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(54) Title: A DIGITAL COUPLING DATA MANAGEMENT SYSTEM

(57) Abstract: The present invention relates to a digital coupling data management system (100) characterized as which, by using a digital pen (300), senses the all the analogue data written and/or drawn on a pattern (202) formed on entire surfaces and backgrounds (200) including the sensing of such input and the pattern (202) together with the input data on the surface (200) hosting such input and accordingly transferring such input data to the respective pattern (202); or sensing via only through a smart phone reading the patterns (202) and/or via a camera (402) in the transfer terminal (400) and consequently digitalizing the input, which are to be processed by another interpreting system and requiring to be directed to other systems and software in a quality of producible, manageable and result generative manner, to the digital platform (P) as in line with the technical requirements thereof.

A DIGITAL COUPLING DATA MANAGEMENT SYSTEM

Field of the Invention:

The present invention relates to a digital coupling data management system which, by using a digital pen, senses the all the analogue data written and/or drawn on a pattern formed on entire surfaces and backgrounds including the sensing of such input and the pattern together with the input data on the surface hosting such input and accordingly transferring such input data to the respective pattern; or sensing via only through a smart phone reading the patterns and/or via a camera in the transfer terminal and consequently transferring the input, which are to be processed by another interpreting system and requiring to be directed to other systems and software in a quality of producible, manageable and result generative manner, to the platforms aimed to be reached as in full compliance with all the technical requirements.

Prior Art:

The modern human requires to generate written or drawn forms or writing/drawing environments (papers, forms, minutes, daybooks, post-its, documents, checks, notes, agreements etc.) since they need to complete forms, write minutes, present petitions and many similar procedures. The progress of the technology has made quickly more common the process of taking notes in the digital environment however the use of paper and pen still preferred more due to its easiness of use.

Transferring the writings and drawings realized with paper and pen to the digital environment and saving the same therein has a great importance in the modern world. For instance; an application for a health insurance, a process of buying a membership to a channel, a credit card application, a traffic fine minutes and

many similar transactions require the digital saving of the data written or drawn on the paper and/or document. In such a situation, the papers and documents on which hand writings and drawings exist are saved in the systems manually or are scanned and such scanning transactions are converted to digital mode by means of character identification processes. However, such digitalization transaction may not instantaneously perform, when out of the office, the control of the area/areas with information keeping obligations and also may not conduct content control. The formed digital forms do not include which person, when and where has performed the writing and drawing transactions with regard to the area and even dot based processes. Such writing identification transactions demonstrate a relatively low reading and sensing percentage. The scanners used for such systems have high costs and it is quite difficult to bring and use such scanners to out of the office environment. Besides; the dimensions of the data within the files, which are formed with the aforementioned scanners, are seriously high for the hosting file systems plus with an insufficient data quality. The present art uses many different systems to convert the handwritings to the digital status however no such a system exists that performs high-quality and on-line converting transactions.

An application example, which is challenging to perform and hard to adapt, digitalizing the photo of a hand written document has been explained in the https:/www.abbyy.com/tr-tr internet site. The application described therein photographs or scans the documents and transferred to the digital environment visually. This application example includes quite different specifications from the present invention. The application example aforementioned reaches to quite simple area-based results when compared to the present invention. Moreover, the application example described in the aforementioned internet site does not include instantaneous GPS and time details of the writing transactions nor with regard to the form neither by means of area-basis.

Another application example for pen based digitalization has been referenced in the internet site htpp://www.irislink.com/EN-IT/c1521/IRISnotes-3---Digital-Pen.aspx. However, this application has not area-based digitalization feature.

Brief Description of the Drawings:

The figure depicts a Digital Coupling Data Management system realized for an embodiment of present invention as:

The figure 1 illustrates the schematic view of a Digital Coupling Data Management system.

The parts in the figure are numbered independently and their corresponding definitions are given below.

