MP3 player/audio archive for home and car

This player/audio archive consists of the MPT2 sound card, standard 100 x 190 mm box with a keypad, portable USB hard drive and optional extended keypad.
The player responds to control via a passive decimal keypad mounted on the box and/or an extended keypad (mouse-like) connected to the player's box with a ribbon cable. This extended keypad has been specifically designed for use in a car. When used in a car, it is much safer and quicker to operate the player/archive with one hand only at the extended keypad, without taking the eyes off the road, than trying to select tracks using tiny keys and display on a typical MP3 player.
Additionally, the player features an interface to a standard corded or cordless telephone. With the cordless telephone, only the base is connected to the player and playback is controlled using the handset's keypad. With modern cordless phone range being several hundred meters, the handset acts like a remote control unit with the range of up to several hundred meters. The played audio can be heard through the handset. Some application may use the handset only as a remote control when the player's audio output is connected to a hi-fi or public address system. It would be then possible to control the home hi-fi from the swimming pool or the BBQ area in the backyard. The public address system at sporting venues, lecture halls, shops and similar places could be controlled in a similar manner.
MP3 sounds are played from USB hard drive or other USB mass storage device like the USB stick (flash memory). The USB memory had been previously formatted on PC with FAT16 or FAT32 and loaded with audio files.

MP3 player/audio archive based on the MPT2 card

Applications

* Personal sound archive/audio server for use at home or in the car
* Sound archive in museums and libraries
* An archive/server of lectures, podcasts and various recordings in education
* Learning tool for languages and other spoken material
* Information systems and interactive displays
* Audio-on-demand implementations
* Listening to podcasts and audiobooks - especially suitable for the blind or visually impaired

Using the MP3 player/audio archive

The audio files are accessed and navigated by commands using single and multiple key entries.

Single key commands

2 - go back 5 sec
3 - go forward 5 sec
5 - place marker
6 - play from marker
7 - select and play previous track
8 - select and play next track
9 - play current track
- stop or pause

Keys 2, 3, 5 and # are acted upon only when playing. Keys 6, 7 and 8 are acted upon either when playing or when stopped.

Multiple key command format

In the multiple key commands the first key is always the star key and the last key must be hash. The keys between the star and hash must be decimal digits 0-9. The second key, which comes after the star key, selects the function of the command. The decimal digits between the second key and hash are command parameters. A command parameter may have up to ten decimal digits. For example, in command *015#, zero selects the function of the command with parameter 15. After pressing the star, the single key commands are no longer recognized. They become recognized again only after the multiple key command is completed with the hash. If a mistake is made during multiple key command entry, simply press the star key and start keying again. To exit from the multiple key command entry without execution, press the star and then the hash key. The pair star and hash (command *# is "no operation") can be also pressed to make sure that subsequent single or multiple key commands will be recognized.

Multiple key command functions

The examples below assume a simple 1-level directory structure in the USB drive. The folders referred to in examples originate form the Root Directory. See Audio file management in the archive and Description of the embedded demo audio archive for more details.

The second key is 0 in the multiple key command - play file or track number defined by the command parameter. In this command the parameter can be either one, two or four decimal digits long. With one or two-digit parameter the file is played from the

current directory which can be either the Root Directory or one of the folders.
This command is acted upon when either playing or when stopped.
Example: *04# - play file number 4 in current folder. With four-digit parameter, the first two digits select folder number and the remaining two select the file in that folder.
Example: *06512# - select folder 65 and play file number 12 in that folder. To play file number 16 from this folder (after it is selected with *06512#), press *016#.

The second key is 1 in the multiple key command - start playback of already selected file at the time specified by the parameter. Operation of this command depends on the number of decimal digits in the parameter:
no digits - play from the beginning,
one or two digits define playback starting time in minutes, range 0-9 min or 00-59 min
three digits define playback starting time in hours and minutes, range 0-9 hours, 00-59 min
four digits are invalid,
five digits define playback starting time in hours, min and seconds, 0-9 h, 00-59m, 00-59s
This command is acted upon either when playing or when stopped.
Examples: *126# - start playback at 26 minutes, *1205# - start playback at 2 hours and 5 minutes, *120540# - start playback at 2 hours, 5 minutes and 40 seconds.

