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(54) **VIDEO PROGRAM SUBTITLE TEX
RECORDING METHOD AND SYSTEM**

Publication Classification

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(57) **ABSTRACT**

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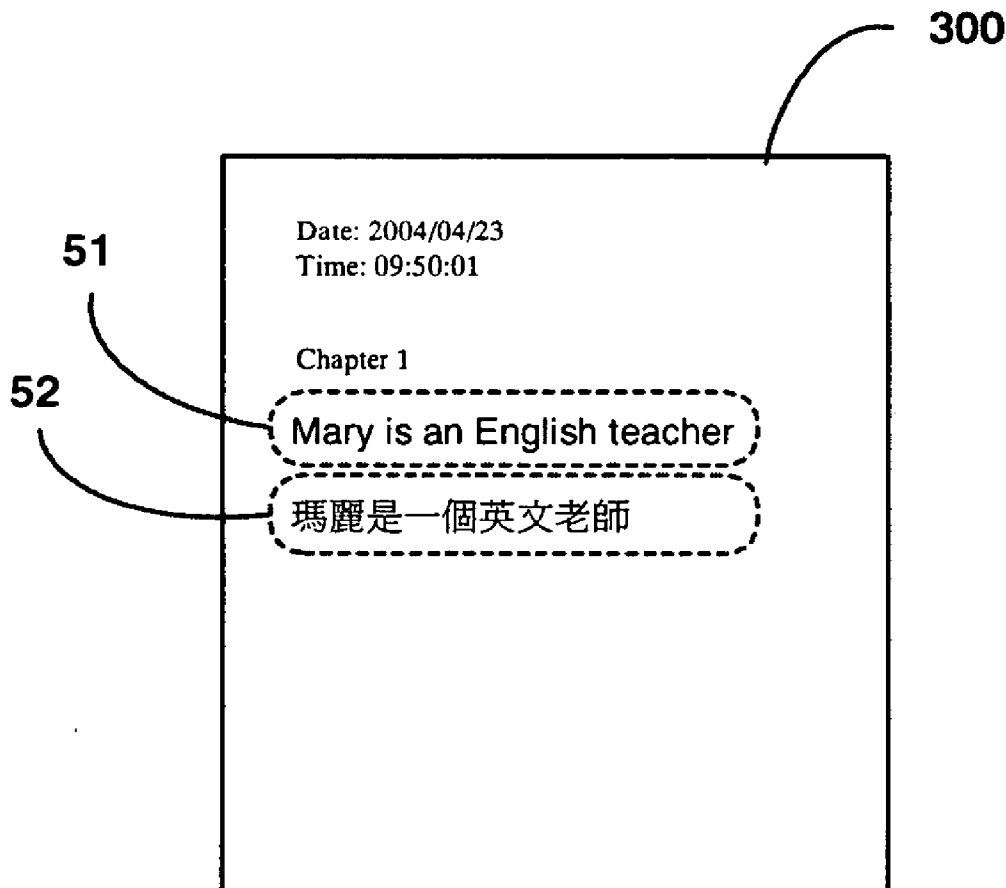
A video program subtitle text recording method and system is proposed, which is s designed for use in conjunction with a video playback platform for providing a video program subtitle text recording function that allows the user to record the subtitle text embedded in a video program displayed on the video playback platform into an electronic text file, so that the user can later retrieve the electronic text file and view the subtitle text through a computer platform. This feature allows the user to automatically record all the subtitle text in a video program into an electronic text file without requiring the user to do shorthand writing, and is therefore advantageous to use.

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Related U.S. Application Data

(60) Provisional application No. 60/524,472, filed on Nov. 24, 2003.



