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**Ho et al.**

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(54) **METHOD AND SYSTEM FOR MUSIC PROGRAM SELECTION**

(56) **References Cited**

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**G10H 1/00** (2006.01)  
**G10H 1/36** (2006.01)

(52) **U.S. Cl.** ..... **84/615; 84/634; 84/635**

(58) **Field of Classification Search** ..... **84/615**  
See application file for complete search history.

U.S. PATENT DOCUMENTS

2004/0003706 A1\* 1/2004 Tagawa et al. .... 84/609  
2004/0237759 A1\* 12/2004 Bill ..... 84/668  
2007/0074619 A1\* 4/2007 Vergo ..... 84/612

\* cited by examiner

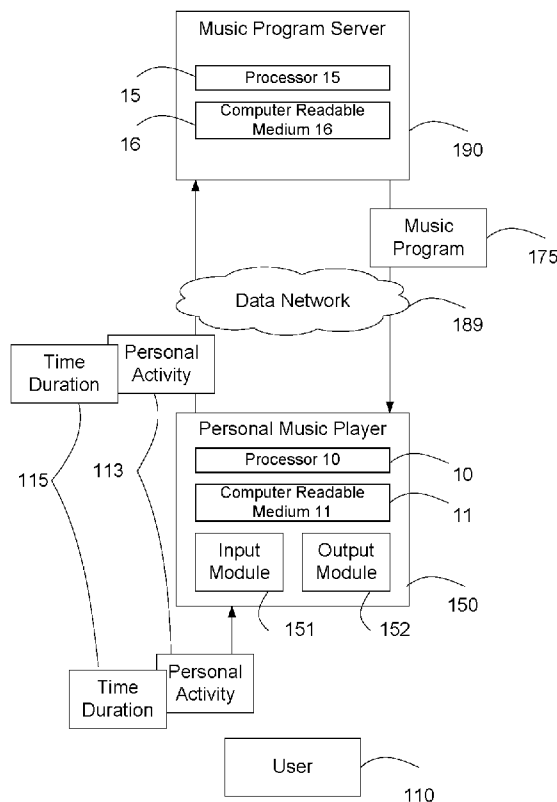
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(57) **ABSTRACT**

In providing a music program, a personal music player displays personal activity choices. A user selects a personal activity and provides a time duration for the activity. The player sends a request to a music program server for a music program. The request includes the personal activity and the time duration. The music program server selects a music program record from a plurality of music program records that has an activity attribute which matches the personal activity and a program duration which matches or is less than the time duration. The server extracts location information for the music program from the program entry in the music program record, and sends this to the player. The player uses the location information to obtain the music program. In this manner, a music program is provided to a user based on the personal activity of the user.