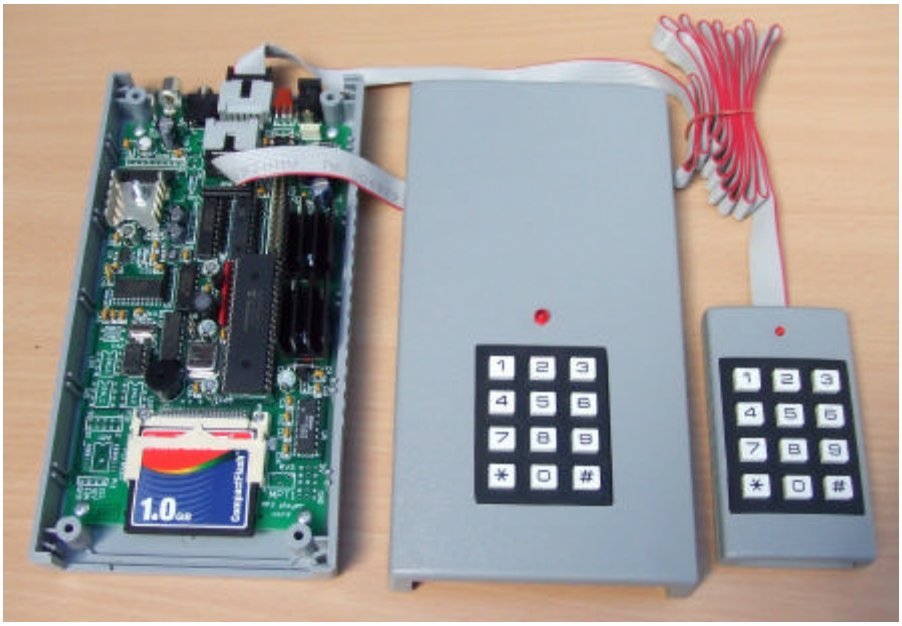
The second key is 2 in the multiple key command - jump back in playback time as defined by the parameter.
Operation of this command depends on the number of decimal digits in the parameter:
no digits - jump back 1 minute
one or two digits define the back jump in minutes, range 0-9 min or 00-59 min
three digits define the back jump in hours and minutes, range 0-9 hours, 00-59 min
This command is acted upon only when playing.
Examples: *2# - jump back 1 minute, *245# - jump back 45 minutes, *2112# - jump back 1 hour and 12 minutes.

The second key is 3 in the multiple key command - jump forward in playback time as defined by the parameter. Operation of this command depends on the number of decimal digits in the parameter:
no digits - jump forward 1 minute
one or two digits define the forward jump in minutes, range 0-9 min or 00-59 min
three digits define the forward jump in hours and minutes, range 0-9 hours, 00-59 min
This command is acted upon only when playing.
Examples: *3# - jump forward 1 minute, *35# - jump forward 5 minutes, *3112# - jump forward 1 hour and 12 minutes.

Second key is 7 in the multiple key command - select folder number defined by the parameter. Valid parameters are 00 to 99. Parameter 00 selects the Root Directory while parameters 01 to 99 select one of the folders. This command is acted upon when either playing or when stopped.
Example: *700# - select Root Directory, *753# - select folder number 53. To select and play file number 16 in the selected folder, press *016#.
Files within current folder can be single-stepped with single key commands 7 and 8.

MP3 player based on the MPT1 sound card

The MP3 player shown below is based on the MPT1 sound card. It consists of the MPT1 sound card, standard 100 x 190 mm box with a keypad, CompactFlash and optional extended keypad. MP3 sounds are played from CompactFlash card which had been previously formatted on PC with FAT16 and loaded with audio files. Currently, only playback of files from the Root Directory is supported by MPT1.



See also Audio file management in the archive and
Description of the embedded demo audio archive for more details.