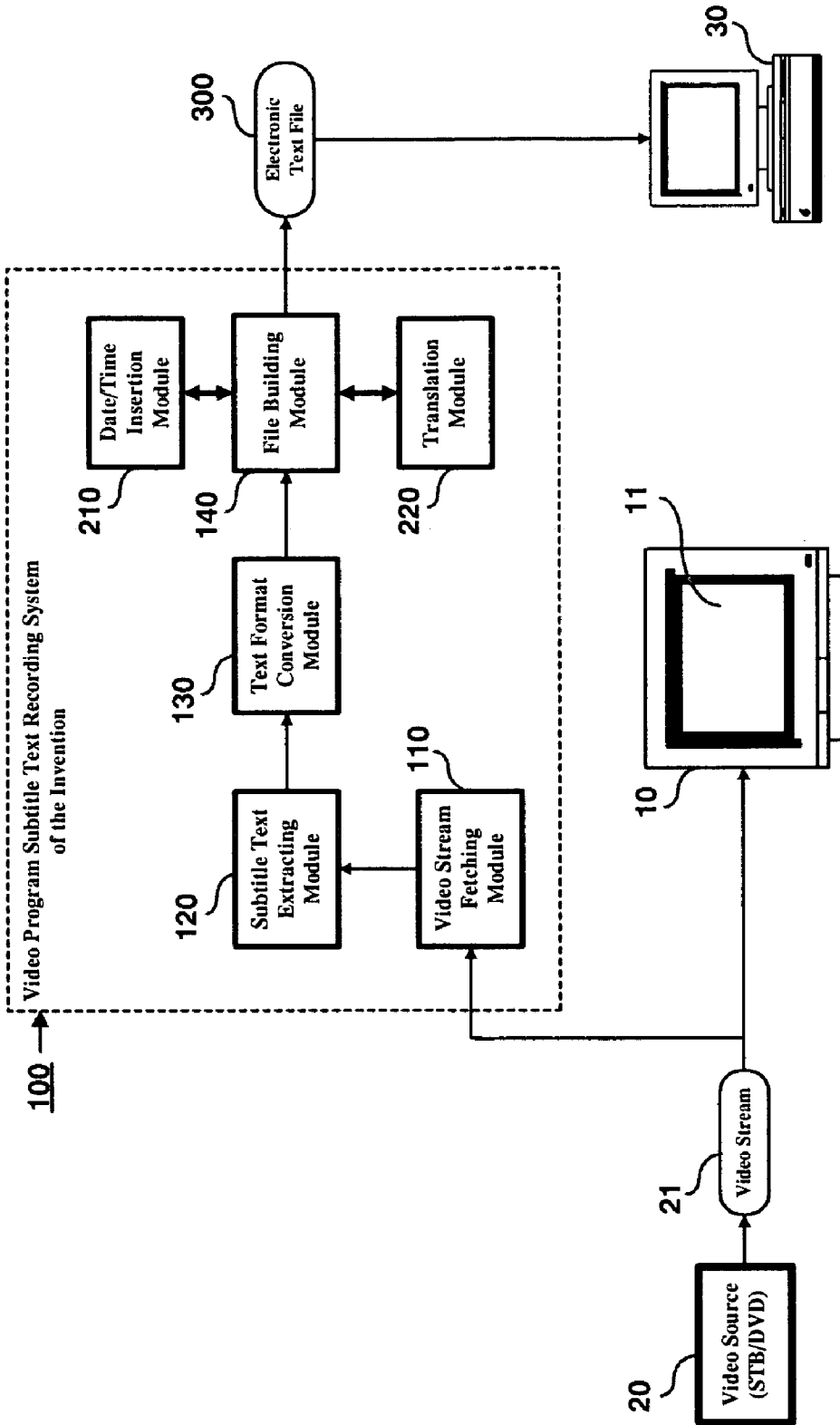


FIG. 1

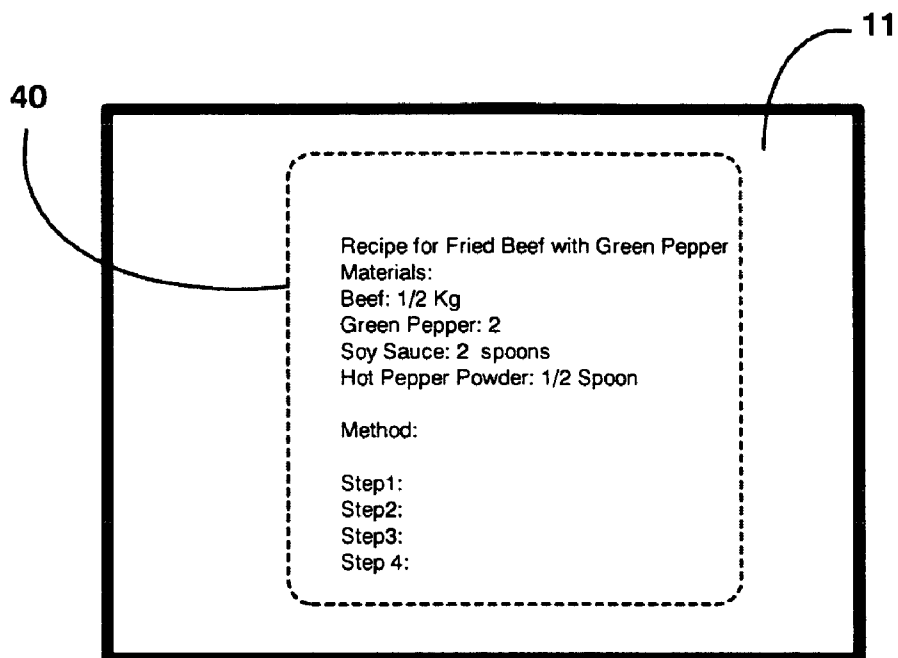


FIG. 2A

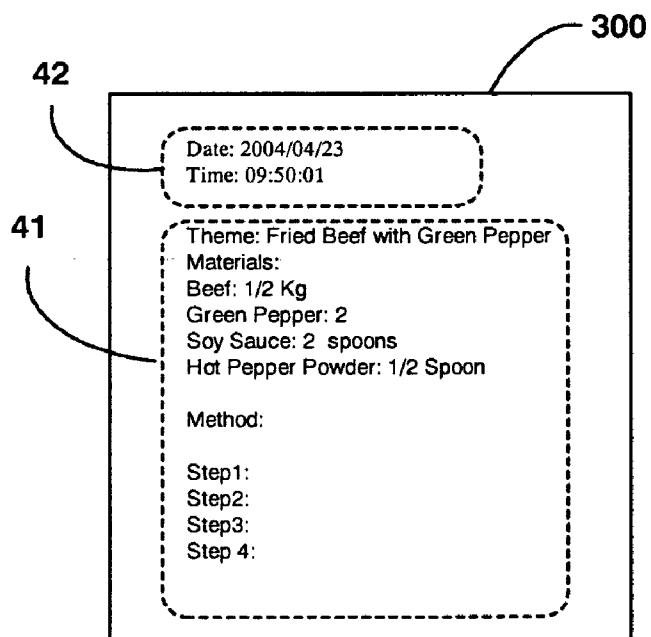


FIG. 2B

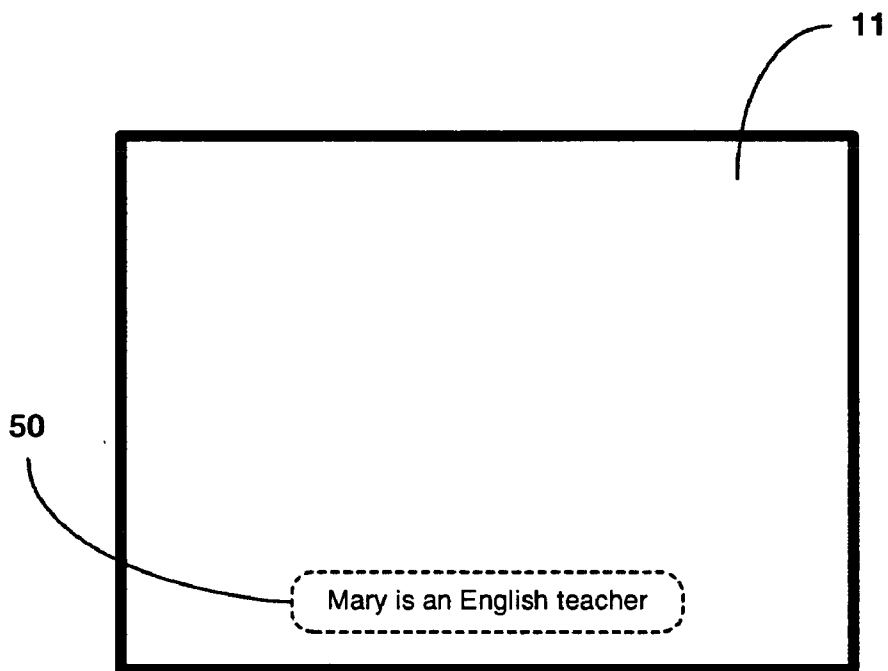


FIG. 3A

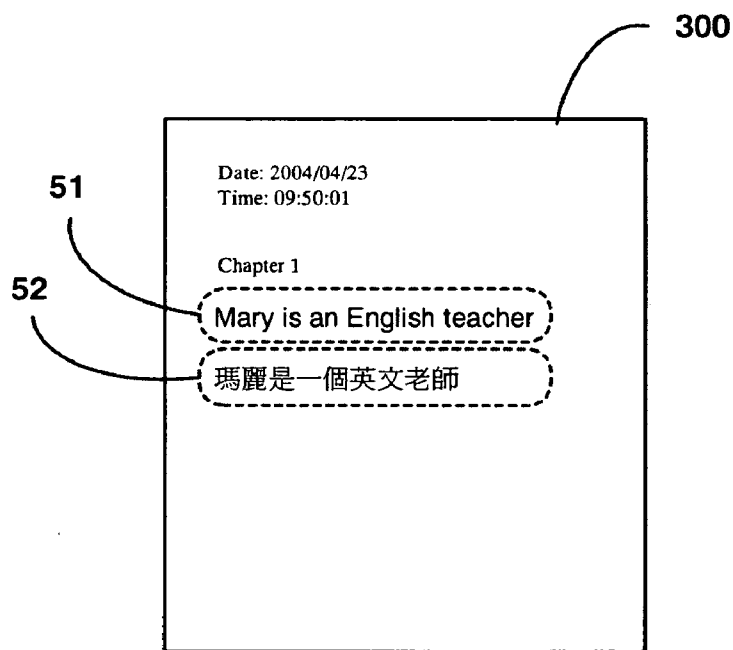


FIG. 3B

VIDEO PROGRAM SUBTITLE TEX RECORDING METHOD AND SYSTEM

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] This invention relates to information technology (IT), and more particularly, to a video program subtitle text recording method and system, which is designed for use in conjunction with a video playback platform, such as a digital TV, a multimedia player, a desktop computer, a notebook computer, and so on, for providing a video program subtitle text recording function that allows the user to record the subtitle text embedded in a video program displayed on the video playback platform into an electronic text file, so that the user can later