**7 Claims, 7 Drawing Sheets**



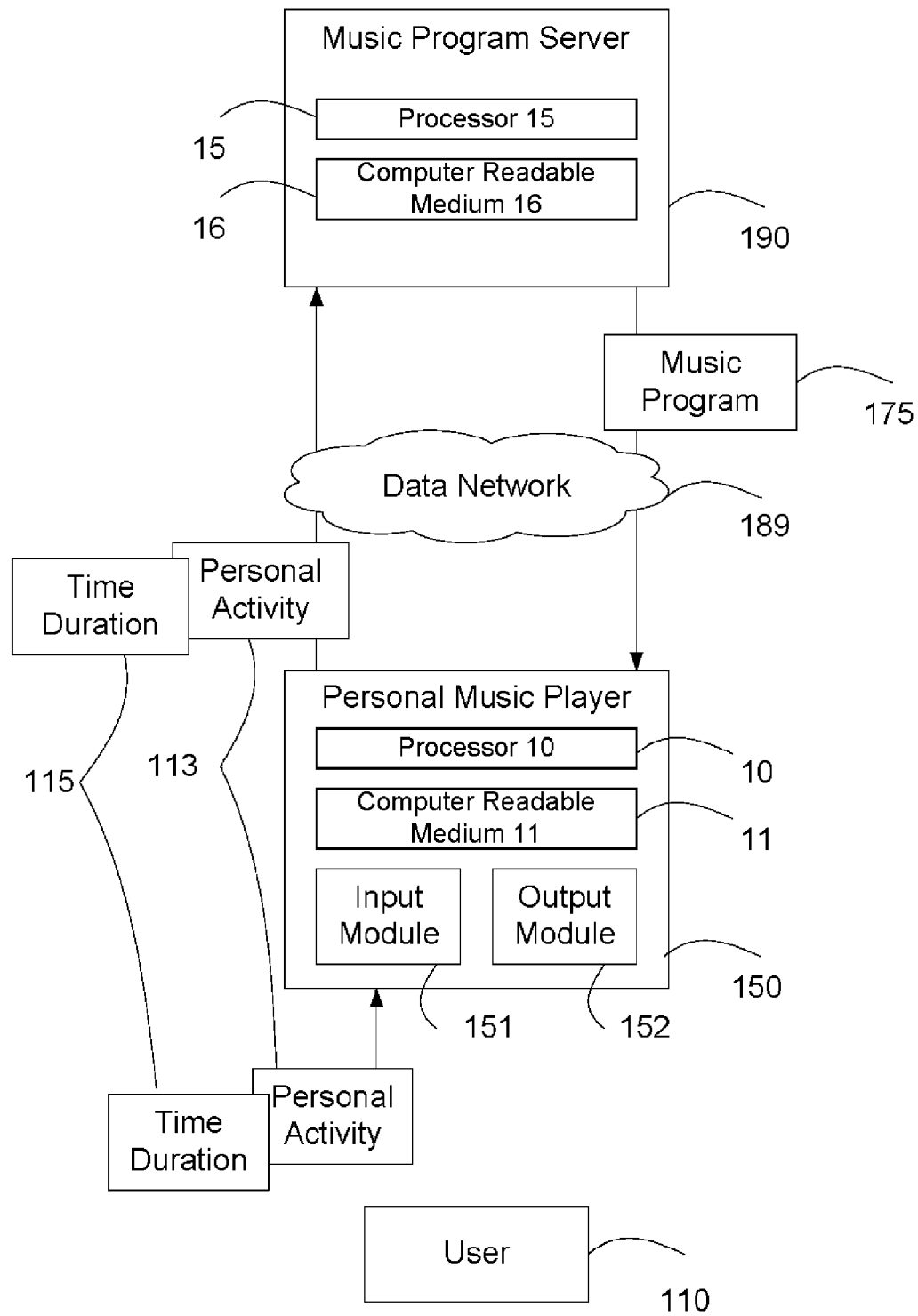


FIG. 1a

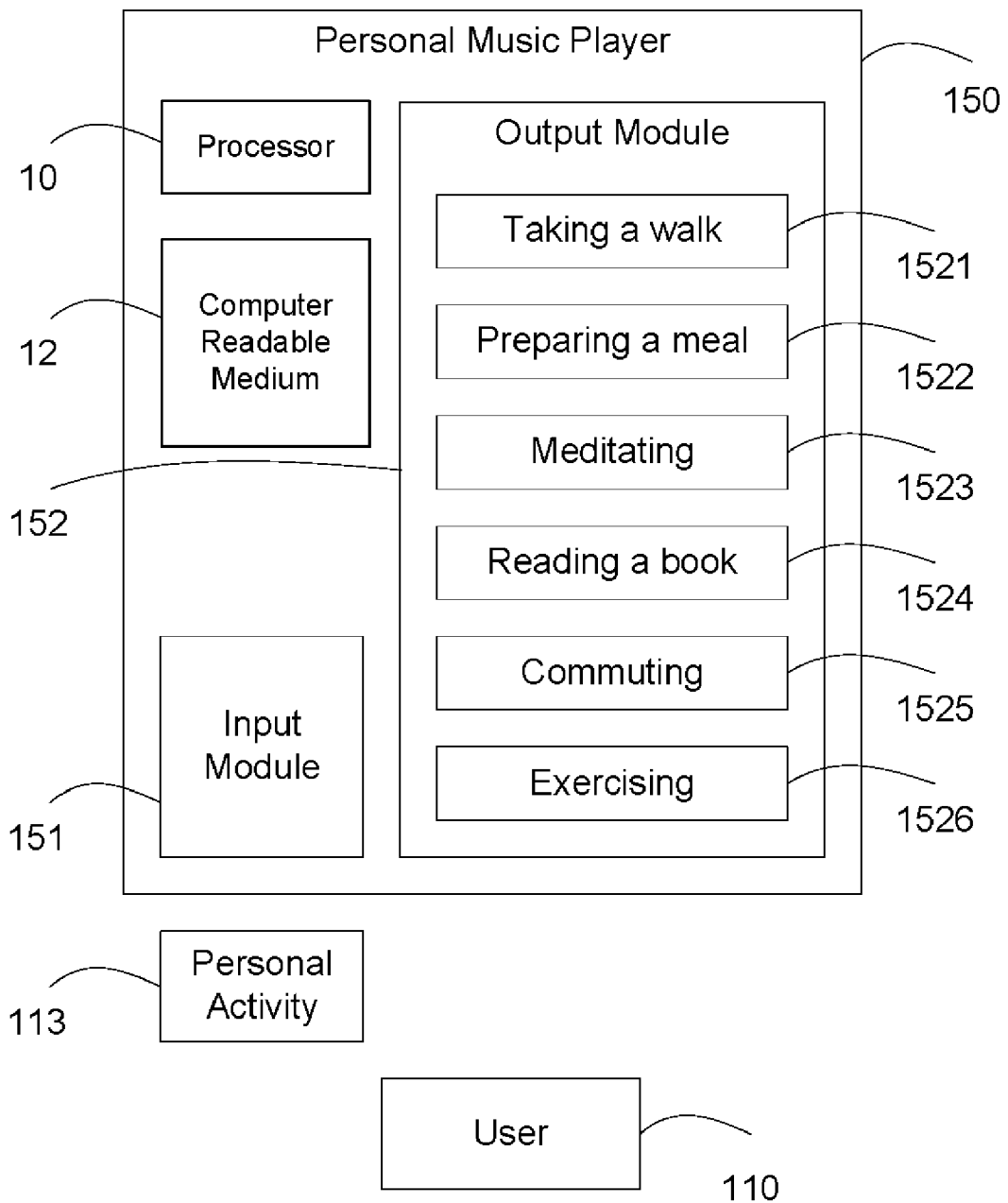


FIG. 1b

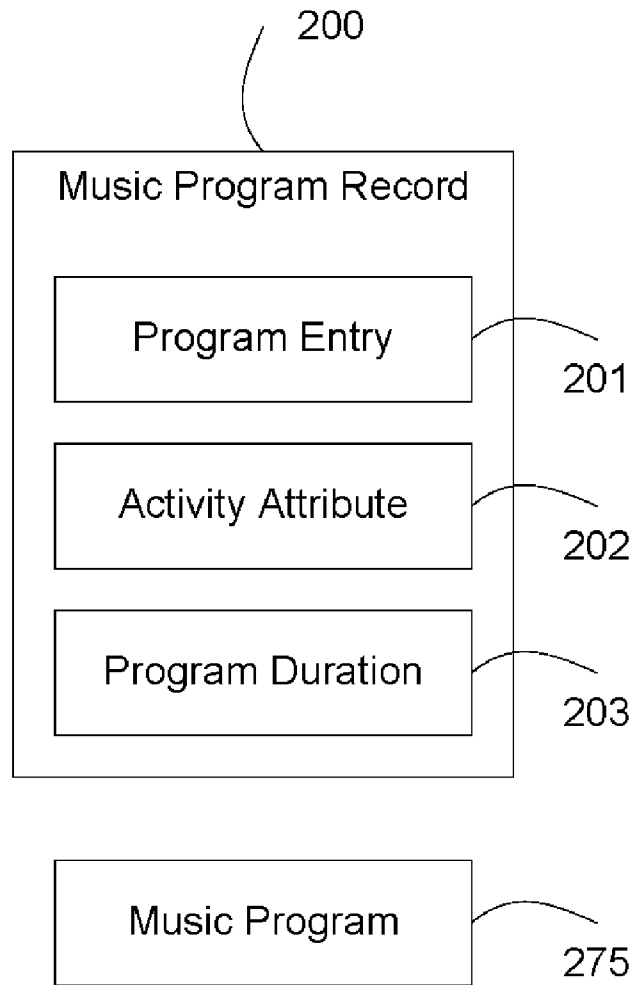


FIG. 2

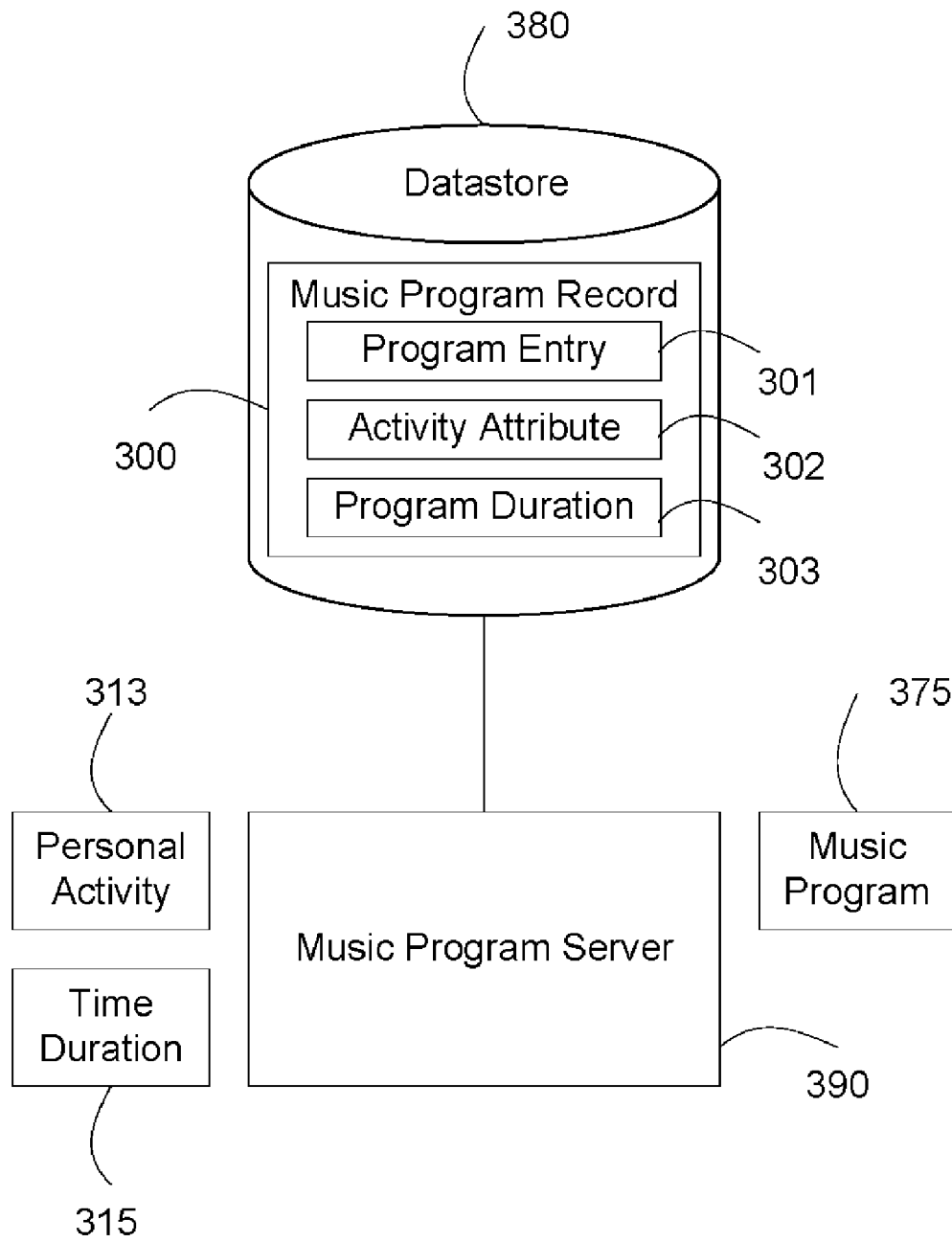


FIG. 3a

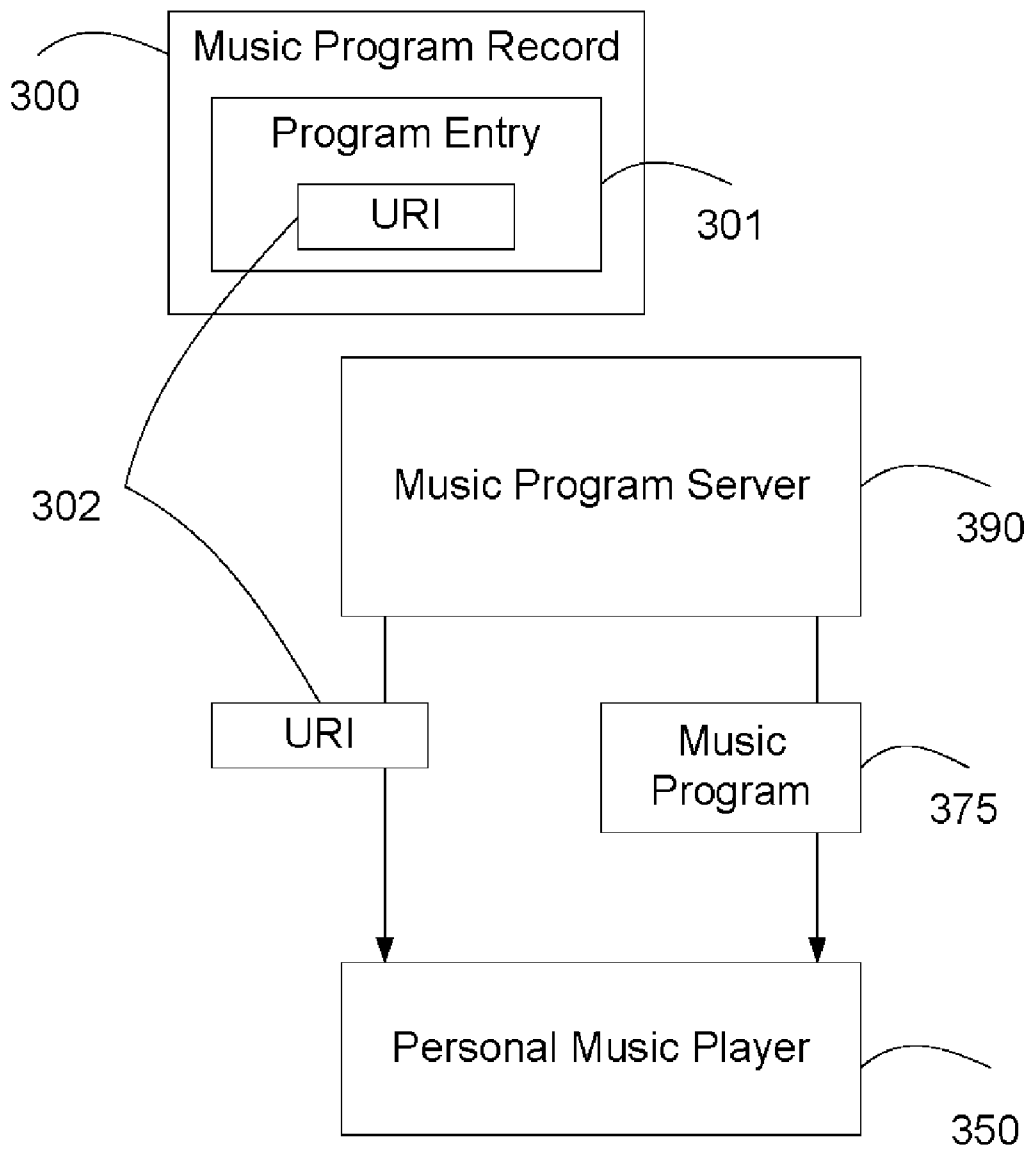


FIG. 3b

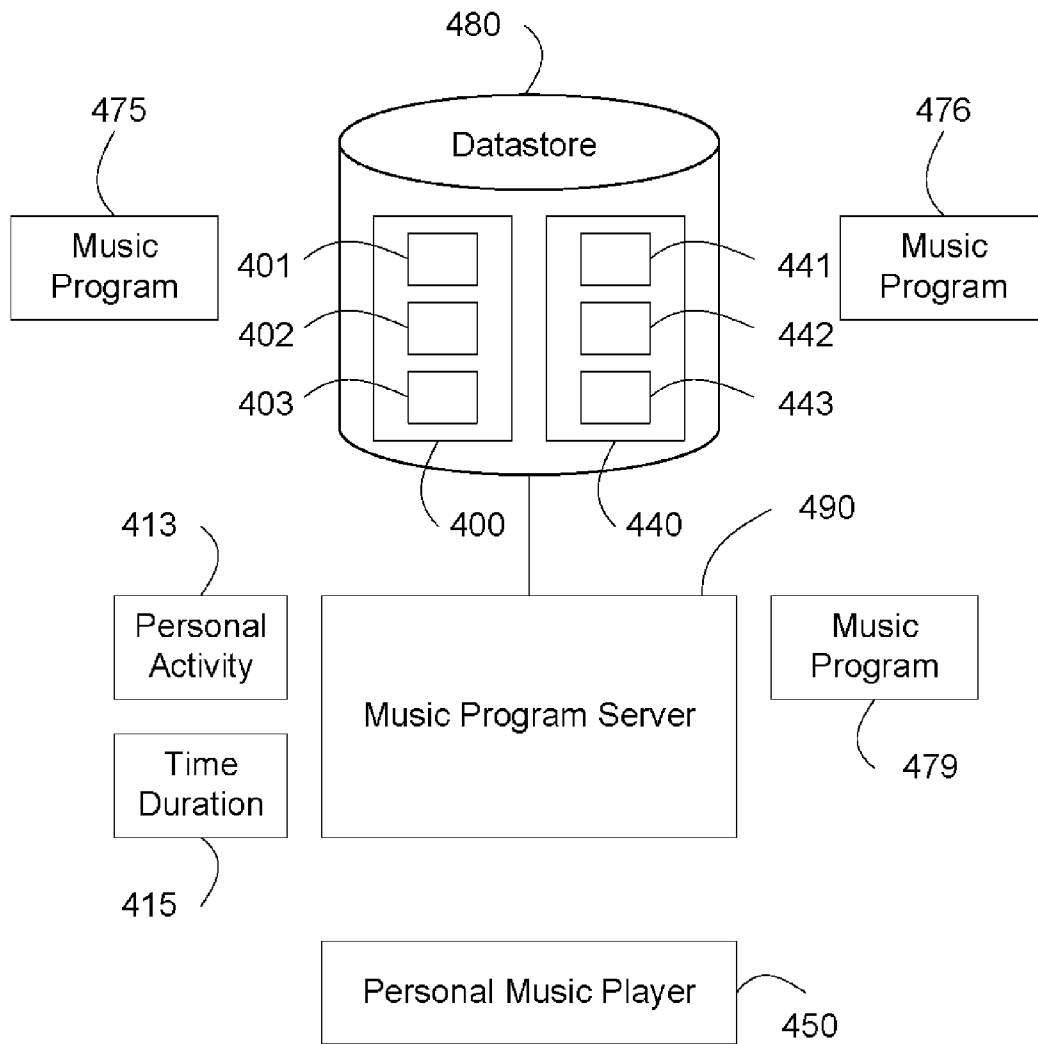


FIG. 4a

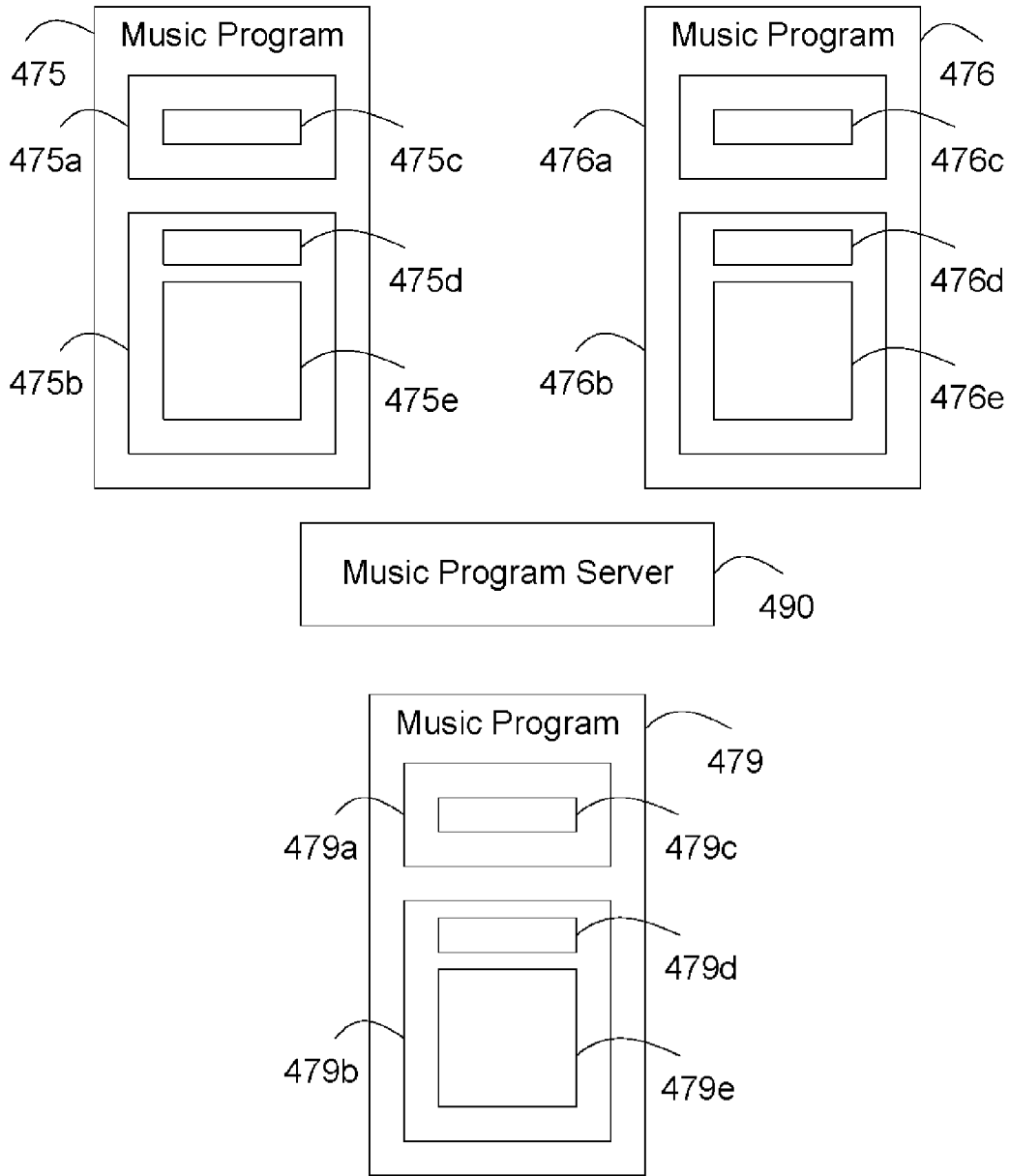


FIG. 4b



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## METHOD AND SYSTEM FOR MUSIC PROGRAM SELECTION

### CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of co-pending U.S. patent application entitled, "Method and System for Music Program Selection", Ser. No. 11/714,554, filed on Mar. 5, 2007.

### BACKGROUND OF THE INVENTION

#### 1. Field

This invention relates generally to audio media, particularly to method and system for selecting a music program for a personal activity.

#### 2. Related Arts

Personal music listening experience is fundamentally enhanced with the introduction of MP3 players. The large storage capacity, the ease of song downloading from a network, and the sophisticated capabilities of an MP3 player provide unprecedented choices in music selection. Additionally, the prolonged play time enabled by better power utilization of a MP3 player liberates a user to undertake a wide range of personal activities while listening to music, from taking a walk in the neighborhood, cooking a meal, working out in a gym, taking a 4-hour nature hike, taking a bath, to spending a long lazy afternoon lying on a campus lawn.

