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(54) **Title:** METHOD AND DEVICE FOR PROOFREADING TEXT

(57) **Abstract:** The application provides a method (55) for proofreading text. The method (55) for proofreading text includes providing the text as data which is loaded on a computer with a display, a sensor, and an audio output. The computer further includes a current cursor position in the text. The method for proofreading text further includes a step for detecting a signal (56) from the sensor, where if the signal detected corresponds with a first pre-determined Morse signal "e" (60) the computer either starts or stops reading aloud (76) the text beginning from the cursor position, through the audio output, depending on whether the computer is in a read mode or not. The method (55) for proofreading also includes a step where if the signal detected corresponds with a second predetermined Morse signal "i" (65), the computer starts reading aloud text beginning from the end of a preceding sentence (77), through the audio output.

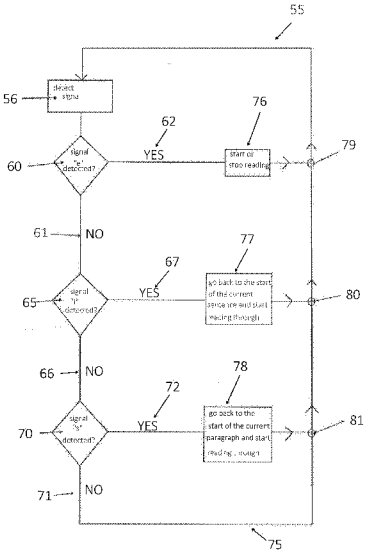

FIG. 4

WO 2018/185716 A1

METHOD AND DEVICE FOR PROOFREADING TEXT

This application relates to a method and device for proofreading text. In particular, the method involves controlling the reading aloud of the text with Morse signals.

Proofreading text traditionally involves putting two versions of a text side by side and visually checking the respective documents against each other. Another way is to have one person read aloud one version of the text while another person verifies the other version of the text.

There are available text-to-speech programs that can be used to read text documents aloud and aid in the proofreading process. This process is cumbersome for one single person.

It is an object of the application to provide an improved method and device for proofreading text.

The present application provides a method for proofreading text through a computer-implemented program.

The text that is being proofread is data that contains words and at least one end-of-sentence character. The end-of-sentence character can be a full-stop. This makes for convenient implementation of the computer program, as most of the text that needs proofreading often comes in the form of a word data file with punctuations such as full-stops in between sentences. This means that there is usually no extra step needed to process the text file before the method for proofreading text can be used.

The text data that is being proofread also contains at least one end-of-paragraph character. The end-of-paragraph character

can be a carriage return/line feed (CR/LF) sequence. This helps to make the implementation of the computer program more convenient as most of the text that needs proofreading often comes in the form of a word-processed data file with paragraphs that end with CR/LF sequence. This means that there is usually no extra step needed to process the text file before the method for proofreading text can be used.

The method for proofreading text includes a step where a computer program provides the text as data which is loaded on a computer. The computer comes with a display, a sensor, and with an audio output. The computer further provides a current cursor position in the text data. The sensor detects one or more signals on or in the vicinity of the computer. Since most of the texts that need to be proofread are usually stored or loaded on a computer, this makes the implementation of the computer program for proofreading text easy and convenient.

The cursor position provides a visual indication as to the specific word of the text which is being read or about to be read if the program is not in read mode. This helps the user to identify the part of the text that is being read when he looks up onto the text on the display of the computer.

The signal detected by the sensor can be a tapping on the housing of the computer. The tapping signal can be produced by a user with a pointer finger or with a body part or with other objects such as a pen. Recognizing tapping signals creates a simple and versatile way for a user to start using the computer program for proofreading text, as tapping can be easily done with any objects and on any surface, as long as the signal produced can be detected by the sensor.

The method for proofreading text also includes a step where, if the computer is in a "not read mode" and if the signal detected on the sensor corresponds with a first pre-determined Morse signal, e.g. "e", the program turns the computer into a read mode, where it outputs the text data through the audio output. If the computer is in a "read mode", and the first pre-determined Morse signal, e.g. "e" is detected on the sensor, the computer program turns the computer into a "not read mode", where it stops outputting the text data through the audio output.

The first pre-determined Morse signal, e.g. "e", includes a single pre-determined low frequency signal.

Morse signals are used as they are simple, short, yet very defined signals which can be easily used by the users of the method for proofreading text. With Morse signals, the user can remain focused on proofreading his document while simultaneously controlling the reading of the text by the computer. In other words, the user can do away with the hassle of looking up to the screen and using the mouse to click on a start/stop button of the proofreader program to start of stop reading the text.

The method for proofreading text also includes a step where if the signal corresponds with a second pre-determined Morse signal e.g. "i", the computer program positions the current cursor position to a position immediately after the preceding end-of-sentence character and turns the computer into a read mode, where it outputs the text data through the audio output.

The second pre-determined Morse signal e.g. "i", includes two pre-determined low frequency signals that are spaced within a

pre-determined range that is more or less equal to a pre-determined characteristic time apart from each other.

The preceding end-of-sentence character for the first sentence of the text data is the beginning of the text data. This avoids the situation where the program is unable to repeat the first sentence of the text since there is no preceding sentence for the first sentence for the command e.g. “i”, to be executed.

The method for proofreading text allows for simple Morse code commands to control the reading of the text. By simply tapping the different commands on the computer, the user can conveniently start or stop the reading of the text, or command the computer program to re-read sentences. The automated reading of the text by the computer program reduces the need for the user to manually look at the text on the computer screen when proofreading the text against another document. This effectively reduces the user’s time to complete the proofreading work.

The method for proofreading text can also include a step where if the signal detected on the sensor corresponds with a third pre-determined Morse signal, e.g. “s”, the computer program positions the current cursor position to a position immediately after the preceding end-of-paragraph character and turns the computer into a read mode, where it outputs the text data through the audio output.

The third pre-determined Morse signal, e.g. “s”, includes three pre-determined low frequency signals, wherein the three pre-determined low frequency signal peaks are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time apart from one another.

The preceding end-of-paragraph character for the first paragraph of the text data is the beginning of the text data. This avoids the situation where the program is unable to repeat the first paragraph of the text since there is no preceding paragraph for the first paragraph for the command, e.g. “s”, to be executed.

The text data that is being proofread by the program can refer to text data that is stored on the memory on a mainboard of a computer or stored elsewhere. This allows for easy access to the text files that needs to be proofread.

The method of proofreading the text data can also include a step where the computer display highlights the sentence of the text data that is being output through the audio output as the text data is being proofread by the program. This serves to visually direct the user to the sentence that is currently being read by the computer program. Once the user looks to the text on the display, he can immediately know which sentence is being read without having to search through the whole text.

The computer display can also further highlight each single word of the text data that is being output through the audio output with a box. This serves to visually direct the user to the word that is currently being read by the computer program. Once the user looks to the text on the display, he can immediately know which specific word is being read without having to search through the whole text.

The present application also provides a device that is adapted to perform the method of proofreading text data as described above. The device can include a computer with a display, with a sensor and with an audio output. The computer often has a

memory store that is located on a mainboard or located elsewhere. This simple computer device setup can be found on almost every household or workplace. This makes implementation of the method of proofreading text convenient for the user.

The audio output on the computer can be a loudspeaker, an earphone jack for connecting with a loudspeaker, or other audio output means.

The sensor on the computer can be a key of a keyboard, e.g. a space bar key, a touch pad, a microphone, an acceleration sensor, a switch, a touch-sensitive display or a mouse button. These components are common computer components. This allows the proofreading program to be implemented easily and reduces the barrier to usage the program.

The sensor can also be adapted to detect signals such as the tapping on the housing of the computer by the user with a pointed finger or with a body part or with other objects such as a pen.

The device that is adapted to perform the method of proofreading text data as described above can also include a smartphone. The smartphone often has a memory on a mainboard or elsewhere, a smartphone display, a smartphone acceleration sensor, a smartphone microphone and a smartphone audio output.

The smartphone audio output can be a loudspeaker, an earphone jack or other audio output means.

When the device includes a smartphone, the sensor can be the smartphone display. The sensor can be a part of the smartphone display, for example the area over an icon displayed on the smartphone display, or a designated area on the smartphone

display. When the sensor is the entire smartphone display, a user can easily actuate the sensor without diverting his attention towards the device.

The present application also provides a method for proofreading text through a smartphone. The smartphone is a computer that has a smartphone display, a smartphone microphone and a smartphone audio output. The smartphone display is a touch-sensitive display and acts both as a display and as a sensor. The text is provided as data which is loaded on a smartphone. The smartphone further provides a current cursor position in the text.

The smartphone display detects one or more signals from touch input on the display surface. The smartphone display can detect touch input on a specific area of the smartphone display surface only, for example above an icon displayed on the smartphone display or in a designated input area. When the smartphone display detects touch input on the entire smartphone display area or a majority of the smartphone display surface, the user can easily actuate the proofreading method without diverting his attention towards the smartphone. A majority of the smartphone display surface can for example be an entire smartphone display surface except for a soft-key navigation bar on the bottom of the smartphone display as used on Android smartphones. As another example, a majority of the smartphone display surface can be an entire smartphone display surface except for an exit button.

The signal detected by the smartphone display can be a tapping on the smartphone display. The tapping signal can be produced by a user with a pointer finger or with a body part or with other objects such as a pen. Recognizing tapping signals creates a simple and versatile way for a user to start using

the smartphone for proofreading text, as tapping can be easily done with any objects and on any surface, as long as the signal produced can be detected by the sensor.

The method for proofreading text also includes a step where, if the smartphone is in a "not read mode" and if the signal detected on the sensor corresponds with a first pre-determined Morse signal, e.g. "e", the program turns the smartphone into a read mode, where it outputs the text data through the smartphone audio output. If the smartphone is in a "read mode", and the first pre-determined Morse signal, e.g. "e" is detected on the sensor, the method turns the smartphone into a "not read mode", where it stops outputting the text data through the smartphone audio output.

The method for proofreading text also includes a step where, if the smartphone receives a character corresponding with a forth pre-determined Morse signal, e.g. "h", the smartphone switches into a speech recognition mode, if it is not in a speech recognition mode. If the smartphone is in a speech recognition mode when it receives a character corresponding with a forth pre-determined Morse signal, e.g. "h", the smartphone switches back into a proofreading mode. In a speech recognition mode, vocal input of a user is captured by a smartphone microphone. The smartphone transforms the vocal input into textual data.

A user can seamlessly make annotations during the proofreading process and return quickly to the proofreading without diverting his attention. The annotations are stored where they are needed.

The present application also provides a smartphone for proofreading text. The smartphone comprises a memory on a

mainboard, a touch-sensitive smartphone display, and a smartphone audio output. The smartphone is adapted to perform the method according to present application.

Since many users have a smartphone on them in many situations, no extra device is needed and proofreading can be done everywhere.

When the smartphone audio output is a loudspeaker, the proofreading process does not provide any hurdles, the user is unobstructed and does not need any further devices besides a smartphone.

The smartphone can further comprise a smartphone housing and be configured for detecting tapping input on at least a portion of the smartphone housing. This further simplifies the proofreading process. The user does not need to divert his attention toward the smartphone in order to tap the smartphone display.

