



## **Network Music Displayer: Using a Graphical User Interface on a Personal Music Player**

Jeroen Bijsmans  
Publishing Systems and Solutions Laboratory  
HP Laboratories Bristol  
HPL-2001-210  
September 11<sup>th</sup> , 2001\*

E-mail: c/o erik\_geelhoed@hplb.hpl.hp.com

personal  
music  
player,  
network,  
digital  
music  
collection,  
microdisplay

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# Network Music Displayer: Using A Graphical User Interface on a Personal Music Player

Jeroen Bijsmans

Hewlett Packard Laboratories Bristol

Filton Road, Stoke Gifford,

Bristol BS34 8QZ, UK

+4411731298781

c/o erik\_geelhoed@hplb.hpl.hp.com

## ABSTRACT

A design exploration was conducted to understand how people could interact with a music collection held digitally. This was achieved by focusing on designing a networked music player for young actives. Young actives have a busy, outdoor lifestyle. In this context, in particular, young actives have a low tolerance for complex interfaces. An easy to use and intuitive interface had to be blended with a compelling functional package. The result is a concept for a music displayer: a personal network player that smartly uses a microdisplay to allow users to browse quickly through a large collection of music in a visually stimulating way.

## Keywords

Personal music player, network, digital music collection, microdisplay, graphical user interface

## INTRODUCTION

In the future scenario where music is held digitally in a central place a number of interaction issues arise: How will people interact with their digital music? Through which devices will they gain access to it? A design study was carried out to address these questions. We focused on the design of a personal music player for a young active user group.

The objective was to get a picture of how young actives would interact with a large collection of music held digitally by using a small music player. The young active user group was chosen because of their dynamic, mobile lifestyle and interest in outdoor pursuits. Solutions were generated to find an adequate concept that would allow users to interact with their music collection easily, intuitively and in a mobile setting. The aim was to find an adequate package that combines the physical form of a personal player and the interface needed to interact with digital music.

## DESIGN APPROACH

We assumed that their music collection would be stored digitally in a central place. In addition they would be organised in a traditional manner, consisting of music tracks organised in albums.



Figure 1. Network Music Displayer

For our scenario, the player would be able to stream music from the central place to the player via a wireless network. The growing success of wireless LAN, 802.11b, opens up possibilities here, allowing every piece of music in a user's collection to be played from any location. This scenario of music anytime, anywhere is a vision of 5 years into the future. The data transfer speed of today, required to stream audio with an adequate quality, is not constantly high enough to efficiently stream audio to most locations. A scenario closer to today's infrastructure sees a user downloading a set of albums to their player before they leave the house. However when they wish to play a track that isn't downloaded, the user could choose to make a temporal connection to the central place and download that album. The young active user group pursues life in dynamic environments, while engaging in multiple activities. Particularly in a mobile setting, young actives will have a low tolerance for complex interfaces.

Tasks need to be accomplished quickly and they therefore need easy to use information appliances.

### DESIGN CONCEPT

The aim was to find solutions that would support quick and easy browsing through a large collection of music. An album cover provides a lot of information. It displays which artist and which album it is. It can give an estimation of the year it was recorded or the songs that appear on there. The image printed on the Compact Disk (CD) can also be informative by presenting the artist's name, the title of the album, or the tracks on the album. All this information could be conveyed to the user by one glance on the cover or the image on the CD. This led to the idea of using icons to represent albums. This use of icons will allow users to quickly browse through a large music collection in a visually stimulating way. Following the traditional model of albums and tracks we represented tracks as numbers.

The result is a music player that smartly uses a microdisplay to provide access to a relatively large amount of information on a large screen relatively using a small personal device. Rather than presenting the complete collection (necessitating zooming in or out) we chose to divide the collection into layers of eight albums at a time. We believed zooming in and out would require more actions and time in contrast to browsing through layers.



**Figure 2.1** Displayer has been activated.

**Figure 2.2** Browsing through the album clusters.

The functionality of the music player was kept simple and was divided into two sections:

- Play and control tracks from a stored album
- View, select or download a different album

The music player needed to allow people to play and enjoy an album similar to a normal personal music player. The basic functions of a personal music player are therefore incorporated on the Network Music Displayer.

A small interface on the outside displays the time, sound level and the track that is playing. The second set of functions allows users to view or select another album for the player. The microdisplay is required for these functions, but also allows the user to view the artwork of an album if required. It would be possible to view videos and other audio and video media, but it was believed that this would incorporate too much complexity following the “functionality threshold” concept. This states that information appliances should limit the functionality to the essential few (the threshold) that provide a compelling product without leading to unmanageable complexity [1]. Personal music players, which are used by young actives, need quick interaction with a small concentration span. We believed that incorporating more multi media functionality would cross the “functionality threshold”. These functions require a two-handed interaction of the user. Figure 2.1 and 2.2 illustrate this need from the moment the displayer is activated. We aimed to separate the two sections of functions on the player, which leads to the change of hand position. The player is connected to headphones or earphones, wired or wirelessly.

### USER EXPLORATION

Informal testing confirmed that the appliance is user friendly. Producing a non-functional mock up of the music player we interviewed eleven participants who recognized that the use of icons instead of text is preferred. After an explanation of the device's buttons and functions was given, most participants changed hand position to control the tracks easily using the two-handed position in order to select a different album. Several participants explained the change of hand position was appropriate and liked the metaphors that are interlinked with it. The one hand position felt like interacting with a remote control or joystick. The two-handed position affiliated browsing through their album collection with searching through a telescope. Others preferred not to change hand position, mainly out of convenience. Some participants claimed it might feel awkward to use the player if it were a telescope in public. They were not certain it would allow them to walk and change an album at the same time, although they acknowledged it would probably only require them to stop infrequently for less than a minute.

These findings need to be confirmed by formal user testing with a working prototype. Before a working proto-type is produced, preliminary findings need to be incorporated into a new design.

### ACKNOWLEDGMENTS

The author thanks the User Studies and Design Group at HP Labs Bristol for their contribution to this exploration.

### REFERENCES

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