Nevertheless, a user oftentimes finds the new listening experience less than satisfying.

In one example, Melinda goes to a gym for her 45-minute workout session in mid afternoon. She likes to listen to fast tempo and spirited music numbers that goes with her favorite high workout intensity. Using her MP3 player, Melinda tries to find a XM satellite channel that provides the same. Unfortunately, all she can find is a slow pace religious music program.

In another example, Andy enjoys music while engaging in a variety of personal activities. In order to play the kind of music that complements the activity, Andy has to spend time to put together several playlists from the vast music collection in his MP3 player. In one instant, after a long and stressful day at work, Andy wants to unwind in his sauna and listen to some ambient soulful music. However, after shuffling through the directory of his music collection for 5 minutes, Andy is able to find only half a dozen songs, not quite enough to last for an hour of relaxing moment that he has in mind.

In one more example, John is taking a commuter train to work in downtown New York. From his music collection in his MP3 player, he plays Simon and Garfunkel's 1981 "The Concert in Central Park" to start his day. Unfortunately, when he arrives at his office building, the concert is barely half way through. John reluctantly stops the music and greets his co-workers, feeling unsatisfied for the rest of the morning.

The above discussion demonstrates the need for a solution to provide a music program based on the personal activity of a user.

### BRIEF SUMMARY OF THE INVENTION

In providing a music program, a personal music player displays personal activity choices. A user selects a personal activity and provides a time duration for the activity. The player sends a request to a music program server for a music program. The request includes the personal activity and the time duration. The music program server selects a music

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program record from a plurality of music program records that has an activity attribute which matches the personal activity and a program duration which matches or is less than the time duration. The server extracts location information for the music program from the program entry in the music program record, and sends this to the player. The player uses the location information to obtain the music program. In this manner, a music program is provided to a user based on the personal activity of the user.

### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE FIGURES

FIGS. 1a-1b illustrate a personal music player playing a music program during a personal activity.

FIG. 2 illustrates a music program record.

FIG. 3a illustrates a process to determine a music program.

FIG. 3b illustrates a process to deliver a music program.

FIGS. 4a-4b illustrate a process to determine and deliver two or more music programs.

### DETAILED DESCRIPTION OF THE INVENTION

As will be appreciated by one skilled in the art, aspects of the present invention may be embodied as a system, method or computer program product. Certain aspects of the present invention may take the form of a computer program product embodied in one or more computer readable medium(s) having computer readable program code embodied thereon.

Any combination of one or more computer readable medium(s) may be utilized. The computer readable medium may be a computer readable storage medium which may be, for example, but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, or device, or any suitable combination of the foregoing. A computer readable storage medium may be any tangible medium that can contain, or store a program for use by or in connection with an instruction execution system, apparatus, or device.

Aspects of the present invention are described below with reference to block diagrams of methods, apparatus (systems) and computer program products according to embodiments of the invention. It will be understood that each block of the block diagrams, and combinations of blocks in the block diagrams, can be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general purpose computer special purpose computer or other programmable data processing apparatus to produce a machine, such that the instructions, which execute via the processor of the computer or other programmable data processing apparatus, create means for implementing the functions/acts specified in the block diagram block or blocks.

FIG. 1a illustrates a personal music player playing a music program during a personal activity.

A user 110 uses a personal music player 150 to play a music program 175 while undertaking a personal activity 113 for time duration 115.