100. Digital Coupling Data Management System
200. Background
201. Background, plane, surface
202. Pattern
300. Digital Pen
301. Power Source
302. Writing/Drawing end (changeable, inked or non-inked blind end)
303. Pressure Sensor
304. Slope and Rotation Sensor
305. Position Sensor
306. Time Sensor
307. Camera
308. Control Unit
309. Memory Unit
310. Data Transfer Unit
311. Screen or Notification Area
400. Transfer Terminal

401. Client Application

402. Transfer Camera

500. A Digital Coupling Data Management Software Server

600. A Digital Coupling Data Management System Database

P. Platform

Detailed Description of the Invention

A digital coupling management software realized for the embodiment of the present invention as under the first claim and other claims depending on the first claim; at least one digital pen (300) usable for all the input formed generated with this digital pen as a result of the hand movements and usable for realizing the writing and/or drawing transactions on at least one pattern (202) and background (200) on all backgrounds (200) to which such input may be transferred as ensuring the sensing of such writing and/or drawing transactions and/or pattern (202) data for the purpose of transferring the same to the digital environment; at least one transfer terminal (400) that receives the data, which are sensed by the digital pen (300) or smart phone camera (402), from the transfer module by the help of at least one client application (401) in at least one digital pen (300); at least one digital coupling data management server (500) which bi-directionally communicates with the transfer terminal (400) whereas gathers the hand writing data from the transfer terminal (400) through internet and/or intranet systems using WAN, LAN (Wi-Fi), VPN and least EDGE and similar network means consequently producing the time and pattern (202) data of the handwriting and/or drawing transactions in any area and/or in any independent area within the background (200) by making use of the digital pen (300), transfer terminal (400) and/or processing server together with the reception of the position data from the transfer terminal (400) and digitalizing the subject hand writing and drawing inputs by means of ICR (Intelligent Character Recognition) and OCR (Optical Character Recognition) regardless of any world alphabet since receiving data from the respective digital pen data (300) whereas performing instantaneously the obligatory and/or non-obligatory

areas and/or zones of the subject hand-writing and/or drawing input, such as certificate pf birth number, passport number etc. and, as a result of such control, realizing momentarily feedback to the transfer terminal (400) and finally placing the recognized and digitalized hand-writing and/or drawing data on the designated digital background (200) under area basis and/or independently; and the respective digital coupling data management software database (600).

The background (200) includes a pattern (202) on which writing and drawing transactions are performed which has been formed specifically for at least one background (200) and for each different template such as newspaper, periodical, form, post it, postcard, daybook, PVC background plane (201), glass, textile, metal etc. whereas formed by gathering many dots together which are hard to detect with naked eye and ensuring, when applied on the background, to understand at which point of the respective template a writing/drawing transaction has been performed as having self-specifically laid dots for each printed background (200).

The digital pen (300) includes at least one chargeable electric power source (301), at least one writing/drawing end (302) in changeable structure and enabling to perform writing and/or drawing on the background (200), at least one pressure sensor (303) which measures the pressure applied by the writing end on the background (200) during the writing and/or drawing transactions, at least one slope and rotation sensor (304) that senses the rotating movements of the writing end on the background during the writing and/or drawing transactions, at least one position sensor (305) that receives the position of the writing and/or drawing transactions on the background (200), at least one time sensor (306) that senses the date and time (milliseconds) of the drawing and/or writing transactions, at least one camera (307) besides the writing end and functioning with infrared radiation that records the dots on the pattern (202) applied to the background (200) in vector form and senses which background (200) is formed whereas finally saving the contact position data of the writing/drawing end (302) on the background (200) in coordinate form, at least one control unit (308) that gathers the data arriving from the sensors and the

camera (307), at least one memory unit (309) which records the data sensed by the control unit (308), at least one data transfer unit (310) that transfers the recorded data in the memory unit (309) to the respective units and at least one screen or information environment (311) with icons and/or led lamps that informs the user.

A preferred embodiment of the present invention employs the transfer terminal (400) as a tablet, smart phone or a same type mobile terminal. The said terminal includes a client (401) application. The client (401) application receives the data belonging to the digital pen (300) from the data transfer unit (310) through Bluetooth online or off line or receives the pattern (202) information on the background (200) from the mobile terminal.

Another preferred embodiment of the present invention uses a computer as the transfer terminal. The computer includes the client application. The data transfer unit (310) in this embodiment includes a USB socket whereas the data is transferred to the computer via such socket or through Bluetooth.