retrieve the electronic text file and view the recorded subtitle text through a computer platform, such as a desktop computer, a notebook computer, a tablet PC, a PDA (Personal Digital Assistant), an intelligent mobile phone, and the like.

[0003] 2. Description of Related Art

[0004] Digital TV is a new video broadcast technology that can reproduce a digital video stream and display it on a digital display, such as an LCD (Liquid Crystal Display) for viewing by the user. In practical use, a digital TV is typically connected to an external or built-in video source, such as a wireless set-top-box (STB), a cable TV receiver, a DVD (Digital Versatile Disc) player, or the like.

[0005] Typically, most video programs are embedded with subtitles that represents a written form of the speeches in the video program or shows related messages about the video program. For example, in the case of an English-speaking video program, such as an English-teaching program, is broadcast in a Chinese-speaking country, the video program is typically embedded with Chinese-translated subtitles; in the case of a video program that teaches cooking, the video program is typically embedded with a written form of the recipes; and in the case of a music-related video program, the video program typically uses subtitles to show the lyrics of the songs.

[0006] In the use of digital TV, there exists a need for the user to record the text contents the subtitles in the video program, so that the user can keep the subtitle text contents as a reference without having to view it again by turning on the TV. Traditionally, the user can do this only by shorthand writing. However, since the subtitles typically run very quickly, it would be highly difficult or next to impossible for the user to record all the subtitle contents by shorthand writing.

