(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
29 August 2024 (29.08.2024)

WIPO | PCT

(10) International Publication Number
WO 2024/175987 A1

(51) International Patent Classification:
G06F 3/0354 (2013.01) *G06F 40/18* (2020.01)
G06F 40/169 (2020.01) *G06F 40/186* (2020.01)
G06F 40/171 (2020.01) *G06F 40/58* (2020.01)
G06F 40/174 (2020.01) *G10L 15/26* (2006.01)

(21) International Application Number:
PCT/IB2023/061970

(22) International Filing Date:
28 November 2023 (28.11.2023)

(25) Filing Language: English

(26) Publication Language: English

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report (Art. 21(3))*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
— *upon request of the applicant, before the expiration of the time limit referred to in Article 21(2)(a)*

WO 2024/175987 A1

(54) **Title:** LITERARY COMPREHENSION PEN WITH THE ABILITY TO SIMPLIFY AND UNDERSTAND DIFFICULT WORDS OF OLD LITERATURE BOOKS AND RECOGNIZE LITERARY TERMS AND ARRAYS IN ALL LANGUAGES

(57) **Abstract:** This pen is a smart writing device that is designed to help people who do not have enough knowledge of literature. This device can use high technology to explain difficult concepts and terms to help people understand them. This device has a touching monitor and a camera with the ability to process and let the user enter the concerning text into the device. Then with the use of complex algorithms, the pen will automatically recognize and explain the concept and the terms. The device has also a database of literature that can help the user to find the best explanations of the text. It has also other specifications that help the users understand better. For example, this pen can automatically summarize the sentences or explain how a character is described in the text or which array is used in it.

Description

Title of Invention: [Literary comprehension pen with the ability to simplify and understand difficult words of old literature books and recognize literary terms and arrays in all languages]

[0001] In a world full of cultures and varieties of subjects, literature is essential knowledge to gain, and of course, it is not easy at all, because there are roughly 7000 languages in the world, so even if a person tries to learn them through his or her whole life, it is an impossible mission to accomplish. Many people enjoy reading literature, but because of some boundaries including not understanding and also comprehending the text, they cannot achieve what they desire. All in all, this invention is designed to answer such demands completely and efficiently.

[0002] This literary comprehension pen is a smart device that can scan any text with its cameras and explain them, it has speakers for listening and also a voice recorder. You can also use it in the darkness because it contains a flash too. So people will not have any problems while reading different texts.

Technical Field

[0003] G09B 17/00

[0004] G09B 19/06

Background Art

[0005] Two inventions were found almost similar to this case so we are going to check each of them and clarify the differences with the actual invention.

[0006] Invention US20190182402A1 titled " print scanner and translator" is a handheld print scanner the translator may be shaped as a working pen, and may provide a scanner on one side of its body and a display screen on the other side of its body. In some embodiments, the present invention may provide for a button wheel on the present invention's base that may be conjured to operate the scanner and determine what form or type of output may be displayed on the display screen. In some embodiments, a processor may translate one or more scanned words or phrases from a printed page, whether physical page or electronic screen, and may display a translation of the text on the display screen.

[0007] The mentioned invention has ink and the ability to print and is only usable for translation and not simplifying the words. It only translates the meaning of the word or phrase and it is not capable of comprehending the old literature texts.

[0008] In another invention with registered number 388100020, titled "smart text reader pen", a light pen is employed to read the text and process them. This pen is similar to a highlight pen, in the way that it is drawn on the words and characters and it processes

the data quickly and enters them to the computer. This pen is portable and has a screen on it. A microcontroller AVR has been used in this pen to process the data. It distinguishes itself from our invention by the use of infrared, noise limitation, and offset. It also has an AVR microcontroller and RISC architecture. This pen could be used precisely for processing and transferring handwritten texts to typed texts and sending them to a computer and it is only usable for documents, checks, and reading car numbers, etc.