Since the platforms are open source coded, the server favors such source codes and produces outputs in compatible format for the platforms. Such outputs may be all picture file formats (PNG, JPEG, JPG, TIF, TIFF and similar) and all soft document formats (Word, Excel, CSV, XML, JSON and similar). Since the data is digitalized, the server may perform bi-directional data transfer by using all the social platforms (facebook, twitter, e-mail, sms, mms, Google + and similar), web services or all data communication technologies. Moreover, the server may also perform bi-directional data transfer with, other than social platforms, all the automation platforms (SAP, MSCRM, Oracle, ERP, Logo, Nebim, IBM-BPM, AS400 and similar) which are used on the B2B side and providing web service and/or integration end (REST, SOAP, FTP and similar).

CLAIMS

1. A digital coupling data management system characterized as which, by using a digital pen (300), senses the all the analogue data written and/or drawn on a pattern (202) formed on entire surfaces and backgrounds (200) including the sensing of such input and the pattern (202) together with the input data on the surface (200) hosting such input and accordingly transferring such input data to the respective pattern (202); or sensing via only through a smart phone reading the patterns (202) and/or via a camera (402) in the transfer terminal (400) and consequently digitalizing the input, which are to be processed by another interpreting system and requiring to be directed to other systems and software in a quality of producible, manageable and result generative manner, to the digital platform (P) as in line with the technical requirements thereof (P);

- whereas, with regard to the inputs that have been formed with the hand movements performed with the digital pen (300) and all the analogue data formed on the surfaces of such input turning to producible and manageable input as processed by an area-based or non-area based independent interpreting system,
    - at least one surface plane (201) such as newspaper, periodical, post it, postcard, daybook, PVC, textile, metal etc. and to at least one similar background (200) and
- and a background plane (201) having a pattern (202) as formed specifically for each template whereas by gathering many dots together which are hard to detect with naked eye and ensuring, thanks to postscript, digital and/or offset printing, when applied on the background, to understand at which point of the respective template a writing/drawing transaction has been performed as having self-specifically laid dots for each printed background (200),
- For the purpose of ensuring the writing and drawing transactions on the background (200) whereas enabling the transfer of the writings and drawings to the digital environment; **at least one digital pen** (300) including;

- at least one chargeable electric power source (301),
- at least one writing/drawing end (302) in changeable structure and enabling to perform writing and/or drawing on the background (200),
- at least one pressure sensor (303) which measures the pressure applied by the writing end on the background (200) during the writing and/or drawing transactions,
- at least one slope and rotation sensor (304) that senses the rotating movements of the writing end on the background during the writing and/or drawing transactions,
- at least one position sensor (305) that receives the position of the writing and/or drawing transactions on the background (200),
- at least one time sensor (306) that senses the date and time (milliseconds) of the drawing and/or writing transactions,
- at least one camera (307) besides the writing end (302) and functioning with infrared radiation that records the dots on the pattern (202) applied to the background (200) in vector form and senses which background (200) is formed whereas finally saving the contact position data of the writing/drawing end (302) on the background (200) in coordinate form,
- at least one control unit (308) that gathers the data arriving from the sensors (302, 303, 304, 3,05 and 306) and the camera (307),
- at least one memory unit (309) which records the data sensed by the control unit (308),
- at least one data transfer unit (310) that transfers the recorded data in the memory unit (309) to the respective units and,
- at least one screen or information environment (311) with icons and/or led lamps that informs the user;

- and **at least one transfer terminal** (400) which, thanks to an installed client application (401), receives the data sensed by the digital pen (300) from the data transfer module (310) and transfers the same or which,

thanks to an installed client application (401), receives the pattern (202) information on the background plane (201) and transfers the same,

- At least 2 megapixel transfer camera (402) in the transfer terminal (400) which senses the pattern (202) on the backgrounds and communicates the same to the digital coupling data management software thanks to at least one client application (401) in the transfer terminal (400) and accordingly producing interactive data transfer and results,
- **at least one digital coupling data management software (500)** which bi-directionally communicates with the transfer terminal (400) whereas gathers the hand writing data from the transfer terminal (400) through internet and/or intranet systems using WAN, LAN (Wi-Fi), VPN and least EDGE and similar network means consequently producing the time and pattern (202) data of the handwriting and/or drawing transactions in any area and/or in any independent area within the background (200) by making use of the digital pen (300), transfer terminal (400) and/or processing server together with the reception of the position data from the transfer terminal (400) and digitalizing the subject hand writing and drawing inputs by means of ICR (Intelligent Character Recognition) and OCR (Optical Character Recognition) regardless of any world alphabet since receiving data from the respective digital pen data (300) **whereas performing instantaneously the obligatory and/or non-obligatory areas and/or zones of the subject hand-writing and/or drawing input and, as a result of such control, realizing momentarily feedback to the transfer terminal (400) and finally placing the recognized and digitalized hand-writing and/or drawing data on the designated digital background (200) under area basis and/or independently.**