The smartphone further comprises a smartphone microphone. Therein, the smartphone is configured to capture vocal input via the microphone for making speech annotations to the proofreading text. The microphone may also be used for sensing taps of a user.

The subject matter of the application is described in greater detail in the accompanying Figures, in which

Fig. 1 shows a computer with a human user,
Fig. 2 shows the components of the computer of Fig. 1,
Fig. 3 shows a close-up view of the display of the computer of Fig. 1,

Fig. 4 shows a flow diagram for causing text data to be read aloud by the computer of Fig. 1,

Fig. 5 shows an extended flow diagram of one routine of the flow diagram of Fig. 3,

Fig. 6 shows an amplitude diagram of a single first low frequency signal that is detected by the computer of Fig. 1,

Fig. 7 shows an amplitude diagram of two first low frequency signals that is detected by the computer of Fig. 1,

Fig. 8 shows an amplitude diagram of a second low frequency signal that is detected by the computer of Fig. 1,

Fig. 9 shows an amplitude diagram of a third low frequency signal that is detected by the computer of Fig. 1,

Fig. 10 shows a smartphone with its components,

Fig. 11A shows a smartphone for proofreading,

Fig. 11B shows a smartphone of Fig. 11A, wherein the Morse keyboard module input area is shown,

Fig. 12 shows a block diagram of a proofreading program for a smartphone.

The application now will be described more fully hereinafter with reference to the accompanying drawings, in which embodiments of the application are shown. This application may however be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the application to those skilled in the art.

In the following description, details are provided to describe the embodiments of the present application. It shall be apparent to one skilled in the art, however, that the embodiments may be practiced without such details.

Some parts of the embodiments have similar parts. The similar parts may have same names or similar part numbers. The description of one part applies by reference to another similar part, where appropriate, thereby reducing repetition of text without limiting the disclosure.

It will be understood that when an element is referred to as being "on" another element, it can be directly on the other element or intervening elements may be present therebetween. As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items.

It will be understood that, although the terms first, second, third etc. may be used herein to describe various elements, components, regions, layers, and/or sections, these elements, components, regions, layers, and/or sections should not be limited by these terms. These terms are only used to distinguish one element, component, region, layer, and/or section from another element, component, region, layer, and/or section.

It will be understood that the elements, components, regions, layers and sections depicted in the figures are not necessarily drawn to scale.

The terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting of the application. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," or "includes" and/or "including" when used in this specification, specify the presence of stated

features, regions, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, regions, integers, steps, operations, elements, components, and/or groups thereof.

Unless otherwise defined, all terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this application belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure, and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

Fig. 1 shows a laptop computer 1 with a cover 5 and a housing 10 that are movably connected with each other by a hinge 20. The laptop computer 1 is a conventional laptop type.

The cover 5 comprises a display 6 with the housing 10. The computer 1 comprises various input devices, such as a keyboard 11 with a space bar key 12, a touch pad 13, and the display 6, which is a touch-sensitive display.

The computer 1 is operated by a human being of which only an arm 26 with a pointer finger 27 can be seen.

The pointer finger 27 can operate the housing 10, the display 6, the space bar key 12, and the touch pad 13 by tipping them.

Fig. 2 shows the internal components of the laptop computer 1. The housing 10 of the laptop computer 1 comprises a mainboard with a memory 14. The computer 1 also comprises input devices

such as a sensor 15 and a microphone 17, as well as output devices such as a loudspeaker 16.

Fig. 3 shows a text 30 which is displayed on the display 6. The text 30 starts with a first paragraph 35 which has eight sentences. The first sentence of the first paragraph 35 ends with "... to receive gifts." The second sentence of the first paragraph 35 ends with "...getting is short lived". The third sentence of the first paragraph 35 ends with "...to better their lives". The fourth sentence of the first paragraph 35 ends with "...nourishes your soul". The fifth sentence of the first paragraph 35 ends with "...valuable than the gift". The sixth sentence of the first paragraph 35 ends with "...service of others". The seventh sentence of the first paragraph 35 ends with "...earthly limitations". The eighth and last sentence of the paragraph 35 ends with "... something in return."

A second paragraph 45 of text 30 starts with a first sentence that ends with "... being self-centered." The second sentence of paragraph 45 ends with "...famous example". The third sentence of paragraph 45 ends with "...to others". The fourth sentence of paragraph 45 ends with "...herself to others". The fifth sentence of paragraph 45 ends with "...and serenity". The sixth and last sentence of paragraph 45 ends with "...easier to bear".

A cursor 46 indicates a position on the text 30 where the computer 1 starts reading. When reading starts, the display 6 highlights a sentence 47, "Truly giving from the heart fills your life with joy and nourishes your soul.", which comes after the cursor 46. In Fig. 2, a word "soul" is emphasized as highlighted word 48.

As the computer 1 reads through the text 30, it emphasizes the highlighted sentence 47 and each highlighted word 48 that is currently being read. The read text is output as audible voice sound through the loudspeaker of the computer 1.

Fig. 4 shows a loop structure 55 for causing text 30 to be read aloud through the loudspeaker of the computer 1. The loop structure 55 comprises a detection step 56 which will lead to a first decision 60 or a second decision 65 or a third decision 70 being made, depending on the type of signal detected.

A back loop path 75 leads back to the detection step 56 from the outcome of each of the first decision 60, the second decision 65 and the third decision 70, and completes the loop structure 55.

When at the first decision 60, there will be a No path 61 and a Yes path 62. When a pre-determined signal is detected by the computer 1 at the first decision 60, the Yes path 62 will be activated. When activated, the Yes path 62 will trigger the computer 1 to activate a Start or stop reading step 76. When the Start or stop reading step 76 is activated, the computer 1 either stop or start reading the text 30 aloud, depending on whether the computer 1 is in read mode or not, or vice versa. Upon completion of the Start or stop reading step 76, the Yes path 62 will continue into a collection point which leads into the back loop path 75.

In the present embodiment, the pre-determined signal is a signal which is also known as the Morse signal for the letter “e”, a sharp single peak, which is caused by a fast single tip of the pointer finger 27 on the housing 10.

When no pre-determined signal is detected by the computer 1 at the first decision 60, the No path 61 will be activated. The No path 61 will then lead to the second decision 65 being made.

When at the second decision 65, there will be a No path 66 and a Yes path 67. When two pre-determined signals that are spaced less than a pre-determined threshold time apart from each other are detected by the computer 1 at the second decision 65, the Yes path 67 will be activated. When activated, the Yes path 67 will trigger a Go back to start of current sentence step 77. The Go back to start of current sentence step 77, when triggered, causes the cursor 46 to go back to the start of the current sentence and the computer 1 to start reading through the same sentence. Upon completion of the Go back to start of current sentence step 77, the Yes path 67 will continue into a collection point which leads into the back loop path 75.

In the present embodiment, the two pre-determined signals that are spaced less than a pre-determined threshold time apart from each other are signals which are also known as the Morse signal for the letter “i”, which comprises two consecutive sharp peaks, which are caused by a fast double tip of the pointer finger 27 on the housing 10.

When no pre-determined signal is detected by the computer 1 at the second decision 65, the No path 66 will be activated. The No path 66 will then lead to a third decision 70 being made.

When at the third decision 70, there will be a No path 71 and a Yes path 72. When three pre-determined signals that are spaced less than a pre-determined threshold time apart from one another are detected by the computer 1 at the third

decision 70, the Yes path 72 will be activated. When activated, the Yes path 72 will trigger a Go back to start of current paragraph step 78. The Go back to start of current paragraph step 78, when triggered, causes the cursor 46 to go back to the start of the current paragraph and the computer 1 to start reading through from the start of the current paragraph. Upon completion of the Go back to start of current paragraph step 78, the Yes path 72 will continue into a collection point which leads into the back loop path 75.

In the present embodiment, the three pre-determined signals that are spaced less than a pre-determined threshold time apart from one another are signals which are also known as the Morse signal for the letter "s", which comprises three consecutive sharp peaks, which are caused by a fast triple tip of the pointer finger 27 on the housing 10.

When no pre-determined signal is detected by the computer 1 at the third decision 70, the No path 71 will be activated. The No path will then continue onto the back loop path 75.

The time for carrying out the loop structure 55 must be less than the threshold time between two peaks (for example, at 1/1000th of the threshold time), otherwise the detection step 56 may be unreliable.

Fig. 5 shows the Start or stop reading step 76 in greater detail. When the Yes path 62 is triggered, the computer 1 leads into a decision 90. When at decision 90, there will be a No path 91 and a Yes path 92. When the Yes path 62 is triggered - which means that a pre-determined signal "e" has been detected - and if the program is currently in the read mode, the Yes path 92 is activated. When the Yes path 92 is activated, the computer 1 will initiate a Stop reading step

105, which causes the computer 1 to stop reading the text 30. Upon completion of the Stop reading step 105, the Yes path 92 continues into a collection point 100, which leads to the back loop path 75.

When the Yes path 62 is triggered - which means that a pre-determined signal "e" has been detected - and if the program is currently not in the read mode, the No path 91 is activated. When the No path 91 is activated, the computer 1 will initiate a Start reading step 95, which causes the computer 1 to start reading the text 30 from the position of the cursor 46. Upon completion of the Start reading step 95, the No path 91 continues into the collection point 100, which leads to the back loop path 75.

Fig 6. shows a general representation of a signal which is recorded by the computer 1. The diagram of Fig. 6 comprises an x-axis for the time and y y-axis for the amplitude of the recorded signal. The recorded signal has a 1st peak 115, which is detected by the computer 1 by evaluating the signal-to-noise level of the amplitude.

When a pre-determined signal-to-noise level is exceeded and if it immediately afterwards falls below that level, the computer 1 will detect a peak of the amplitude. In other words, there is a pre-determined threshold for discerning an amplitude peak from noise, which is not seen here.

When the single 1st peak 115 is recorded, the measurement of Fig. 6 is interpreted as a single pre-determined signal "e".

The recorded signal can be from any one of the input devices of the computer 1.

Fig 7. shows a recorded signal has the 1st peak 115 and a 2nd peak 116. The recorded signal of Fig. 7 is detected by the computer 1 by evaluating the signal-to-noise level of the amplitude.

The computer 1 further determines a time difference tN between detecting the 1st peak 115 and detecting the 2nd peak 116.

If the time difference tN between the 1st peak 115 and the 2nd peak 116 is less than a pre-determined time value tCHAR, the measurement of Fig. 7 is interpreted as one single pre-determined signal "i", while if the time difference tN between the 1st peak 115 and the 2nd peak is more than a pre-determined time value tCHAR, the measurement of Fig. 7 is interpreted as two consecutive pre-determined signals "e".

Recorded signal can be from any one of the input devices of the computer 1, and the pre-determined time value tCHAR can be altered by a user of the computer 1, for example by training the computer 1 in a training mode which is not shown here.

Fig. 8 shows a recorded signal with a 1st peak 120 and a 2nd peak 121. The recorded signal of Fig. 8 is detected by the computer 1 by evaluating the signal-to-noise level of the amplitude. The 1st peak 120 and the 2nd peak 121 are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time tCHAR apart from each other. This is interpreted as one single pre-determined signal "i".