SUMMARY OF THE INVENTION

[0007] It is therefore an objective of this invention to provide a video program subtitle text recording method and system, which is capable of automatically recording all the subtitle text embedded in a video program into an electronic text file, so that the user can later view the subtitle text through a PC or any PC-compliant electronic devices, without requiring the user to do shorthand writing.

[0008] The video program subtitle text recording method and system according to the invention is designed for use in conjunction with a video playback platform, such as a digital

TV, a multimedia player, a desktop computer, a notebook computer, and so on, for providing a video program subtitle text recording function that allows the user to record the subtitle text embedded in a video program displayed on the video playback platform into an electronic text file, so that the user can later retrieve the electronic text file and view the recorded subtitle text through a computer platform, such as a desktop computer, a notebook computer, a tablet PC, a PDA (Personal Digital Assistant), an intelligent mobile phone, and the like.

[0009] The video program subtitle text recording method and system according to the invention is advantageous to use in that it allows the user to automatically record all the subtitle text in a video program into an electronic text file without requiring the user to do shorthand writing.

BRIEF DESCRIPTION OF DRAWINGS

[0010] The invention can be more fully understood by reading the following detailed description of the preferred embodiments, with reference made to the accompanying drawings, wherein:

[0011] FIG. 1 is a schematic diagram showing the application architecture and modularized component model of the video program subtitle text recording system according to the invention;

[0012] FIG. 2A is a schematic diagram showing an example of a block of subtitle text embedded in a video program;

[0013] FIG. 2B is a schematic diagram showing an example of the contents of an electronic text file that records the subtitle text shown in FIG. 2A;

[0014] FIG. 3A is a schematic diagram showing an example of a line of English subtitle text embedded in a video program; and

[0015] FIG. 3B is a schematic diagram showing an example of the contents of an electronic text file that records the English subtitle text shown in FIG. 3A along with a line of Chinese-translated text.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0016] The video program subtitle text recording method and system according to the invention is disclosed in full details by way of preferred embodiments in the following with reference to the accompanying drawings.

[0017] FIG. 1 is a schematic diagram showing the application architecture and modularized component model of the video program subtitle text recording system according to the invention (as the part enclosed in the dotted box indicated by the reference numeral **100**). As shown, the video program subtitle text recording system of the invention **100** is designed for use with in conjunction with a video playback platform **10**, such as a digital TV unit, a multimedia player, a desktop computer, a notebook computer, and so on, for providing a video program subtitle text recording function that allows the user to record the subtitle text embedded in a video program displayed on the video playback platform **10** into an electronic text file **300**, so that the user can later view the subtitle text through a computer platform **30**, such

as a desktop computer, a notebook computer, a tablet PC, a PDA (Personal Digital Assistant), an intelligent mobile phone, and the like.

[0018] In practical application, the video playback platform **10** is connected to an external or built-in video source **20**, such as a wireless set-top-box, a cable TV receiver, a DVD (Digital Versatile Disc) player, or the like, which is capable of outputting a video stream **21** to the video playback platform **10** for the video playback platform **10** to display the contents of the video stream **21** on the screen **11** thereof.

[0019] As shown in FIG. 1, the modularized component model of the video program subtitle text recording system of the invention **100** comprises: (a) a video stream fetching module **110**; (b) a subtitle text extracting module **120**; (c) a text format conversion module **130**; and (d) a file building module **140**; and can further optionally include a date/time insertion module **210** and a translation module **220**.

[0020] The video stream fetching module **110** is capable of fetching a bifurcated part of the video stream **21** that is being inputted to the video playback platform **10** from the video source **20** for processing by the video program subtitle text recording system of the invention **100**.

[0021] The subtitle text extracting module **120** is capable of performing a subtitle text extracting procedure on the video stream **21** fetched by the video stream fetching module **110** from the video source **20**, for the purpose of extracting all the subtitle text that is embedded in the video stream **21**. The subtitle text extracting technique utilized here by the subtitle text extracting module **120** is conventional technology, so that detailed description thereof will not be given in this specification.