2. A digital coupling data management system software that forms the dotted pattern (202) and receives such dotted pattern (202) through the printing terminal application placed in the background plane (201) output including the dotted pattern (202).

3. A digital coupling data management system software (500) under Claim 1 or Claim 2 **characterized with** two different types of two copy dotted patterns (202) that use the same background layout for each background (200) through the produced prints of single or same type of backgrounds (200) as enabling the user to turn back to the written or drawn materials as much as desired also ensuring to write new data or to perform new drawings on the same since employing different dot layout for all backgrounds (200) and for all layers (page, surface, leaf) of the backgrounds (200).

4. A digital coupling data management system (100) under Claim 1 **characterized with** a digital coupling data management system software (500) employing a dotted pattern that has a structure of separate IDs designated for each background (200) and accordingly enabling each user and/or user group to produce an own digital coupling data management system (500) specific background (200) and serve the same to the field.

5. A digital coupling data management system software (100) under Claim 1 **characterized with a digital pen (300)** not functioning on the photocopies or high resolution scanned versions of the dot patterned (202) forms (200).

6. A digital coupling data management system (100) under Claim 1 not performing any conversion transaction or ICR transaction for any data written/drawn on the background (200) for the sake of protecting the personal data whereas generating records only sensible by a digital coupling data management system software server (500) to which it has been corresponded and having the ability to erase the respective data from the memory unit (309) after transferring the same to the server (500).

7. A digital coupling data management system software (500) under Claim 1 **characterized with** a control unit (308) which saves the data arriving from the sensors (302, 303, 304, 305 and 306) and camera to a memory unit (309) after encrypting the same using AES 256 SSL encryption+Bluetooth encryption.

8. A digital coupling data management system software (500) under any of Claim 1 to Claim 7 **characterized with** a transfer terminal (400) which may be a tablet, smart phone and similar mobile device as functioning on IOS, Android or any other operating system as including a client application (401) of 32 byte or 64 byte support which receives the data from the digital pen (300) online thanks to such client application (401).

9. A digital coupling data management system software (500) under any of Claim 1 to Claim 7 **characterized with** a transfer terminal (400) which may be a computer having USB connection as including a client application (401) of 32 byte or 64 byte support which receives the data from the digital pen (300) thanks to such client application (401) as through the use of the data transfer unit (310) including the USB socket.

10. A digital coupling formation system (100) **characterized with** a client application (401) communicating bi-directionally with a digital coupling data management system software (500) whereas displaying the return messages transmitted by digital coupling data management system software (500) following the sending transaction whereas readjusting such data and sending back the same to the digital coupling data management system software (500); and shooting the external document pictures or selecting the same from the photo gallery to add the same for the GPS information background (200) of the user and consequently performing safe communication from the port number 443 through SSL connection by means of using a digital coupling data management system software (500) in which the user name, password and server (500) host details are recorded.

11. A digital coupling data management system (100) **characterized with** a server (500) that may communicate with a digital coupling data management software database (600) through MySQL connection in optional manner 3306 or through optionally configured port using firewall.

12. A digital coupling data management system (100) **characterized with** a digital coupling data management system software (500) that analyses and saves the pattern (202) data and, following, forms a PDF file by means of using the handwriting lines as to place such lines in their original positions on their background plane (201) as if a scanned copy of the background (200) on which writings and drawings had been performed with hand.

13. A digital coupling data management system (100) **characterized with** a digital coupling data management system software (500) that analyses and saves the pattern (202) data and converts the same to text format whereas completing the respective areas, that had been completed with handwriting, placing in such data on the background plane (201) and accordingly forming the respective doc. pdf etc. required files.