Music program 175 is encoded in an audio digital format, such as Moving Picture Experts Group 1 (MPEG-1 Level-3) also known as MP3, Windows Media Audio (WMA), Advanced Audio Coding (AAC), Apple Lossless Audio Codec (ALAC) Pulse Code Modulation (PCM), or Adaptive PCM (ADPCM) digital format.

In one embodiment, music program 175 is a recorded music program presented by a host, such as the weekly radio program "MusicDeli" produced by the ABC Radio National,

“Jazztrack with Mal Stanley”, or “Blueprint” hosted by Kevin Lincoln. In one embodiment, music program is a movie soundtrack such as Disney’s “Chicken Little”, “Rocky Horror Picture Show” produced by John Goldstone, James Stewart’s classic “It’s A Wonderful Life”, or Kander and Ebb’s musical “Chicago”. In one embodiment, music program 175 is a recorded concert performance such as Simon and Garfunkel’s 1981 “The Concert in Central Park”, Elvis Presley’s last live performance at Market Square Arena on Jul. 16, 1977, and Peter, Paul & Mary’ 1988 reunion special “A Holiday Concert” produced by Public Broadcasting Service (PBS).

In one embodiment, music program 175 includes a song, such as John Lennon’s “When I’m Sixty Four”, Jennifer Lopez’s “Let’s Get Loud”, Bob Dylan’s “Times They Are A-changing”, or Paul Simon and Art Garfunkel’s “The Boxer” performed in New York City’s Central Park in September 1981. In one embodiment, music program 175 includes an instrumental, such as Kenny G’s “Forever In Love”, Chopin’s “Concerto in F Minor” or Pink Floyd’s “Comfortably Numb” performed by David Gilmour. In one embodiment, music program 175 includes comment or annotation by the host about an included song or instrumental, such as the background of the composer or performer, the occasion of the performance, or the musical characteristics. In one embodiment, the comment or annotation is before, after, or during an included song or instrumental.

Personal music player 150 is a mobile audio device for personal music listening. In one embodiment, user 110 carries personal music player 150 in a shirt pocket, a purse or a backpack. In one embodiment, user 110 wears personal music player 150 in an armband. In one embodiment, user 110 wears personal music player 150 as part of a headset. Personal music player 150 is capable of playing music program 175.

In one embodiment, personal activity 113 is taking a walk during a break. In one embodiment, personal activity 113 is cooking a dinner. In one embodiment, personal activity 113 is a work out session in a gym. In one embodiment, personal activity 113 is a meditating session after work. In one embodiment, personal activity 113 is morning commuting to work. In one embodiment, personal activity 113 is studying in a library after school. In one embodiment, personal activity 113 is reading before bedtime, knitting after supper, taking a shower, taking a bath, gardening, a 5-mile jog, or doing nothing for an hour.

In one embodiment, time duration 115 of personal activity 113 is 40 minutes, 45 minutes, 2 hours, or 10 minutes.

Music program 175 lasts for a period of time close to time duration 115. In one embodiment, music program 175 lasts for 15 minutes, 42 minutes, 60 minutes, 20 minutes or 4 minutes 32 seconds.

Personal music player 150 includes a processor 10 and a computer readable medium 16. The computer readable medium stores computer readable program code for implementing the method of the present invention.

Personal music player 150 includes output module 152 for playing music program 175. In one embodiment, output module 152 includes a wired headset. In one embodiment, output module 152 includes a wireless headset, such as a Bluetooth headset. In one embodiment, the wireless headset is based on other technologies such as Wi-Fi, Wibree, ZigBee or Frequency Modulation (FM) technology. In one embodiment, output module 152 includes a speaker.

Personal music player 150 includes input module 151 for user 110 to enter information about personal activity 113 and time duration 115. In one embodiment, input module 151

includes a touch wheel, a touchscreen, a keypad, a keyboard or a stylus. In one embodiment, input module 151 includes a microphone and speech recognition capabilities.

In one embodiment, user 110 uses input module 151 to enter a phrase such as “weight lifting workout session” or “reading a book”. Personal music player 150 determines personal activity 113 based on the entered information. In one more embodiment, user 110 speaks the phrase at the microphone in input module 151.

In one embodiment, output module 152 includes a graphical display. Personal music player 150 displays a plurality of personal activity choices at output module 152, allowing user 110 to select personal activity 113 from the list of choices using input module 151. In one example, as illustrated in FIG. 1b, personal music player 150 displays personal activity choices of “taking a walk” 1521, “preparing a meal” 1522, “meditating” 1523, “reading a book” 1524, commuting “1525” and “exercising” 1526. User 110 uses input module 151 to select one of the choices as personal activity 113. In one embodiment, user 110 uses the stylus in input module 151 to select one of the choices.

In one embodiment, personal music player 150 displays a plurality of time duration choices at output module 152, allowing user 110 to select time duration 115 from the list of choices. In one example, personal music player 150 displays time duration choices of “25 minutes”, “45 minutes”, “1 hour”, and “1 hour 20 minutes”. User 110 uses input module 151 to select one of the choices as time duration 115.

In one embodiment, user 110 uses input module 151 to enter a time, such as “43 min” or “1 hour 10 minutes”. Personal music player 150 determines time duration 115 based on the entered information.

Personal music player 150 connects to a music program server 190. In one embodiment, personal music player 150 connects to music program service 190 over a data network 189. In one embodiment, personal music player 150 includes music program server 190.

The music program server 190 includes a processor 15 and a computer readable medium 16. The computer readable medium 16 stores computer readable program code for implementing the method of the present invention.

In one embodiment, data network 189 includes the Internet. In one embodiment, data network 189 includes an Internet service provider network. In one embodiment, data network 189 includes a broadband network based on Digital Subscriber Line (DSL) or cable modem technology. In one embodiment, data network 189 includes a cellular based data network such as General Packet Radio Service (GPRS) network, CDMA2000 network, Wideband Code Division Multiple Access (W-CDMA) network, or third-generation (3G) network. In one embodiment, data network 189 includes a private network of a business entity, such as a fitness center, a hotel, a café, or an airport. In one embodiment, data network 189 includes a home network. In one embodiment, data network 189 includes a hotspot WiFi network.

