distributed computing, such that the client can be located on a completely different machine to the server application.

I am calling this project "ReMP3" for Remote MP3.

The main motivation behind me wanting to create this application, is that I am interested in the distributed computing elements that this project has to offer, a side benefit of this project will be, that the technology behind the client application would be easily transportable to a .NET web service (WSDL), or even an ASP .NET (ASPX) web page, which in turn make it possible to control the ReMP3 server application on a global scale.

However, for this project, a standard GUI (Windows.Forms) environment will be provided for both the ReMP3 Server and Client applications, which allows the control of a main stereo centre that is connected to the ReMP3 Server, by a ReMP3 client.

2.1 Primary Objectives

The ReMP3 server features will be as follows :

- Have a categorized media library (based on database stored MP3 data)
- Will provide and manage a play list
- Will support drag and drop into the play list from the PC's file system
- Will provide an MP3 file ID3 tag editor, that supports saving and loading
- Will allow the client application to create a new play list and trigger the playing of the remotely compiled play list, this will be based on XML files and .NET Remoting

The ReMP3 client features will be as follows :

- Have a categorized media library (based on database stored MP3 data)
- Will support drag and drop into the play list from the PC's file system
- Show a remotely compiled play list that represents the play list selections that the client made
- Allow the remote play list to be sent to the server for playing
- Allow the control over common tasks such as FWD 1 TRACK, STOP, REVERSE 1 TRACK which will be sent to the ReMP3 server application

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2.2 Extensions

Possible Server features may be as follows :

- May provide a CD -> MP3 file ripper
- Support recording into WAV format from soundcard
- Conversion of WAV to MP3
- CDDB audio data information gathering

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3. Relevance

This project makes use, and indeed will expand upon many of the individual modules that I have already been taught, whilst carrying out my Computer Science and Artificial Intelligence degree at Sussex University. An indication of exactly what relevance this project has, when compared to previous experience gained on taught courses, can be seen from the table below.

Project Element	Relevance
The selection of appropriate data structures	Expands upon Data Structures course taken in Year1
Advanced GUI Component design	Expands upon Further Programming course taken in Year1
Prototype designing / interview questions to test users	Expands upon Human Computer Interaction course taken in Year2
Programmatic SQL	Expands upon Databases course taken in Year2
Multi-Threading	Exploits principles covered in Operating Systems and Multi-Media Communications Technologies courses taken in Year2
Software Design /Software Engineering	Continuous use of Software Design (Year1) and Software Engineering (Year2) techniques throughout entire project lifecycle
.NET Remoting	Builds on foundations of material covered in Distributed Computing course taken in Year3

4. Resources Required

This section outlines the resources required by the ReMp3 project.

4.1 *Supported Operating Systems*

The ReMp3 project will use Microsoft .NET / Microsoft Media Player / Microsoft Media Player Software Development Kits (SDK's), as such, Windows XP must be used.

The reason only Windows XP is supported is due to the interoperability required by the various different frameworks and SDK's that I am using. Windows XP is the only Microsoft documented operating system, that claims to support all these different software elements.

4.2 *Server Application*

The server will require the following software to be installed and correctly configured

4.2.1 **Microsoft .NET v1.1 Framework**

The Microsoft .NET framework is a collection of classes and objects that may be used to develop against.

4.2.2 **Microsoft Access**

The media catalogue of my project will need to make use of MP3 ID3 tag information in order to store media data. This data will be stored within a centralized database, from where it can be retrieved to populate media tree controls on the main GUI.

In order to accomplish the storing of information a choice had to be made as to which database system would be best suited. The ReMp3 project makes use of :

- **Microsoft Access**, Which is really made up of 2 different parts. The development environment, which costs money, and the underlying database engine which is free to use. The ReMP3 code communicates directly with the underlying database engine, as such the end user of the ReMP3 application does not need to have Access installed.

4.2.3 Microsoft Media Player SDK

The ReMp3 project makes use of multimedia objects, music to be precise. As such I needed to find a Software Development Kit (SDK) that I could use with .NET, that would allow me to use media objects, MP3's in particular. The ReMp3 project will make use of :

- **Microsoft Media Player SDK**, which is free, and seemed to have all the classes and objects that I need to use.

It should be noted that the media player SDK relies on the Windows Media player actually being installed.

4.3 *Client Application*

The client will require the following software to be installed and correctly configured

4.3.1 Microsoft .NET v1.1 Framework

The ReMP3 client will also require the .NET framework to be installed.

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5. Bibliography Of Background Reading

Thus far into the ReMp3 project, all reading has been performed during an initial investigation phase of the project.

This investigation work has attempted to find preliminary answers to various elements of the project, and also to check for compatibility issues and known fixes / service packs that may be required.

The following books / web articles have been read so far :

5.1 Paper Reading

Details
Alan Dix, Janet Finlay, Gregory D.Abowd, Russell Beale. Himan-Computer Interaction 3 rd Edition (2004). Pearson, Prentice Hall
John Sharp, Jon Jagger. Microsoft C# .NET Step By Step (2002). Microsoft Press
David Sceppa. Microsoft ADO.NET Core Reference (2002). Microsoft Press
Simon Robinson (et Al) Professional C# 2 nd edition (2002). Wrox

5.2 Web Reading

Details	Up On Date
http://www.microsoft.com/downloads/details.aspx?FamilyId=262D25E3-F589-4842-8157-034D1E7CF3A3&displaylang=en	27-06-05
http://msdn.microsoft.com/msdnmag/issues/03/02/Multithreading/default.aspx	27-06-05
http://www.microsoft.com/downloads/details.aspx?FamilyID=e43cbe59-678a-458a-86a7-ff1716fad02f&DisplayLang=en	27-06-05
http://www.microsoft.com/downloads/details.aspx?FamilyID=b446ae53-3759-40cf-80d5-cde4bbe07999&DisplayLang=en	27-06-05
http://www.informatics.susx.ac.uk/research/nlp/carroll/se/	27-06-05
http://www.id3.org/id3v1.html	27-06-05
http://www.absoluteastronomy.com/encyclopedia/I/ID/ID31.htm	27-06-05
http://msdn.microsoft.com/	27-06-05

6. Students Doing Related Projects

None known at time of writing this proposal

7. Interim Log

Shown overleaf is a log of all meetings that have taken place so far for the ReMp3 project.