The pre-determined range for detection of tCHAR can be altered by a user of the computer 1, for example by training the computer 1 in a training mode which is not shown here. There is also a pre-determined time range of tolerance defined

around each detected peak, so that there is a little leeway for user inputs that are time-wise not absolutely constant. The pre-determined time range of tolerance defined around each detected peak can also be altered by the user of the computer 1.

If the time space between the 1st peak 120 and the 2nd peak 121 is shorter than the pre-determined range for detection of tCHAR, the measurement of Fig. 8 will be interpreted as two consecutive pre-determined signals "e".

If the time space between the 1st peak 120 and the 2nd peak 121 is longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 8 will be interpreted as an error and it will be ignored. In an alternative embodiment which is not shown here, if the time space between the 1st peak 120 and the 2nd peak 121 is longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 8 will be interpreted as one pre-determined signal "e".

Fig. 9 shows a recorded signal with a 1st peak 125, a 2nd peak 126 and a 3rd peak 127. The recorded signal of Fig. 7 is detected by the computer 1 by evaluating the signal-to-noise level of the amplitude. The 1st peak 125, the 2nd peak 126 and the 3rd peak 127 are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time tCHAR apart from one another. This is interpreted as one single pre-determined signal "s".

The pre-determined range for detection of tCHAR can be altered by a user of the computer 1, for example by training the computer 1 in a training mode which is not shown here. There is also a pre-determined time range of tolerance defined around each detected peak, so that there is a little leeway

for user inputs that are time-wise not absolutely constant. The pre-determined time range of tolerance defined around each detected peak can also be altered by the user of the computer 1.

If the time space between the 1st peak 125 and the 2nd peak 126 is within the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and the 3rd peak 127 is shorter than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as one pre-determined signal "i", followed by one pre-determined signal “e”.

If the time space between the 1st peak 125 and the 2nd peak 126 is within the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and the 3rd peak 127 is longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as one pre-determined signal "i", followed by an error which will be ignored.

In an alternative embodiment which is not shown here, if the time space between the 1st peak 125 and the 2nd peak 126 is within the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and the 3rd peak 127 is longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as one pre-determined signal "i", followed by one pre-determined signal “e”.

If the time space between the 1st peak 125 and the 2nd peak 126 is shorter than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and the 3rd peak 127 are spaced within the pre-determined range for

detection of tCHAR, the measurement of Fig. 9 will be interpreted as one pre-determined signal "e", followed by one pre-determined signal “i”.

If the time spaces between the 1st peak 125 and the 2nd peak 126, and between the 2nd peak 126 and the 3rd peak 127 is shorter than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as three consecutive pre-determined signals "e".

If the time space between the 1st peak 125 and the 2nd peak 126 is shorter than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and the 3rd peak 127 is longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as an error and it will be ignored.

In an alternative embodiment which is not shown here, if the time space between the 1st peak 125 and the 2nd peak 126 is shorter than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and 3rd peak 127 is longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as two pre-determined signals "e", followed by one pre-determined signal “e”.

In an alternative embodiment which is not shown here, if the time space between the 1st peak 125 and the 2nd peak 126 is shorter than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and 3rd peak 127 is longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as two pre-determined signals "e", followed by an error which will be ignored.

If the time space between the 1st peak 125 and the 2nd peak 126 is longer than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and 3rd peak 127 is within the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as an error and it will be ignored.

In an alternative embodiment which is not shown here, if the time space between the 1st peak 125 and the 2nd peak 126 is longer than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and 3rd peak 127 is within the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as one pre-determined signal “e”, followed by one pre-determined signal “i”.

If the time space between the 1st peak 125 and the 2nd peak 126 is longer than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and the 3rd peak 127 is shorter than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as an error and it will be ignored.

In an alternative embodiment which is not shown here, if the time space between the 1st peak 125 and the 2nd peak 126 is longer than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and 3rd peak 127 is shorter than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as three pre-determined signals “e”.

In an alternative embodiment which is not shown here, if the time space between the 1st peak 125 and the 2nd peak 126 is

longer than the pre-determined range for detection of tCHAR, but the time space between the 2nd peak 126 and 3rd peak 127 is shorter than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as two pre-determined signals “e”.

If the time spaces between the 1st peak 125 and the 2nd peak 126, and between the 2nd peak 126 and the 3rd peak 127, are longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as an error and it will be ignored.

In an alternative embodiment which is not shown here, if the time spaces between the 1st peak 125 and the 2nd peak 126, and between the 2nd peak 126 and the 3rd peak 127, are longer than the pre-determined range for detection of tCHAR, the measurement of Fig. 9 will be interpreted as one pre-determined signal "e" or two pre-determined signals “e” or three pre-determined signals “e”.

Fig. 10 shows a smartphone 128 comprising a smartphone display 130, which displays the text 30. The smartphone is a computer 1 with a display 6 and a sensor 15. The smartphone display 130 is a touch-sensitive display. Therefore, the smartphone display 130 comprises both a display 6 and a sensor 15 as described before.

The smartphone 128 also comprises various input devices such as a smartphone microphone 129 and a smartphone acceleration sensor 131, as well as output devices such as a smartphone audio output 132. The smartphone audio output 132 is a loudspeaker.
After starting the proofreader program in an initial state not shown here, the text 30 is loaded into the memory on the

mainboard 14 of the computer 1, and the cursor 46 sits right before the first word of the first sentence of the first paragraph 35. The computer 1 is at detection step 56, waiting for a command from the user 25. Then the user 25 enters a command "e" by tapping the housing 10 of the computer 1 with his pointer finger 27 once, so that the sensor 15 in computer 1, as shown in Fig. 2, detects, in detection step 56 of Fig. 4, a single amplitude peak as shown in Fig. 6. Then the proofreader program enters the yes path 62 in Fig. 4 and turns the computer 1 into the read mode, where it reads aloud the first word of the first sentence after the cursor 46, through the loudspeaker 16: "We all know how great it feels to receive gifts." The turning on of the read mode is shown in Fig. 5, where the proofreader program detects that the computer 1 is not in the read mode (step 90) and follows the no path 91 to initiate the “start reading” step 95. At the same time, the display 6 highlights the first sentence that is being read aloud, which is not shown here. The display 6 also highlights each single word that is currently being read aloud in the highlighted sentence, with a box. From there, the proofreader program then enters into the collection point 100 and then collection point 79, which leads to the back loop path 75 in Fig. 4 and back into the detection step 56 in Fig. 4, where it waits for a new command.

After having read the first sentence of text 30, the proofreader program continues on to read the second sentence, the third sentence, and then the fourth sentence 47 in the same way as the first sentence: "However, the joy of getting is short-lived. Our lives are richer when we share, and that great inner joy comes from helping others to better their lives. Truly giving from the heart fills your life with joy and nourishes your soul."

Fig. 3 shows a state of the computer 1 just when the proofreader program reads the last word "soul" of the fourth sentence 47, "Truly giving from the heart fills your life with joy and nourishes your soul." One can see that the fourth sentence 47 is highlighted and that the word 48 "soul" is surrounded by a box which highlights it.

At this time, the user 25 enters a command "i" by tapping the housing 10 of the computer 1 with his pointer finger 27 twice, so that the sensor 15 in computer 1, as shown in Fig. 2, detects, in detection step 56 of Fig. 4, a double amplitude peak as shown in Fig. 8. Then the proofreader program enters into the decision step 60, the no path 61, the decision step 65 and then the yes path 67, as shown in Fig. 4, which moves the cursor 46 back to the start of the highlighted fourth sentence 47, “Truly giving from the heart fills your life with joy and nourishes your soul", in step 77. The program then starts reading through the text 30 again starting from the word “Truly”. From there, the proofreader program then enters into the collection point 80 which leads to the back loop path 75 and back into the detection step 56, where it waits for a new command.

As the proofreader program reads the word “soul” and highlights the word with a box, the user 25 enters another command “s” by tapping the housing 10 of the computer 1 with his pointer finger 27 thrice, so that the sensor 15 in computer 1, as shown in Fig. 2, detects, in detection step 56 of Fig. 4, a triple amplitude peak as shown in Fig. 9. Then the proofreader program enters into the decision step 60, the no path 61, the decision step 65, the no path 66, the decision step 70 and then the yes path 72, as shown in Fig. 4, which moves the cursor 46 back to the start of the first paragraph 35, “We all know how great it feels to receive gifts", in step

78. The program then starts reading through the text 30 again starting from the word “We” in the first sentence of the first paragraph 35. From there, the proofreader program then enters into the collection point 81 which leads to the back loop path 75 and back into the detection step 56, where it waits for a new command.

When no new commands are given and detected at the detection step 56 in Fig. 4, the proofreader program enters into the decision step 60, the no path 61, the decision step 65, the no path 66, the decision step 70, the no step 71, and then the back loop path 75 which leads back to the detection step 56, where the loop cycle repeats again until a new command is detected in decision step 56.

In an alternative embodiment, the above operation of the proofreader program can also be performed on a smartphone 128, as shown in Fig. 10.

Similar to the operation on computer 1, after starting the proofreader program on the smartphone 128 in an initial state not shown here, the text 30 is loaded into the memory on the mainboard of the smartphone 128, and the cursor 46 sits right before the first word of the first sentence of the first paragraph. The text 30 is then displayed on the smartphone display 130. The smartphone 130 is at the detection step 56 as shown in Fig. 4, waiting for a command from the user 25. When the user 25 enters a command "e" on the smartphone 128 by tapping the smartphone housing 133 with his pointer finger 27 once, the smartphone sensor 131 detects, in detection step 56 of Fig. 4, a single amplitude peak as shown in Fig. 6. Then the proofreader program enters the yes path 62 in Fig. 4 and turns the smartphone 128 into the read mode, where it reads aloud the first word of the 1st sentence after the cursor 46,

through the smartphone loudspeaker 132: "We all know how great it feels to receive gifts." The turning on of the read mode is shown in Fig. 5, where the proof reader program detects that the smartphone 128 is not in the read mode (step 90) and follows the no path 91 to initiate the “start reading” step 95. At the same time, the smartphone display 130 highlights the first sentence that is being read aloud, which is not shown here. The smartphone display 130 also highlights each single word that is currently being read aloud in the highlighted sentence, with a box. From there, the proofreader program then enters into the collection point 100 and then collection point 79, which leads to the back loop path 75 and back into the detection step 56 in Fig. 4, where it waits for a new command.

After having read the first sentence of text 30, the proofreader program on the smartphone 128 continues on to read the second sentence, the third sentence, and then the fourth sentence 47 in the same way as the first sentence: "However, the joy of getting is short-lived. Our lives are richer when we share, and that great inner joy comes from helping others to better their lives. Truly giving from the heart fills your life with joy and nourishes your soul."

Similar to the operation on computer 1, when the user 25 enters a command "i" on the smartphone 128 by tapping the smartphone housing 133 with his pointer finger 27 twice, so that the smartphone sensor 131, detects, in detection step 56 of Fig. 4, a double amplitude peak as shown in Fig. 8. Then the proofreader program enters into the decision step 60, the no path 61, the decision step 65 and then the yes path 67, as shown in Fig. 4, which moves the cursor 46 back to the start of the highlighted fourth sentence 47, “Truly giving from the heart fills your life with joy and nourishes your soul", in

step 77. The program then starts reading through the text 30 again starting from the word “Truly”. From there, the proofreader program then enters into the collection point 80 which leads to the back loop path 75 and back into the detection step 56, where it waits for a new command.