[0022] The text format conversion module **130** is capable of converting the format of the subtitle text extracted by the subtitle text extracting module **120** into a standard computer text format, such as ASCII (American Standard Code for Information Interchange) format or Unicode format.

[0023] The file building module **140** is capable of building an electronic text file **300**, such as a TXT file (*.txt) that collects all the ASCII-converted or Unicode-converted text from the text format conversion module **130**.

[0024] The date/time insertion module **210** is an optional module, which is capable of inserting a value of the current date/time (i.e., the temporal point when the subtitle text is recorded) in a predetermined format, such as YY/MM/DD for date and HH/MM/SS for clock time, in the header of the electronic text file **300** for serving as a reference that later allows the user to know when the subtitle text was recorded. For example, as shown in FIG. 2A, when the video playback platform **10** displays a block of subtitle text **40** on the screen **11** (which is for example a set of cooking instructions), the video program subtitle text recording system of the invention **100** will record this block of subtitle text **40** into the electronic text file **300** as a block of ASCII or Unicode text **41** shown in FIG. 2B, and meanwhile the date/time insertion module **210** will insert a block of date/time value **42** in the header of the electronic text file **300**.

[0025] The translation module **220** is also an optional module, which is capable of translating the recorded subtitle text in the electronic text file **300** from its original language

into another language, for example from English into Chinese. For instance, as shown in FIG. 3A, when the video playback platform **10** displays a line of English subtitle text **50** on the screen **11** (which is for example an English sentence from an English teaching program), the video program subtitle text recording system of the invention **100** will record this line of English subtitle text **50** into the electronic text file **300** as a block of ASCII or Unicode text **51** shown in FIG. 3B, and meanwhile the translation module **220** will translate the English subtitle text **50** into Chinese and then paste the Chinese-translated text **52** beneath the English text **51** in the electronic text file **300**.

[0026] Referring to FIG. 1, FIGS. 2A-2B, and FIGS. 3A-3B, in practical application, when the video playback platform **10** is reproducing a video stream **21** outputted from the video source **20** and if the user wants to record the subtitle text embedded in the video stream **21**, the user needs first to activate the video program subtitle text recording system of the invention **100** by using, for example, a remote controller or similar control means (not shown).

[0027] When the video program subtitle text recording system of the invention **100** is activated, it will first enable the video stream fetching module **110** to fetch a bifurcated part of the video stream **21** and transfer the fetched video stream **21** to the subtitle text extracting module **120**. In response, the subtitle text extracting module **120** will perform a subtitle text extracting procedure on the video stream **21** to extract all the subtitle text that is embedded in the video stream **21**. Subsequently, the text format conversion module **130** is activated to convert the format of the extracted subtitle text from the video stream **21** into a standard computer text format, such as ASCII format or Unicode. Next, the file building module **140** is activated to build an electronic text file **300**, such as a TXT file (*.txt) that collects all the ASCII-converted or Unicode-converted text outputted from the text format conversion module **130**.

[0028] If the user choose the optional date/time insertion function, the video program subtitle text recording system of the invention **100** will activate the date/time insertion module **210** to insert the value of the current date/time in a predetermined format (such as YY/MM/DD for date and HH/MM/SS for time) in the header of the electronic text file **300**. For example, as shown in FIG. 2A, when the video playback platform **10** displays a block of subtitle text **40** on the screen **11** (which is for example a set of cooking instructions), the video program subtitle text recording system of the invention **100** will record this block of subtitle text **40** into the electronic text file **300** as a block of text **41** shown in FIG. 2B, and meanwhile the date/time insertion module **210** will insert a block of date/time value **42** in the header of the electronic text file **300**.

[0029] In addition, if the recorded subtitle text from the video stream **21** is English while the user is a Chinese-speaking person who wishes to view a Chinese-translated version of the text, the user can then choose the optional translation function, which causes the video program subtitle text recording system of the invention **100** to activate the translation module **220** to translate the recorded English subtitle text into Chinese. For instance, as shown in FIG. 3A, when the video playback platform **10** displays a line of English subtitle text **50** on the screen **11** (which is for example an English sentence from an English teaching

program), the video program subtitle text recording system of the invention 100 will record this line of English subtitle text 50 into the electronic text file 300 as a block of ASCII or Unicode text 51 shown in FIG. 3B, and meanwhile the translation module 220 will translate the English subtitle text 50 into Chinese and then paste the Chinese-translated text 52 beneath the English text 51 in the electronic text file 300.