Summary of Invention

[0009] Fictions are blessed with valuable experiences and the most personal sight of others through the years in a variety of places that can expand our perspective on life. Studying literature could also help us experience personal development in different aspects. However, reading classic literature like The Persian Book of Kings, Shakespeare, etc. could be difficult because of the old incomprehensible words that are used in it and it also makes it complicated for the kids and adults to read and enjoy them. Therefore, a device that can facilitate this job, could be a huge step for enriching the culture and the literature of different nations and languages.

Technical Problem

[0010] Reading classic literature of different nations could be struggling, because of their difficult ancient vocabularies. That is why kids are not interested to read them and even adults may leave reading them because of it. This pen could recognize the concept and the literary terms of each text, using artificial intelligence and Neural Networks, and solve this problem. This pen is capable of recognizing complex concepts of old literary books and distinguishing the arrays of literature like metaphors, etc. This pen could easily be used by students and help them understand and utilize the arrays. This pen could also be a useful educational tool for every student and anyone studying other nation's literature.

Solution to Problem

[0011] For the AI algorithm of this pen, any programming language that can process a text is usable. Python is one of the best programming languages for text processing because of its different libraries and its simplicity besides its readability. AI and deep learning machines use neural networks to recognize the patterns that exist in the text teach different shapes of the letters and then, recognize different texts. These algorithms are set, based on changes of size, shape, angle, and the space between the words. it must also provide a great literal database and then, by the algorithms of deep learning and natural language processing, the data will be given to the algorithm for learning.

[0012] This algorithm uses methods of recognizing and analyzing the texts to understand the grammar and to recreate the concepts. It then uses analytical methods like revising

literal dictionaries, the position of the literal terms in the sentence, and also referring to the book, writer, the writing date, and the conceptual background of the text to check its accuracy.

[0013] This invention consists of different practical parts. At the top of the device, two ESP32 cameras are placed to scan the text and the words and this is the principal part of the device. At the top of the cameras, there is a flash to lighten the text in darkness, and on the body of the device, is placed a monitor to show the simplified text. On the right edge of this device, there is a speaker for listening to hard texts in a simple and comprehensible text in the person's maternal language.

[0014] It also has a microphone for voice recording. Besides the speaker, there is a Wi-Fi sign. At the bottom of the device, 3 lights indicating the status of the device battery, and at the bottom edge of it on the right, there is a charger socket and a USB port. The monitor is touching and has internal storage.

Advantageous Effects of Invention

[0015] 1. The possibility to read any difficult literature book even from other countries

[0016] 2. The possibility to use the device in offline mode

[0017] 3. Usable for all age ranges and encouraging kids and average people to read valuable literal books

[0018] Beneficial for literature students with any language

[0019] Supporting different languages

[0020] Simplifying complex texts to the individual's mother language

[0021] Use of simple vocabulary for elementary students and conversing classic words into common words

[0022] Recognition of the literature arrays to help students and teachers understand the text

Brief Description of Drawings

[0023] [Fig.1] illustrates two ESP32 cameras for scanning the texts and words

[0024] [Fig.2] illustrates a high-quality monitor that displays the simplified text and its explanations

[0025] [Fig.3] illustrates the speaker of the device that is almost a main part of it and has the task to read the simplified text

[0026] [Fig.4] illustrates the USB port for transferring the data and the light that indicate the status of the

Description of Embodiments

[0027] [Fig.1] Number 1 illustrates two ESP32 cameras for scanning the texts and words to send them to the device so it processes them and we can read or listen to them. Number 2 illustrates the flash that functions as a study lamp in this device and even in darkness, we can read the text.

[0028] [Fig.2] In detail A, Number 3 illustrates a high-quality monitor that displays the simplified text and its explanations like its arrays, etc. It is also possible to activate the voice recording option in the menu to read the text and let the device turn it into a text (possible for up to one paragraph)

[0029] [Fig.3] In Detail D, Number 4 illustrates the speaker of the device that is almost a main part of it and has the task to read the simplified text and has also a microphone to record the voice. Number 5, illustrates the Wi-Fi sign and the internet connection, so the user can make sure of its connection status.