Personal music player 150 requests music program server 190 for a music program. Personal music player 150 provides personal activity 113 and time duration 115 to music program server 190. In one embodiment, personal music player 150 provides personal activity 113 and time duration 115 using a Hypertext Transfer Protocol (HTTP) message. In one embodiment, personal music player 150 provides personal activity 113 and time duration 115 in a Remote Method Innovation (RMI) message. In one embodiment, personal music player 150 provides personal activity 113 and time duration 115 over an Application Programming Interface (API).

Music program server **190** determines music program **175** based on personal activity **113** and time period **115**. Music program server **190** sends information for music program **175** to personal music player **150**. In one embodiment, music program server **190** sends music program **175** to personal music player **150**.

FIG. 2 illustrates a music program record.

A music program record **200** includes a program entry **201**, an activity attribute **202**, and a program duration **203**.

Program entry **201** includes location information for obtaining music program **275**. In one embodiment, the location information is a Web Universal Resource Identifier (URI), such as `http://www.musicprogram.com/softrock/muscdeli/4352.mp3`. In one embodiment, the location information includes an URI based on Real Time Streaming Protocol (RTSP), such as `rtsp://emusic.com/8997A9Y82.sdp`. In one embodiment, the location information is a file name.

Activity attribute **202** indicates a personal activity, such as “taking a walk”, “cooking”, “commuting”, “taking a bath” or “jogging”.

Program duration **203** is a time period of music program **275** such as 45 minutes, 60 minutes or 22 minutes.

FIG. 3a illustrates a process to determine a music program.

Music program server **390** determines music program **375** based on personal activity **313** and time duration **315**.

Music program server **390** connects to a datastore **380**. Datastore **380** stores a plurality of music program records that includes music program record **300**. In one embodiment, datastore **380** includes a hard disk, a flash memory. In one embodiment, datastore **380** includes a database. In one embodiment, music program server **390** includes datastore **380**.

Music program record **300** includes program entry **301**, activity attribute **302** and program duration **303**.

Music program server **390** selects music program record **300** wherein activity attribute **302** matches personal activity **313**, and program duration **303** matches time duration **315**.

In one embodiment, music program server **390** determines that activity attribute **302** matches personal activity **313** if activity attribute **302** relates to personal activity **313**. In one example, activity attribute **302** includes “cooking” and personal activity **313** is “cooking a dinner”. In one example, activity attribute **302** is a synonym related to personal activity **313**. For example, activity attribute **302** is “making a sandwich”, “preparing a meal”, or “home cooking”.

In one embodiment, music program server **390** determines that program duration **303** matches time duration **315** if program duration **303** is smaller than time duration **315**. In one example, program duration **303** is 42 minutes and time duration **315** is 50 minutes. In another embodiment, music program server **390** determines that program duration **303** matches time duration **315** if the difference between program duration **303** and time duration **315** is less than a pre-determined value, such as 3 minutes, 5 minutes, or 6 minutes. In one example, program duration **303** is 63 minutes and time duration **315** is 60 minutes. In one embodiment, music program server **390** determines that program duration **303** matches time duration **315** if the difference between program duration **303** and time duration **315** is within 10%, 15%, or 20% of time duration **315**.

FIG. 3b illustrates a process to deliver a music program.

Music program server **390** extracts location information for music program **375** from program entry **301**. Music program server **390** sends the location information to personal music player **350**.

In one embodiment, the location information is URI **302**. Music program server **390** sends URI **302** to personal music player **350**. Personal music player **350** uses URI **302** to obtain music program **375**.

In one embodiment, URI **302** is an RTSP-based URI. Personal music player **350** uses the RTSP-based URI to stream music program **375** from music program server **390**. In one embodiment, personal music player **350** streams music program **375** from a different server. Personal music player **350** plays music program **375** while streaming music program **375**.

In one embodiment, URI **302** is an FTP-based URI. Personal music player **350** uses the FTP-based URI to obtain music program **375** in the form of an audio file, such as an MP3 file, a WMA file, and AAC file, an Audio Video Interleave (AVI) file, or a Waveform (WAV) file. In one embodiment, personal music player **350** plays music program **375** after obtaining music program **375** in the entirety.

In one embodiment, personal music player **350** includes a storage. The storage stores music program **375**. In one embodiment, the storage is a flash drive, a hard disk drive, or a removable memory based on Universal Serial Bus (USB) or Secure Digital Card technology.

In one embodiment, program entry **301** includes a title for music program **375**. Music program server **390** sends music program **375** title to personal music player **350**. Personal music player **350** retrieves music program **375** from the storage based on music program **375** title.

FIG. 4a illustrates a process to determine and deliver two or more music programs.

Music program server **490** determines music program **479** based on personal activity **413** and time duration **415**. Music program **479** includes a plurality of two or more music programs.

In one embodiment, music program **479** includes music program **475** and music program **476**. In one embodiment, music program server **490** connects to datastore **480**, and datastore **480** includes music program records **400** and **440**. Music program record **400** includes program entry **401**, activity attribute **402** and program duration **403**. Music program record **440** includes program entry **441**, activity attribute **442** and program duration **443**. Program entry **401** includes location information for music program **475** and program entry **441** includes location information for music program **476**.

Music program server **490** selects music program records **400** and **440** wherein both activity attributes **402** and **442** match personal activity **413**, and wherein the sum of program durations **403** and **443** match time duration **415**. In one embodiment, the sum of program durations **403** and **443** matches time duration **415** if the sum is shorter than time duration **415**. In another embodiment, the sum matches time duration **415** if the difference between the sum and time duration **415** is less than a pre-determined value; or if the difference between the sum and time duration **415** is within 10%, 15%, or 20% of time duration **415**.

In one embodiment, music program server **490** extracts first location information for music program **475** from program entry **401** and extracts second location information for music program **476** from program entry **441**. Music program **479** includes the first location information and the second location information.

In one embodiment, music program **479** is a Hypertext Markup Language (HTML) file that includes the first location information and the second location information. Music program server **490** generates music program **479**, and sends music program **479** to personal music player **450**. Personal music player **450** uses the first location information to obtain

music program 475 and the second location information to obtain music program 476. In one embodiment, personal music player 450 plays music program 476 after playing music program 475.

In a different embodiment, music program server 490 generates music program 479 by combining music programs 475 and 476. Music program server 490 sends location information for music program 479 as described in FIG. 3b.