As the proofreader program of the smartphone 128 reads the word “soul” and highlights the word with a box, the user 25 enters another command “s” on the smartphone 128 by tapping the smartphone housing 133 with his pointer finger 27 thrice, so that the smartphone sensor 131 detects, in detection step 56 of Fig. 4, a triple amplitude peak as shown in Fig. 9. Then the proofreader program enters into the decision step 60, the no path 61, the decision step 65, the no path 66, the decision step 70 and then the yes path 72, as shown in Fig. 4, which moves the cursor 46 back to the start of the first paragraph 35, “We all know how great it feels to receive gifts", in step 78. The program then starts reading through the text 30 again starting from the word “We” in the first sentence of the first paragraph 35. From there, the proofreader program then enters into the collection point 81 which leads to the back loop path 75 and back into the detection step 56, where it waits for a new command.

When no new commands are given and detected on the smartphone 128 at the detection step 56 in Fig. 4, the proofreader program enters into the decision step 60, the no path 61, the decision step 65, the no path 66, the decision step 70, the no step 71, and then the back loop path 75 which leads back to the detection step 56, where the loop cycle repeats again until a new command is detected in decision step 56.

Fig. 11A shows a smartphone 128 comprising a touch-sensitive smartphone display 130, which displays the text 30.

After starting the proofreader program in an initial state not shown here, the user is prompted to install a Morse keyboard module. For example, the user can be prompted to install a Morse keyboard module by providing a link to a Morse keyboard application in an app store. Alternatively, the user can be prompted to install a Morse keyboard application included in the proofreader program package. Further alternatively, the user can be prompted to install a Morse keyboard module of his choice. The method can comprise checking, whether a Morse keyboard module is already installed, and displaying a prompt only if no Morse keyboard module is installed yet, or only if a particular Morse keyboard module is not installed yet. By prompting a user to install a Morse keyboard module on his smartphone 128, the proofreader program can be programmed more easily. In particular, the proofreader program need not comprise a dedicated Morse signal recognition process but can rather rely on the characters provided by the Morse keyboard module. Therein, the Morse keyboard module generates characters from Morse signals provided by the user. Further, by prompting a user to install a Morse keyboard module, the proofreader program can be more reliable, since the Morse signal recognition process is delegated to a specialized program.

After a text 30 is loaded into the proofreader program, a Morse keyboard module input area is hidden from the user. Thus, the user can comfortably position a cursor in the text 30 by tapping inside the text 30 view displayed in the proofreader program.

Fig. 11B shows the smartphone 128 of Fig. 11A. Therein, the Morse keyboard module input area 134 is shown to the user once the user taps outside the text 30 view.

In another embodiment, which is not depicted in the figures, the Morse keyboard module input area 134 can be shown to the user once the user taps a start/stop button to initiate proofreading. This can be alternatively or additionally to showing the keyboard module input area 134 once the user taps outside the text 30 view.

By hiding the Morse keyboard module input area 134 initially and showing the Morse keyboard module input area 134 upon tapping outside the text 30 view or tapping a start/stop button, the user can profit from the entire available screen real estate for positioning a cursor in a text 30 loaded into the proofreading program, and profit from the Morse keyboard module as soon as he can make use of it.

The Morse keyboard module accepts a sequence of one or more taps by a user onto the smartphone display 130, identifies a Morse signal in the tap sequence and converts the Morse signal to a character. Therein, the smartphone display 130 preferably is a capacitive touch display. In this case, the user can tap the display in a designated Morse keyboard module input area 134 with his finger. Alternatively, the smartphone display 130 can be any other touch screen, for example a resistive touch screen, an optical touch screen or an inductive touch screen.

Fig. 12 shows a block diagram of a proofreading program 135 for a smartphone 128.

The smartphone 128 comprises a touch screen display 130 and a housing 133. The smartphone 128 is a personal information handling device, which can also be a tablet computer, an

organizer, a media player or another computing device comprising a touch screen display, a microphone and a housing.

A Morse keyboard module 136 accepts touch taps from the touch screen display 130 of the smartphone 128, identifies Morse signals in the touch taps, converts the Morse signals into characters, and sends the characters to a control program 137. The Morse keyboard module 136 can be a module of the proofreading program 135, or a separate program on the same device. Additionally, the Morse keyboard module 136 can accept different Morse signal input described herein, for example audio Morse signals provided by taps on a table, acceleration Morse signals provided by taps on a housing 133, or Morse signals provided by presses on a key, a switch, or a button.

The Morse keyboard module 136 converts a second pre-determined Morse signal comprising two pre-determined low frequency signals that are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time apart from each other, into a second character, e.g. “i”.

The Morse keyboard module 136 converts a third pre-determined Morse signal comprising three pre-determined low frequency signals, wherein the three pre-determined low frequency signal peaks are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time apart from one another, into a third character, e.g. “s”.

The Morse keyboard module 136 converts a forth pre-determined Morse signal comprising four pre-determined low frequency signals, wherein the four pre-determined low frequency signal peaks are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time apart from one another, into a forth character, e.g. “h”.

The Morse keyboard module 136 converts a fifth pre-determined Morse signal comprising five pre-determined low frequency signals, wherein the five pre-determined low frequency signal peaks are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time apart from one another, into a fifth character, e.g. “5”.

A text module 138 loads a text 30 for proofreading. The text module 138 can be a component of the proofreading application. Text from other applications or from the clipboard can be loaded into the text module 138 for proofreading. The text module 138 can also comprise text editing features. By providing text editing features in a text module 138 component of the proofreading application, the user can write, dictate, or edit the text 30 from within the text module 138, thus accelerating the proofreading process.

Alternatively or additionally, the text module 138 can be a separate application. For example, the text module 138 can be a word processor, a notes application, an eBook reader, an email application, or any other application used to generate, consume, process, or exchange text. The text module comprises a cursor 46, which can be positioned by a user to designate a start point for the reading output, and which is positioned by the proofreader program to indicate which words are being output by the proofreader program at any given moment.

The control module 137 performs the method shown in Fig. 4 in conjunction with Fig. 5. If the control module 137 receives a character corresponding with a first predetermined Morse signal, e.g. “e”, and the program is not in read mode, the control module 137 starts the audio output of reading a text, which has been loaded into the text module. If the control

module 137 receives a character "e" and the program is in read mode, it stops the audio output and the cursor position.

If the control module 137 receives a character corresponding with a second predetermined Morse signal, e.g. "i", the control module 137 positions the current cursor position to a position immediately after the preceding end-of-sentence character and turns the control module 137 into a read mode, where it outputs the text data through the audio output.

If the control module 137 receives a character corresponding with a third predetermined Morse signal, e.g. "s", the control module 137 positions the current cursor position to a position immediately after the preceding end-of-paragraph character and turns the control module 137 into a read mode, where it outputs the text data through the audio output.

The control module 137 utilizes API functions provided by the smartphone 128 for speech synthesizing. On a smartphone running the iOS operating system, the control module 137 initiates the class 'AVSpeechSynthesizer' for outputting audio synthesized from text data, i.e. reading text data. The control module 137 calls the function 'speak' to initiate audio output, the function 'pauseSpeaking' to pause the audio output, and the function 'AVSpeechSynthesizerDelegate' to track the audio output.

If the control module 137 receives a character corresponding with a forth pre-determined Morse signal, e.g. "h", the control module 137 switches the computer, or the smartphone into a speech recognition mode, if it is not in a speech recognition mode. In a speech recognition mode, vocal input of a user is captured by a smartphone microphone 129. The smartphone transforms the vocal input into textual data.

The textual data is input into the proofreading text as an annotation, for example as a comment in a word file, as a comment in a pdf file, or in brackets in a text file.

When the textual data is input into the proofreading text, remarks which come to mind during proofreading can quickly and seamlessly be kept together with the original text for later reference. For example, such remarks can be useful when re-editing the text at a later point in time.

In another example, the textual data is input into a note application, for example into an Evernote note or a Google Keep note. The note can comprise a reference to the text, for example a citation of the sentence the cursor is positioned in, a citation of the paragraph the cursor is positioned in, or a link to the text data the cursor is positioned in.

Inputting the textual data into a note application can facilitate collection of all remarks in one location, for example when researching something across multiple texts. Further, when the textual data is input into a note application, it will likely be available a long period of time, for example one year, after the proofreading process.

The control module 137 utilizes API functions provided by the smartphone 128 for speech recognition. For example, the iOS Speech API allows recognizing live and pre-recorded audio speech. The control module 137 calls the function 'requestAuthorization' to request the user's permission for speech recognition. The control module 137 initiates the class 'SFSpeechAudioBufferRecognitionRequest' to recognize live audio or in-memory content. The captured vocal input is sent to a speech recognition server for processing. Vocal input is

recognized incrementally, so the class may pass text data back to the control module 137 more than once. The annotation is only closed once all text data has been received from the Speech API.

Using API functions for speech recognition makes it easy to implement speech recognition with a high quality.

Different speech recognition mechanisms can be used, for example in order to be independent of network availability.

If the control module 137 receives a character corresponding with a forth pre-determined Morse signal, e.g. "h", the control module 137 switches the computer, or the smartphone back into a proofreading mode, if it is in a speech recognition mode. The proofreading mode is the mode described above, wherein the smartphone 128 is either in a "read mode" outputting audio or in a "not read mode" waiting for a signal for outputting audio. Switching the smartphone 128 back to proofreading mode sets the smartphone 128 to "read mode", wherein the smartphone 128 outputs audio starting at the cursor position. In an alternative embodiment which is not shown here, switching the smartphone 128 back to proofreading mode sets the smartphone to "not read mode", wherein the smartphone 128 is ready to receive a further signal as described above. In another alternative embodiment which is not shown here, switching the smartphone 128 back to proofreading mode sets the smartphone to "read mode" or "ton read mode", either of which was activated before the speech recognition mode has been engaged.

A user can seamlessly make an annotation via speech input and proceed with the proofreading process quickly.

In another embodiment which is not shown here, a method for proofreading comprises a different action in reaction to receiving a forth pre-determined Morse signal, e.g. “h”. In reaction to receiving the forth pre-determined Morse signal, the method comprises positioning the current cursor position to a position immediately after the end-of-paragraph character preceding the preceding end-of-paragraph character and turning a computer, or a smartphone, into a read mode, where it outputs the text data through the audio output.

If the method is executed by a program on a computer as described in this application, it would comprise the following: if a signal received on a sensor corresponds with a forth pre-determined Morse signal, e.g. “h”, the program positions the current cursor position to a position immediately after the end-of-paragraph character preceding the preceding end-of-paragraph character and turns the computer 1 into a read mode, where it outputs the text data through the audio output.

For example, if the method is executed by a control module 137 on a smartphone as described in this application, it would comprise the following: if a control module 137 of a smartphone receives the forth pre-determined Morse signal, the control module 137 positions the current cursor position to a position immediately after the end-of-paragraph character preceding the preceding end-of-paragraph character and turns the smartphone 128 into a read mode, where it outputs the text data through the audio output.

The method comprises a further step. In reaction to receiving the fifth pre-determined Morse signal, e.g. “5”, the method comprises positioning the current cursor position to the beginning of the text data and turning a computer, or a

smartphone, into a read mode, where it outputs the text data through the audio output.