[0030] [Fig.4] Number 6 illustrates the USB port for transferring the data for the user to be able to transfer the text, in lack of internet connection. Number 7 illustrates the charger socket. In DETAIL C, number 8,9 and 10, illustrates the light that indicate the status of the device. The red means the device is off or the battery is dead. The green light means the device is on with full battery and the yellow light means lowering of the battery.

Examples

[0031] During the night, when you are reading a book and confront a difficult text to understand, first you can turn on the laser part of the device to lighten the text, then check for the connection to make sure about the Wi-Fi connection. You use the scanners to scab the part you could not understand and you can read its simplified result on the monitor, also you can listen to it through the speaker. If there is a sentence you find harder than other sentences to understand, you can record your voice reading it for the device to achieve the meaning you specifically want.

Industrial Applicability

[0032] Use in academic and literal gatherings

[0033] Use in scientific and literal events

[0034] Teaching in universities and schools

[0035] Use in libraries.

Claims

[Claim 1] This device is a smart pen for simplifying and translating all kinds of literary texts, which has two cameras and a flash, microphone, speaker and touch monitor. This device has a USB port, a battery charge warning light and Wi-Fi light. Two ESP32 cameras are placed on top of the device to scan texts and words. This pen can use artificial intelligence and database.

[Claim 2] According to claim one, a touch monitor with internal memory for displaying fluent and translated text is located on the body of the device.

[Claim 3] According to claim 2, a speaker was placed on the device to listen to difficult texts in a fluent and comprehensible language by native speakers.

[Claim 4] According to claim 1, this device is equipped with a microphone capable of recording sound. In such a way that the input of information is the voice reading from the book instead of the text of the book. In this section, voice recording will be allowed to access the device and the sound processor can recognize the words and find the corresponding literary text and show the search results on the monitor.

[Claim 5] According to claim 1, the Python programming language has been used for text processing to process data through artificial intelligence.

[Claim 6] According to claim 5, the artificial intelligence and neural networks used in this system recognize different forms of letters based on the patterns in the writing and have the ability to recognize different writing.

[Claim 7] According to claim 6, recognition algorithms are programmed based on changes in the size, shape, angle and spacing of letters in different words. Therefore, it has the ability to recognize and read text with different fonts, but it does not have the ability to read handwritten text, which can be added in the future.

[Claim 8] According to claim 7, the database of this device is a collection of literary texts in different languages. This pen has access to the database through the Internet and also an example of a large number of literary works is available in the device's database by default. Of course, it also has the ability to add.

[Claim 9] According to claim 8, the grammar analysis method and review of literary dictionaries and the position of words and sentences in the text

are used to check the accuracy of meanings.

[Claim 10] According to claim 9, the method of referring to the book, author or the history of writing and the conceptual background of literary terms is used to check the correctness of the meanings.

[Fig. 1]

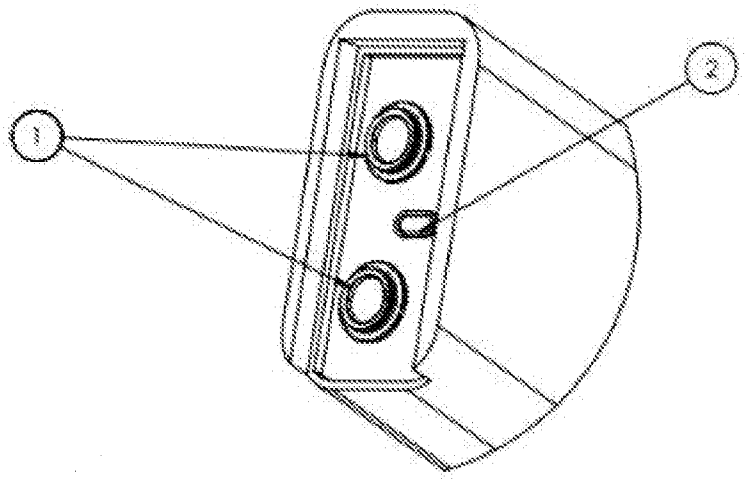

Fig.1

[Fig. 2]