In one embodiment, music programs 475 and 476 are audio files in a common audio digital format, such as Waveform Audio format (WAV) files with audio data encoded in uncompressed 16-bit mono Pulse Code Modulation (PCM) format at a sample rate of 44,100. As illustrated in FIG. 4b, music program 475 includes header 475a and data chunk 475b. Header 475a includes chunk size 475c and audio data format information. Data chunk 475b includes data chunk size 475d and audio data 475e. Likewise, music program 476 includes header 476a, chunk size 476c, data chunk 476b, data chunk size 476d and audio data 476e.

Music program server 490 combines data chunk 475b and data chunk 476b into data chunk 479b of music program 479. Music program server 490 stores audio data 475e into audio data 479e of music program 479, and then appends audio data 476e to audio data 479e. Music program server 490 computes data chunk size 479d of music program 479 as the sum of data chunk size 475d and data chunk size 476d.

Header 475a and header 476a are similar with a possible difference in chunk size 475c and chunk size 476c. Music program server 490 copies header 475a into header 479a of music program 479, and computes chunk size 479c of music program 479. In one embodiment, music program server 490 computes chunk size 479c as the file size of music program 479. In another embodiment, Music program server 490 computes chunk size 479c as the file size of music program 479 starting after the location of chunk size 479c in the file.

In one embodiment, music program server 490 inserts a plurality of audio data before appending audio data 476e in 479e of music program 479. In one embodiment, the inserted audio data represents silence for a period of time, such as 3 seconds, 5 seconds, or 22 milliseconds. In one embodiment, the inserted audio data include a music interlude. Music program server 490 computes data chunk size 479d and chunk size 479c accordingly.

In one embodiment, the audio digital formats of music programs 475 and 476 are different; music program server 490 converts music programs 475 and 476 to a common audio digital format before generating music program 479.

In one embodiment, a personal activity 113 is described using a phrase such as “taking a walk”. In another embodiment, personal activity 113 is described with an event name such as “Rock Concert”, “Town Hall Meeting”, “Monday Night Football”, where user 110 may attend. In one embodiment, personal activity 113 is a common activity user 110 does normally such as “going to the mall”, “driving to work”, “doing lunch”. In one embodiment, personal activity 113 is characterized with a plurality of words describing or suggesting an activity user 110 participates in or may participate in the future. Personal activity 113 differs or is separate from the listening activity of the music program 175, the usage of the media player 150 that leads to the listening activity, and/or the user’s interaction with the data that make up the music program(s). Typically, user 110 participates in the personal activity 113 while user 110 enjoys listening to the music program 175. Further examples of personal activity 113 include sports activities or sport events; commuting activities such as driving to work, taking a train, commuting on a bus, or commuting in a car; reading activities such as reading a book, reading

the news, reading a magazine, or reading a cooking recipe; shopping activities such as shopping in a mall, shopping in a store, or on-line shopping; watching activities such as watching television, watching a slide show, watching pictures, or watching kids play in a playground; dining activities such as lunch, breakfast, or dinner; home or personal chores such as doing laundry, cooking, painting, house cleaning, or gardening; leisure activities such as fishing, golfing, hiking, sun tanning on a beach, or playing a video game.

In one embodiment, a reading activity includes a subject matter or a title, for example, the reading activity is “reading the New York Times”, “reading Harry Potter”, or “reading a history book”.

In one embodiment, a sports activity or sporting event includes “watching a sporting event” or a type of sport such as “football”, “soccer”, “fishing”, or “basketball”.

In one embodiment, the personal music player 150 sends a request to the music program server 190 for a music program. The request includes a commuting activity, a sports activity, or a reading activity. The music program server 190 determines music program 175 based on the commuting activity, the sports activity, or the reading activity in the request, as described above with reference to FIGS. 3a and 4a. The music program server 190 then sends the music program 175, or the combined music program 479, to the personal music player 150 as described above with reference to FIG. 3b.

In one embodiment, personal music player 150 is a portable MP3 music player, a mobile phone that includes a music player, an electronic reading device with music playing capabilities, an Internet radio, an in-car networked audio system, and Internet audio system, or a networked home entertainment system. In one embodiment, personal music player 150 is a networked computing device such as a personal computer, a notebook, a mini-notebook, or a personal digital assistant. In one embodiment, the networked computing device includes a program or software that plays music program 175.

In one embodiment, music program server 190 is a computer server communicating with personal music player 150. A typical computer server includes a computing processor unit, main memory, storage and a network interface. In one embodiment, a computer server is a computing system comprising a plurality of computer servers and a plurality of storage devices operatively coupled to each other over a network. In one embodiment, a computer server is a part of the computing system. In one embodiment, music program server 190 is a computing device such as a home media center, a personal computer, a notebook, an MP3 player, or a home entertainment system.

Foregoing described embodiments of the invention are provided as illustrations and descriptions. They are not intended to limit the invention to precise form described. In particular, it is contemplated that functional implementation of invention described herein may be implemented equivalently in hardware, software, firmware, and/or other available functional components or building blocks, and that networks may be wired, wireless, or a combination of wired and wireless. Other variations and embodiments are possible in light of above teachings, and it is thus intended that the scope of invention not be limited by this Detailed Description, but rather by Claims following.

What is claimed is:

1. A method for providing a music program for a user engaged in a personal activity to be played by a personal music player, comprising:

(a) determining the personal activity for a user of the personal music player;



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- (b2iii) computes a combined data chunk size of the combined music program as a sum of the first data chunk size and the second data chunk size; and
  - (c) receive location information for the combined music program from the music program server. 5
7. A method for providing a music program for a user engaged in a personal activity to be played by a personal music player, comprising:
- (a) receiving a request for the music program from the personal music player, wherein the request comprises 10 the personal activity;
  - (b) selecting at least a first music program record corresponding to a first music program and a second music program record corresponding to a second music program, wherein activity attributes of the first and second 15 music program records are synonyms of the personal activity; and
  - (c) combining the first music program and the second music program into a separate combined music program, wherein the first music program comprises a first 20 header comprising a first chunk size and a first audio data

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- format information, and a first data chunk comprising a first data chunk size and a first audio data, wherein the second music program comprises a second header comprising a second chunk size and a second audio data format information, and a second data chunk comprising a second data chunk size and a second audio data, wherein the combines (c) comprises:
- (c1) combines the first data chunk and the second data chunk into a data chunk of the combined music program;
- (c2) stores the first audio data into an audio data of the combined music program and appending the second audio data to the audio data of the combined music program; and
- (c3) computes a combined data chunk size of the combined music program as a sum of the first data chunk size and the second data chunk size; and
- (d) sending location information for the combined music program to the personal music player.

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