The method further comprises receiving, from a user, a set of preferences. Therein, a user specifies which reaction is assigned to a first pre-determined Morse signal, a second pre-determined Morse signal, a third pre-determined Morse signal, a fourth pre-determined Morse signal, and a fifth pre-determined Morse signal, respectively. A user assigns one of the actions described herein to each or only to some of the pre-determined Morse signals. If a user assigns one of the actions described herein only to some of the pre-determined Morse signals, the risk of mis-interpretation of a user input it reduced.

In another embodiment which is not shown here, the smartphone audio output 132 is an interface for outputting audio via the smartphone. Examples for such an interface are a 3.5 mm audio jack, an RCA audio connector, a Bluetooth audio interface, a Lightning audio interface, a USB audio interface, a TOSLINK audio interface. An analog audio interface or a digital audio interface in connection with a sound transducer can serve as a smartphone audio output 132. The sound transducer may be a loudspeaker, a headphone, or a bone conduction headphone.

In an alternative embodiment which is not shown here, the method for proofreading text also comprises presenting advertisements alongside the text view of the proofreading program to the user. Therein, text advertisements, image advertisements, or animated advertisements, in particular looping video advertisements, can be presented. By presenting advertisements, the proofreading program can be cheaper to the user. For example, a free version of the proofreading program can be offered featuring advertisements, in contrast to a paid

version of the proofreading program without advertisements. By presenting advertisements alongside the text view, the user is not disturbed in the proofreading process, while the advertisements are still prominently displayed to the user each time he looks at the text.

In another embodiment not shown in the figures, the user is presented audio advertisements intermitting the proofreading process. By presenting audio advertisements to the user, the advertisements are very effective since the user is focused on the audio output of the device and can hardly ignore the advertisements. Further, the advertisements need not disrupt the user's workflow, since the proofreading program can seamlessly continue the proofreading after an advertisement is finished.

Reference numbers

1	computer
5	cover
6	display
10	housing
11	keyboard
12	space bar key
13	touch pad
14	mainboard with memory
15	sensor
16	audio output
17	microphone
20	hinge
26	arm
27	pointer finger
30	text
35	first paragraph
45	second paragraph
46	cursor
47	highlighted sentence “truly giving from the heart fills your life with joy and nourishes your soul.”
48	highlighted word “soul”
55	loop structure
56	detection step
60	decision step
61	no path
62	yes path
65	decision step
66	no path
67	yes path
70	decision step
75	back loop path
76	start or stop reading step

77 go back to start of current sentence step
78 go back to start of current paragraph step
79 collection point
80 collection point
81 collection point
90 decision step
91 no path
92 yes path
95 start reading step
100 collection point
105 stop reading step
115 first peak
116 second peak
120 first peak
121 second peak
125 first peak
126 second peak
127 third peak
128 smartphone
129 smartphone microphone
130 smartphone display
131 smartphone acceleration sensor
132 smartphone audio output
133 smartphone housing
134 Morse keyboard module input area
135 proofreading program
136 Morse keyboard module
137 text module
138 control module

CLAIMS

1. A method for proofreading text (30), which contains words and at least one end-of-sentence character, the method comprising:
   - providing the text (30) as data which is loaded on a smartphone (128) with a touch-sensitive smartphone display (130), and with a smartphone audio output (132), the smartphone (128) further providing a current cursor position in the text (30),
   - detecting a signal from the smartphone display (130), wherein
   - if the signal corresponds with a first pre-determined Morse signal (“e”), turning the smartphone (128) into a read mode, where it outputs the text (30) through the smartphone audio output (132), if the smartphone (128) is in a “not read mode”, or turning the smartphone (128) into a not read mode, where it stops outputting the text (30) through the smartphone audio output (132), if the smartphone (128) is in a “read mode”,
   - if the signal corresponds with a second pre-determined Morse signal (“i”), positioning the current cursor position to a position immediately after the preceding end-of-sentence character and turning the smartphone (128) into a read mode, where it outputs the text (30) through the smartphone audio output (132).

2. The method of claim 1, wherein the text comprises at least one end-of-paragraph character, the method further comprising the following step:

- if the signal corresponds with a third pre-determined Morse signal (“s”), positioning the current cursor position to a position immediately after the preceding end-of-paragraph character and turning the smartphone (128) into a read mode, where it outputs the text (30) through the smartphone audio output (132).

3. The method of claim 1, where in the text (30) is stored on a memory of the smartphone (128).

4. The method of claim 1, wherein the smartphone display (130) highlights the sentence of the text (30) that is being output through the audio output.

5. The method of claim 1, wherein the smartphone display (130) further highlights with a box, each single word of the text (30) that is being output through the audio output.

6. The method of claim 1, wherein the first pre-determined Morse signal (“e”) comprises a single pre-determined low frequency signal.

7. The method of claim 1, wherein the second pre-determined Morse signal (“i”) comprises two pre-determined low frequency signals that are spaced within a pre-determined range that is more or less equal to a pre-determined characteristic time apart from each other.

8. The method of claim 2, wherein the third pre-determined Morse signal (“s”) comprises three pre-determined low frequency signals, wherein the three pre-determined low frequency signal peaks are spaced within a pre-determined

range that is more or less equal to a pre-determined characteristic time apart from one another.

9. The method of any one of claims 1 to 8, wherein the detecting of a signal from the smartphone display (130) comprises detecting a touch input anywhere on the smartphone display.

10. The method of any one of claims 1 to 9, wherein the detecting of a signal from the smartphone display (130) comprises detecting a tapping input on at least a portion of a smartphone housing (133) of the smartphone (128).

11. The method of any one of claims 1 to 10, the method further comprising the following step:
- if the signal corresponds with a fourth pre-determined Morse signal ("h"), switching the smartphone (128) into a speech recognition mode, if it is not in a speech recognition mode, and switching the smartphone back into a proofreading mode, if it is in a speech recognition mode.

12. A smartphone for proofreading text (30), the smartphone comprising a memory on a mainboard, a touch-sensitive smartphone display (130), and a smartphone audio output (132), wherein the smartphone is adapted to perform the method according to one of the preceding claims.

13. The smartphone of claim 12, wherein the smartphone audio output (132) is a loudspeaker.

14. The smartphone of claim 12 or claim 13, wherein the smartphone (128) further comprises a smartphone housing

(133) and wherein the smartphone (128) is configured for detecting tapping input on at least a portion of the smartphone housing (133).

15. The smartphone of any of the claims 12 to 14, wherein the smartphone (128) further comprises a smartphone microphone (129) and wherein the smartphone is configured to capture vocal input via the microphone (129).