[0030] In conclusion, the invention provides a video program subtitle text recording method and system which is designed for use in conjunction with a video playback platform, such as a digital TV, a multimedia player, a desktop computer, a notebook computer, and so on, for providing a video program subtitle text recording function that allows the user to record the subtitle text embedded in a video program displayed on the video playback platform into an electronic text file, so that the user can later retrieve the electronic text file and view the recorded subtitle text through a PC or a PC-compliant electronic device. This feature allows the user to automatically record all the subtitle text in a video program into an electronic text file without requiring the user to do shorthand writing. The invention is therefore more advantageous to use than the prior art.

[0031] The invention has been described using exemplary preferred embodiments. However, it is to be understood that the scope of the invention is not limited to the disclosed embodiments. On the contrary, it is intended to cover various modifications and similar arrangements. The scope of the claims, therefore, should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements.

What is claimed is:

1. A video program subtitle text recording method for use on a video playback platform for providing a video program subtitle text recording function;

the video program subtitle text recording method comprising:

fetching a bifurcated part of a video stream that is being inputted to the video playback platform;

extracting a block of subtitle text that is embedded in the fetched video stream;

converting the format of the extracted subtitle text into a standard computer text format; and

building an electronic text file that collects the format-converted subtitle text outputted from the text format conversion module.

2. The video program subtitle text recording method of claim 1, wherein the video playback platform is a digital TV unit.

3. The video program subtitle text recording method of claim 1, wherein the video playback platform is a multimedia player.

4. The video program subtitle text recording method of claim 1, wherein the video playback platform is a desktop computer.

5. The video program subtitle text recording method of claim 1, wherein the video playback platform is a notebook computer.

6. The video program subtitle text recording method of claim 1, wherein the standard computer text format utilized by the text format conversion module is ASCII (American Standard Code for Information Interchange).

7. The video program subtitle text recording method of claim 1, wherein the standard computer text format utilized by the text format conversion module is Unicode.

8. The video program subtitle text recording method of claim 1, further comprising:

inserting the value of the date/time when the subtitle text is recorded into the electronic text file.

9. The video program subtitle text recording method of claim 1, further comprising:

translating the contents of the recorded subtitle text from its original language into another language.

10. A video program subtitle text recording system for use in conjunction with a video playback platform for providing a video program subtitle text recording function;

the video program subtitle text recording system comprising:

a video stream fetching module, which is capable of fetching a bifurcated part of a video stream that is being inputted to the video playback platform;

a subtitle text extracting module, which is capable of extracting a block of subtitle text that is embedded in the fetched video stream;

a text format conversion module, which is capable of converting the format of the extracted subtitle text into a standard computer text format; and

a file building module, which is capable of building an electronic text file that collects the format-converted subtitle text outputted from the text format conversion module.

11. The video program subtitle text recording system of claim 10, wherein the video playback platform is a digital TV unit.

12. The video program subtitle text recording system of claim 10, wherein the video playback platform is a multimedia player.

13. The video program subtitle text recording system of claim 10, wherein the video playback platform is a desktop computer.

14. The video program subtitle text recording system of claim 10, wherein the video playback platform is a notebook computer.

15. The video program subtitle text recording system of claim 10, wherein the standard computer text format utilized by the text format conversion module is ASCII (American Standard Code for Information Exchange).

16. The video program subtitle text recording system of claim 10, wherein the standard computer text format utilized by the text format conversion module is Unicode.

17. The video program subtitle text recording system of claim 10, further comprising:

a date/time insertion module, which is capable of inserting the value of the date/time when the subtitle text is recorded into the electronic text file.

18. The video program subtitle text recording system of claim 10, further comprising:

a translation module, which is capable of translating the contents of the recorded subtitle text from its original language into another language.