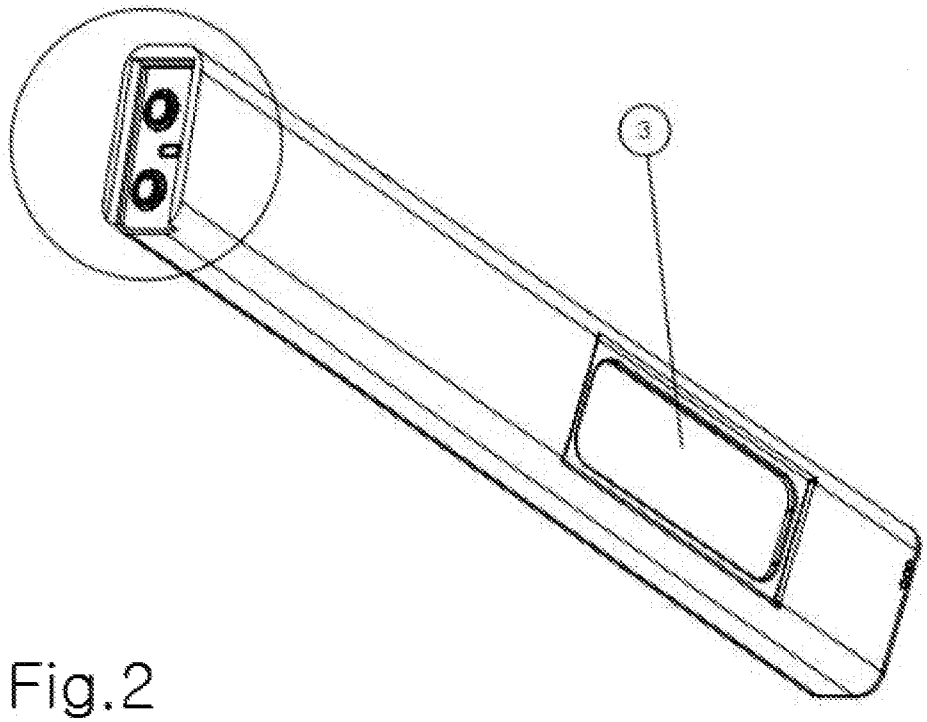

Fig.2

[Fig. 3]

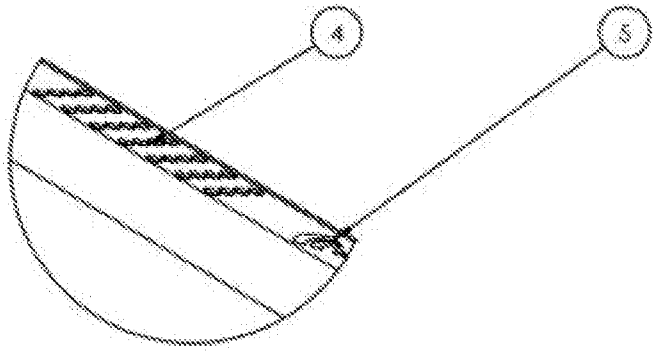

Fig.3

[Fig. 4]