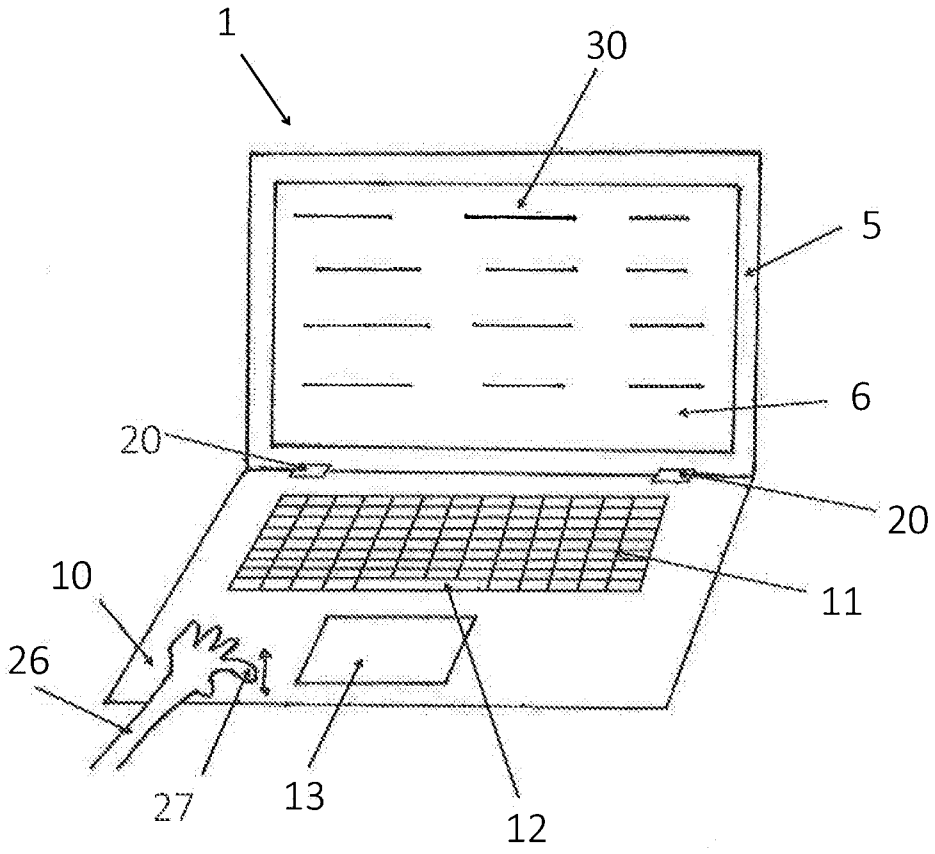

FIG. 1

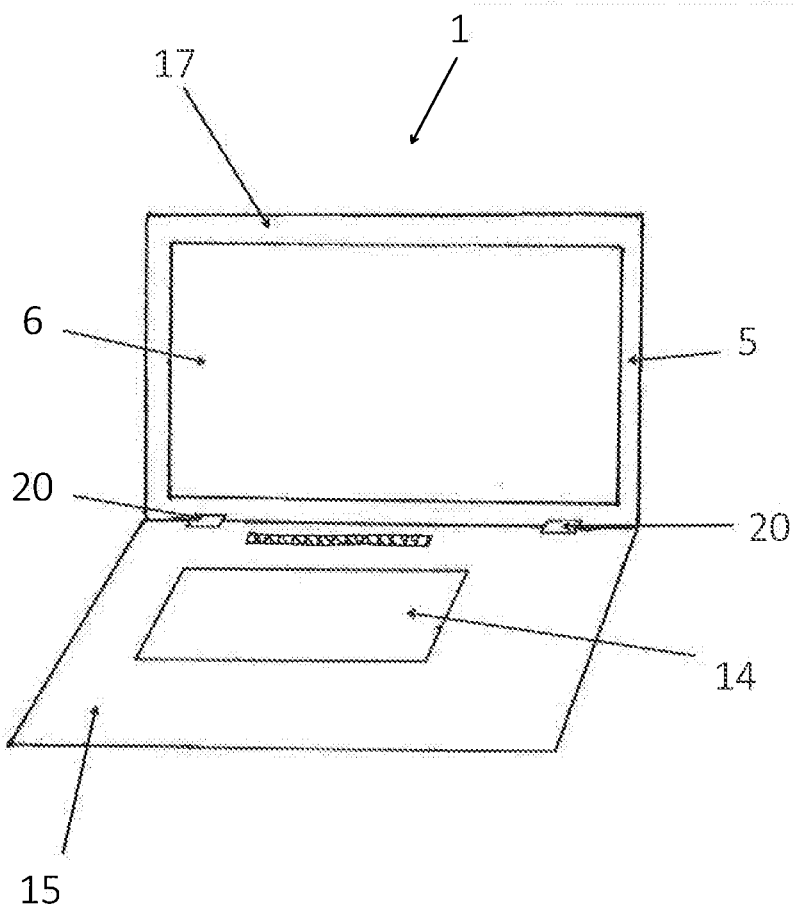

FIG. 2

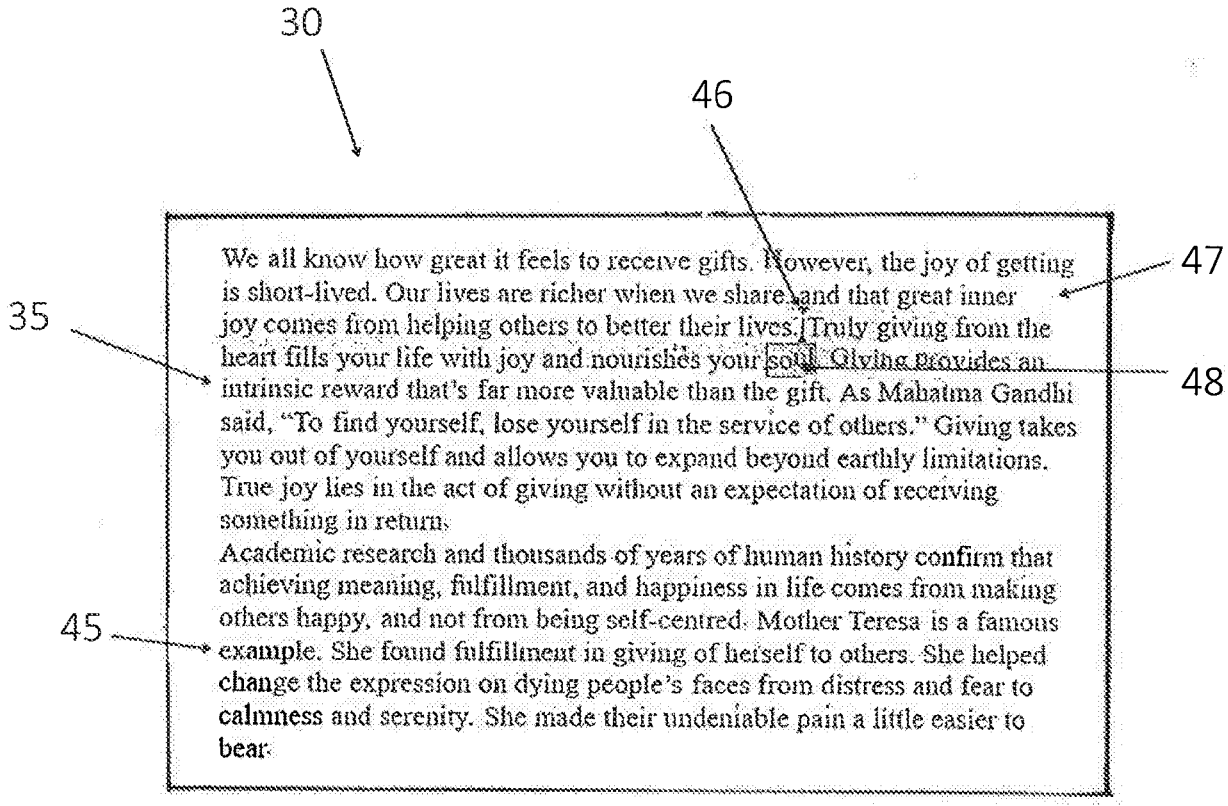
30
46
47
35
48
45
We all know how great it feels to receive gifts. However, the joy of getting is short-lived. Our lives are richer when we share, and that great inner joy comes from helping others to better their lives. Truly giving from the heart fills your life with joy and nourishes your soul. Giving provides an intrinsic reward that's far more valuable than the gift. As Mahatma Gandhi said, "To find yourself, lose yourself in the service of others." Giving takes you out of yourself and allows you to expand beyond earthly limitations. True joy lies in the act of giving without an expectation of receiving something in return.
Academic research and thousands of years of human history confirm that achieving meaning, fulfillment, and happiness in life comes from making others happy, and not from being self-centred. Mother Teresa is a famous example. She found fulfillment in giving of herself to others. She helped change the expression on dying people's faces from distress and fear to calmness and serenity. She made their undeniable pain a little easier to bear.

FIG. 3

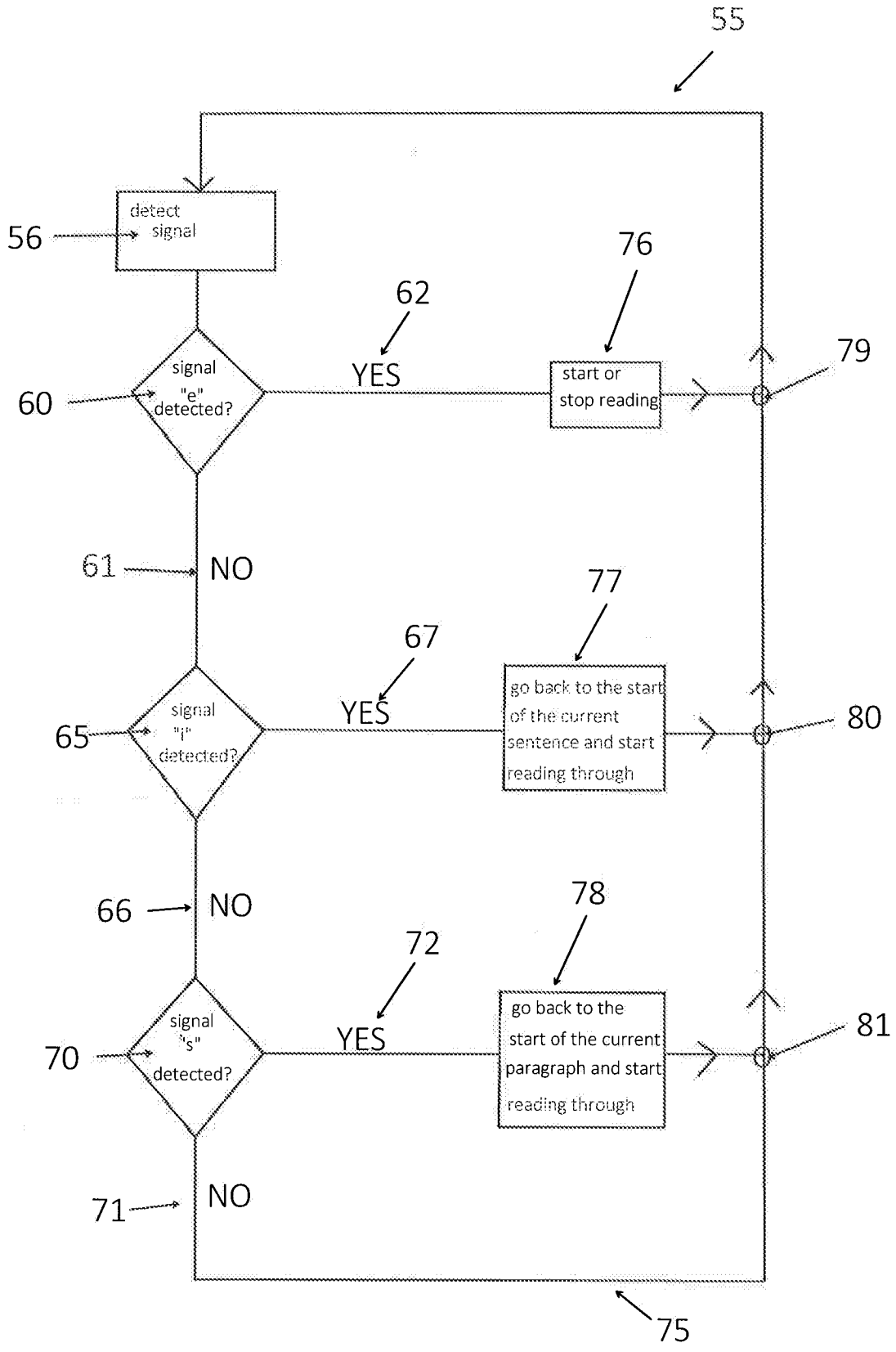
55
detect signal
56
76
62
signal "e" detected?
60
YES
start or stop reading
79
61
NO
77
67
signal "i" detected?
65
YES
go back to the start of the current sentence and start reading through
80
66
NO
78
72
signal "s" detected?
70
YES
go back to the start of the current paragraph and start reading through
81
71
NO
75

FIG. 4

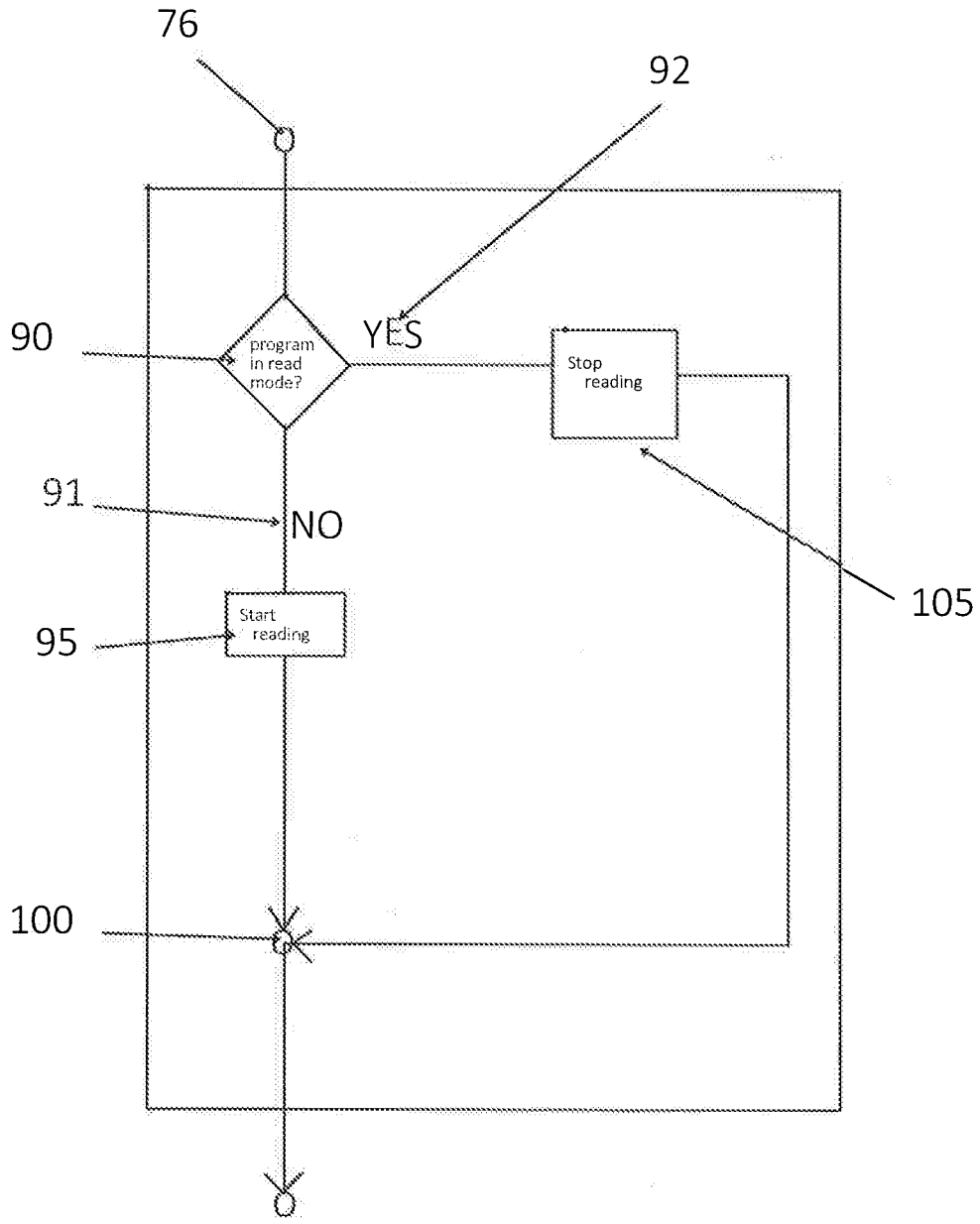
76
92
90
program in read mode?
YES
Stop reading
91
NO
105
95
Start reading
100