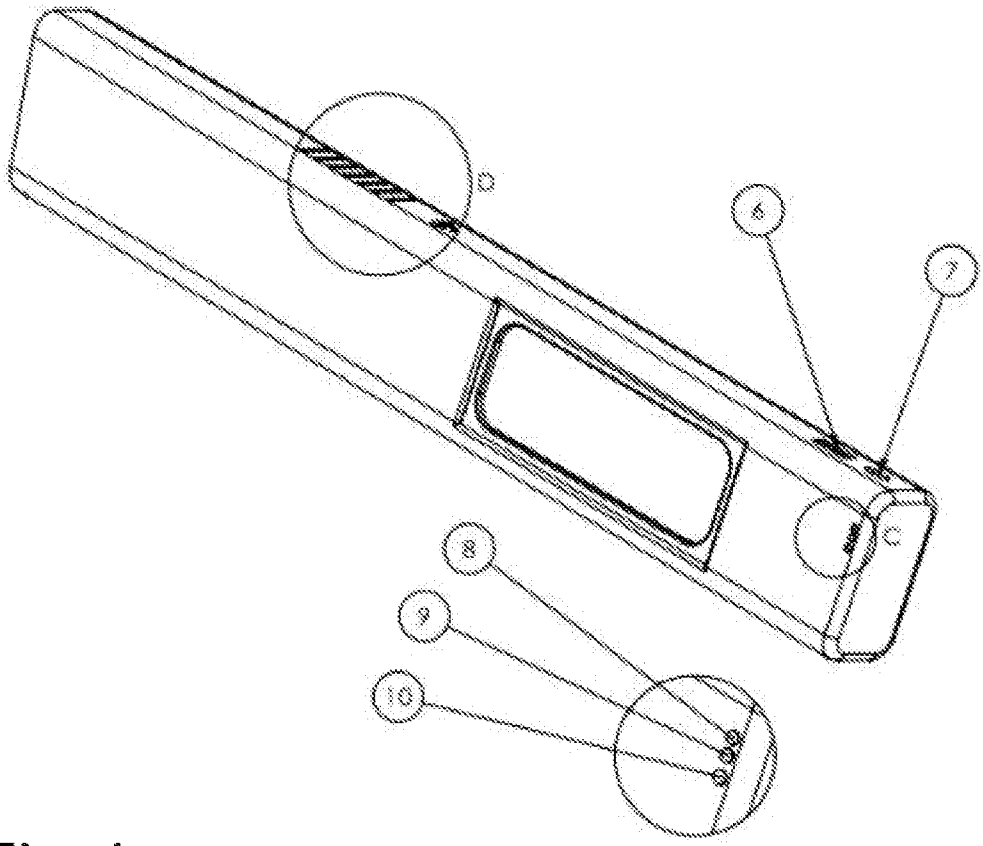

Fig.4

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2023/061970

A. CLASSIFICATION OF SUBJECT MATTER

INV. G06F3/0354 G06F40/169 G06F40/171 G06F40/174 G06F40/18
G06F40/186 G06F40/58 G10L15/26

ADD.

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 G10L

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/005849 A1 (OLIVER THOMAS C [US]) 4 January 2007 (2007-01-04) figures 1-8b paragraph [0041] - paragraph [0045] claims 1-20	1-10
A	US 2022/076042 A1 (ZHAO JIBO [CN] ET AL) 10 March 2022 (2022-03-10) figures 1-15 paragraph [0047] - paragraph [0051] claims 1-10	1-10

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[x] Further documents are listed in the continuation of Box C.

[x] 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

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"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
6 June 2024	13/06/2024

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Mennerun, Steeve

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Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2019/182402 A1 (SHRIESHER NEDAL [US]) 13 June 2019 (2019-06-13) cited in the application figures 1-3 paragraph [0015] paragraph [0029] paragraph [0030] paragraph [0032] paragraph [0035] paragraph [0036] claims 1-10	1-10

A	US 2002/029146 A1 (NIR EINAT H [IL]) 7 March 2002 (2002-03-07) figures 1-11 claims 1-21	1-10

A	CN 104 516 875 A (UNIV DALIAN NATIONALITIES) 15 April 2015 (2015-04-15) figure 1 claims 1-5	1-10

A	US 2011/112822 A1 (CARAHER CHARLES [US]) 12 May 2011 (2011-05-12) the whole document	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2023/061970

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