FIG. 5

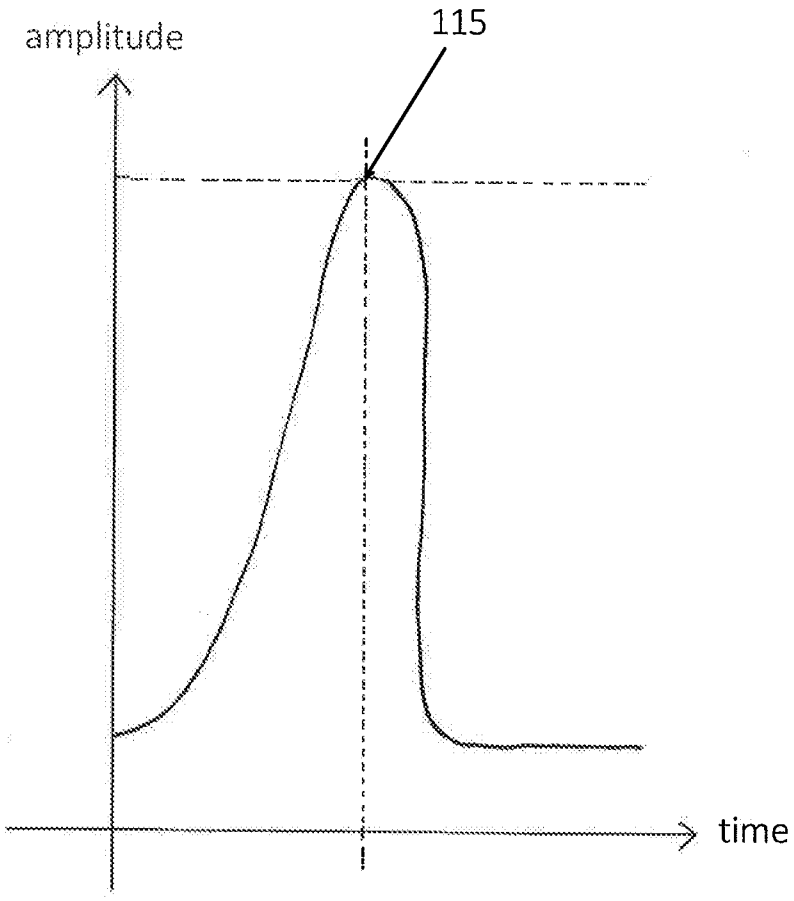

FIG. 6

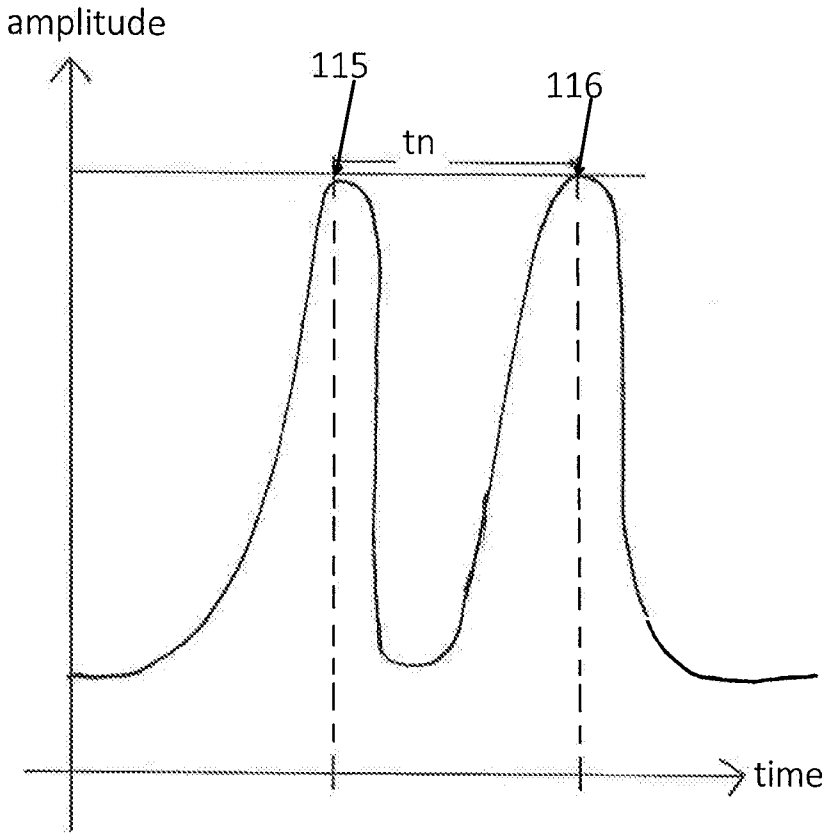

FIG. 7

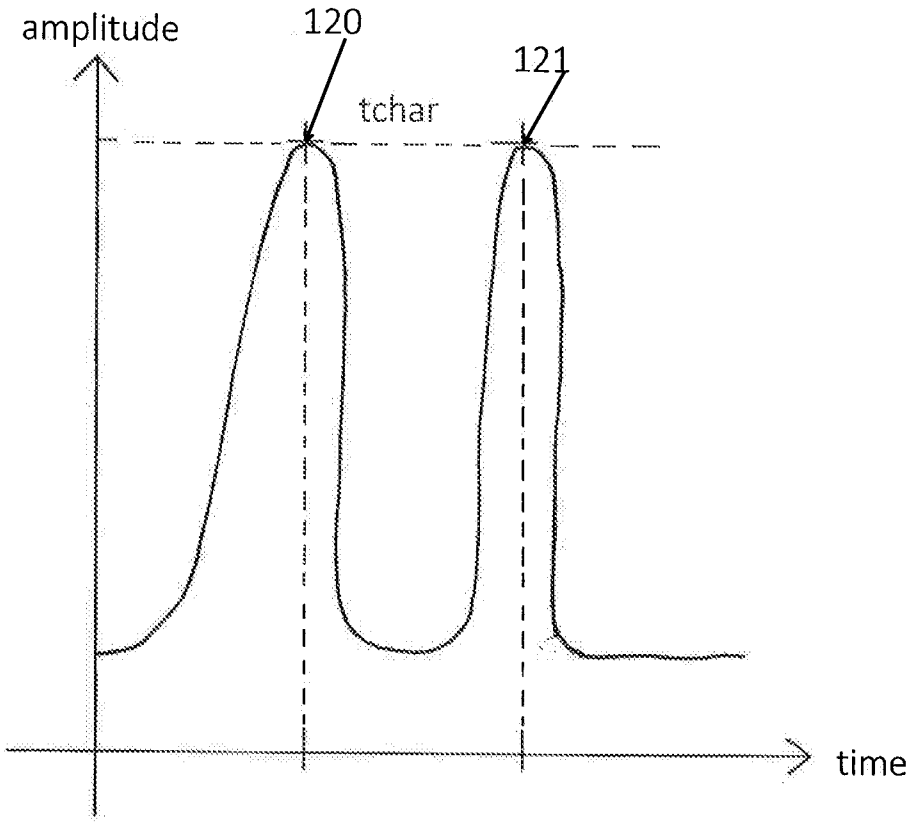

FIG. 8

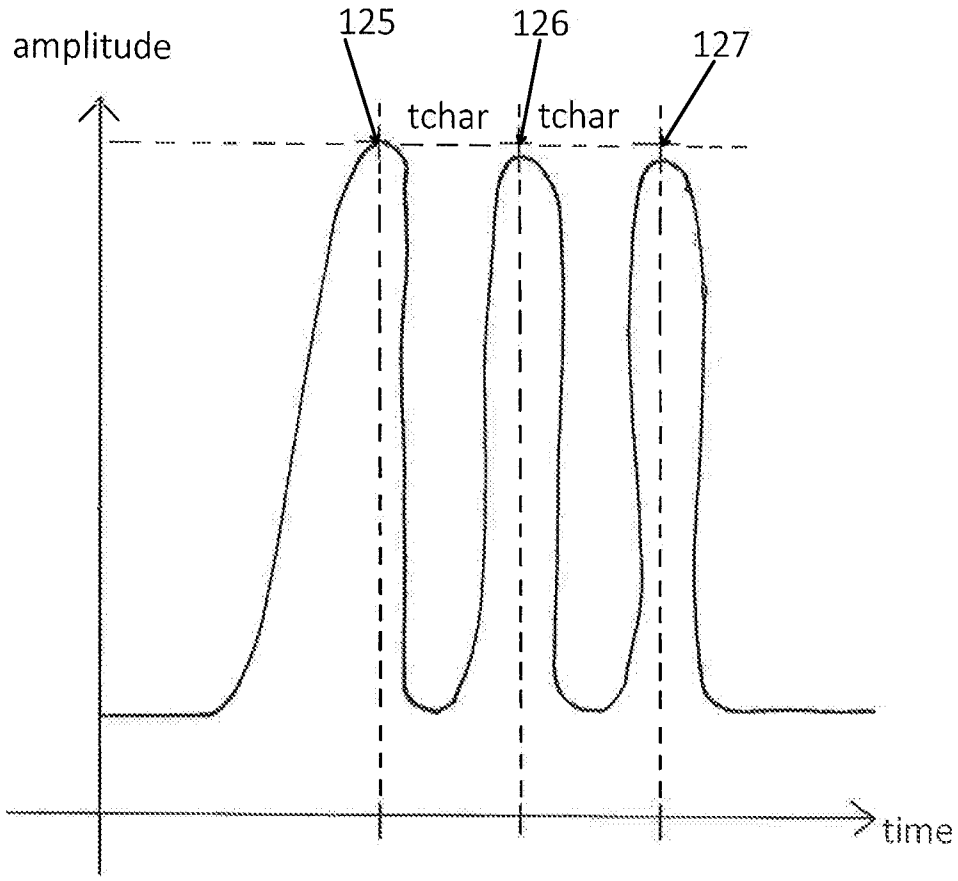

FIG. 9

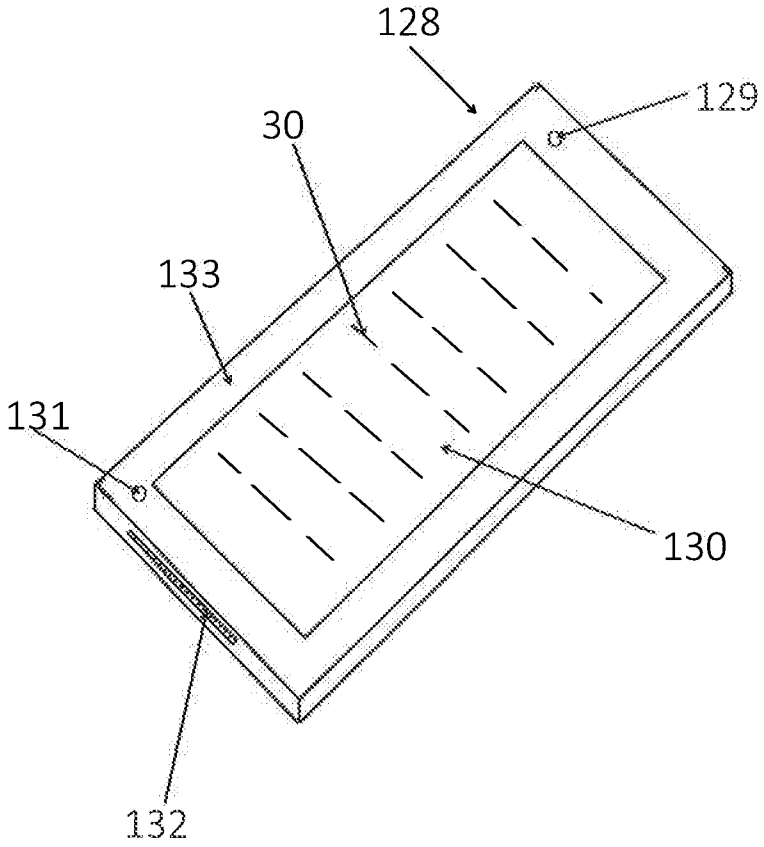

FIG. 10

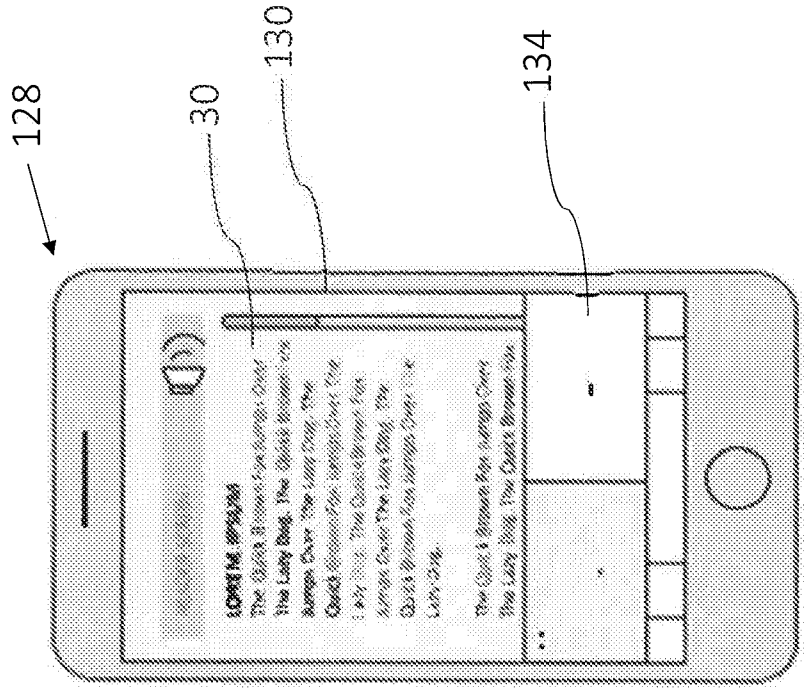

FIG. 11B

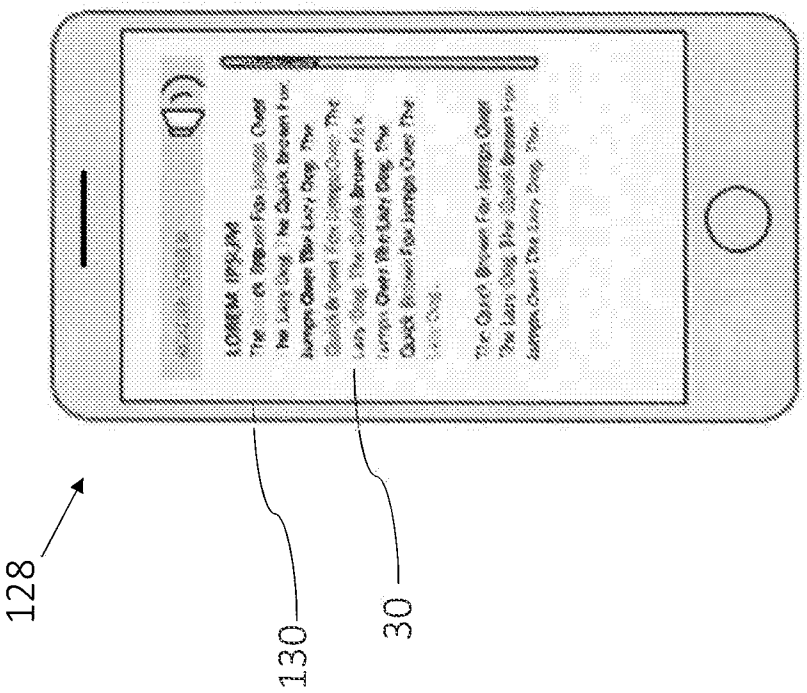

FIG. 11A

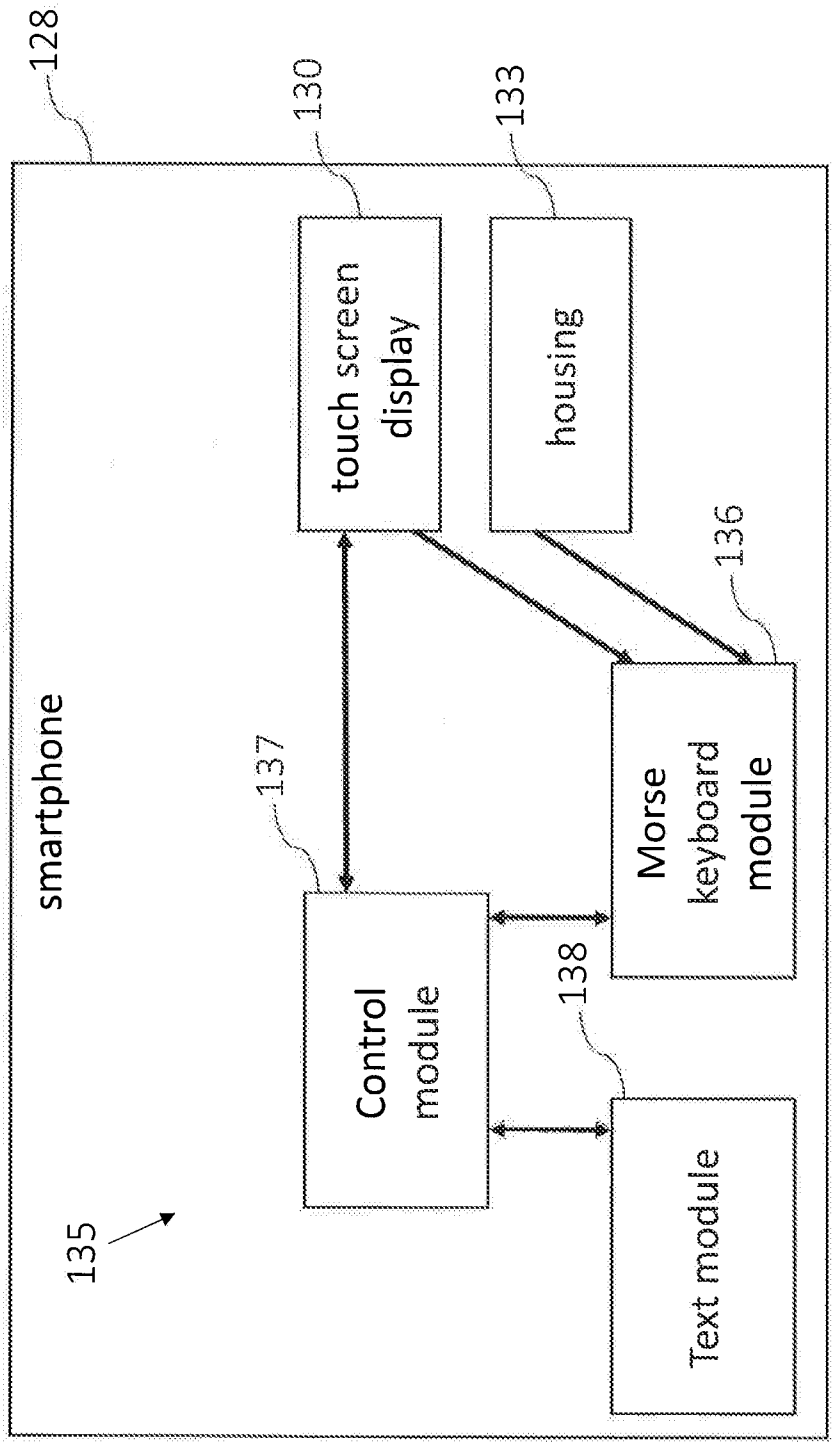
128
130
133
touch screen display
housing
136
smartphone
137
Morse keyboard module
Control module
138
Text module
135

FIG. 12

INTERNATIONAL SEARCH REPORT

International application No.

PCT / IB 2018/052393

A. CLASSIFICATION OF SUBJECT MATTER

IPC: ***G06F 3/0484*** (2013.01); ***G06F 3/0488*** (2013.01); ***G06F 3/01*** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009215494 A1 (CAUSEY ET AL) 27 August 2009 (27.08.2009) abstract; figures 2 and 3 and their descriptions; paragraph 18	1-15
X	US 2011053577 A1 (LEE ET AL) 03 March 2011 (03.03.2011) abstract; figures 15A-17 and their descriptions; paragraph 68	1-15
X	US 8000729 B1 (JONES) 16 August 2011 (16.08.2011) abstract; figures 3 and 4 and their descriptions	1-15
A	US 2002165013 A1 (BRIGHT ET AL) 07 November 2002 (07.11.2002) abstract; figures 1 and 2 and their descriptions	1-15

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 July 2018 (13.07.2018)	24 July 2018 (24.07.2018)
Name and mailing address of the ISA/AT Austrian Patent Office Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24-535	Authorized officer PRAMHAS A. Telephone No. +43 / 1 / 534 24-572

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT / IB 2018/052393

Patent document cited in search report			Patent family member(s)			Publication date
US	A1	2009215494	US	A1	2009215494	2009-08-27
US	A1	2011053577	KR	A	20120048704	2012-05-15
			EP	A1	2474152	2012-07-11
			CN	A	102484664	2012-05-30
			JP	A	2013503578	2013-01-31
			WO	A1	2011026099	2011-03-03
			US	A1	2011053577	2011-03-03
US	B1	8000729	US	B1	8000729	2011-08-16
US	A1	2002165013	US	A1	2002165013	2002-11-07
			WO	A1	02058263	2002-07-25