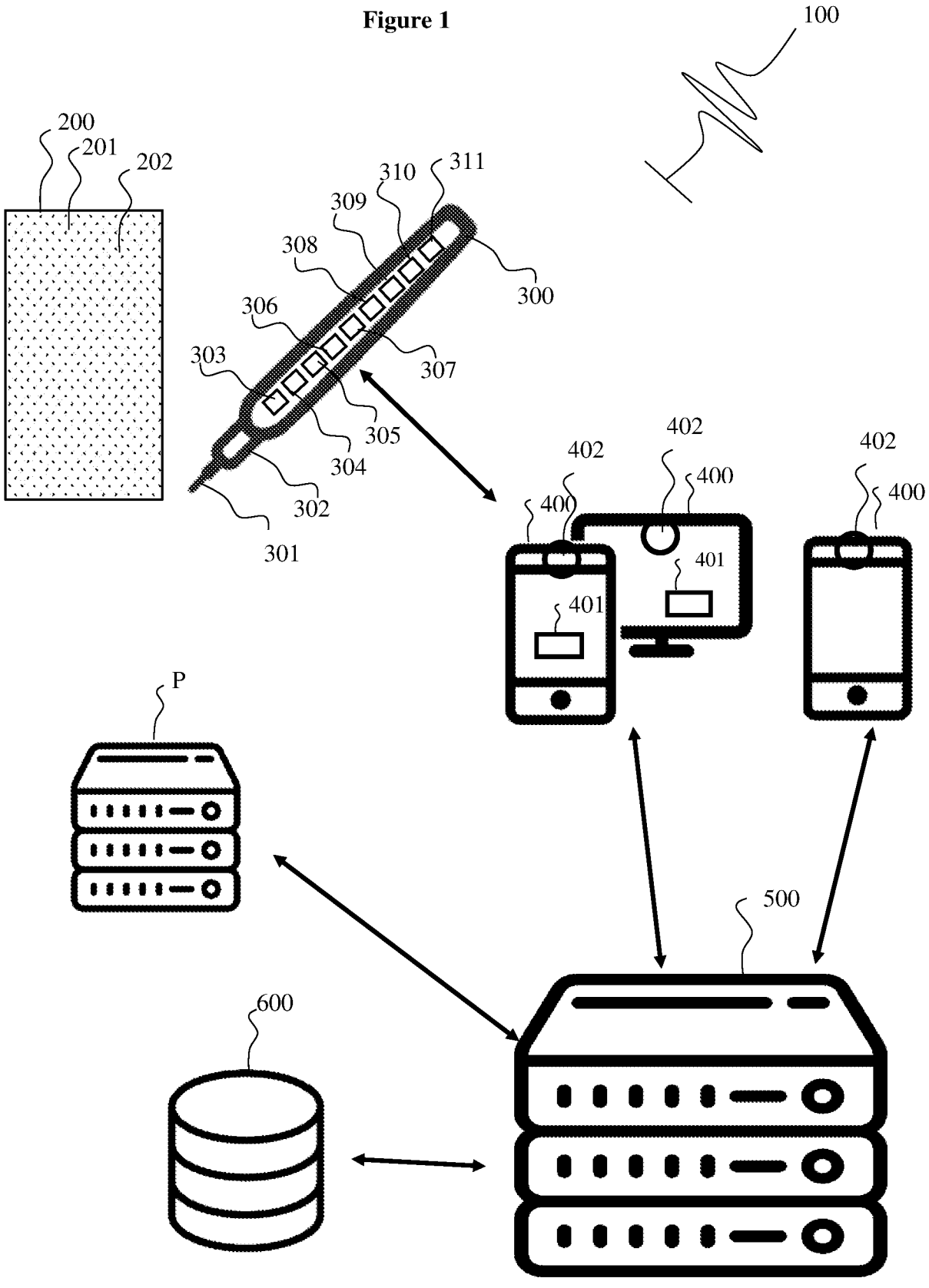
14. A digital coupling data management system (100) as sensing and transferring the pattern (202) data using the camera in the transfer terminal (400) whereas interpreting the same arriving through the application on the transfer terminal (400) and consequently managing and concluding such data before directing to the desired servers and software.

15. A digital coupling data forming system (100) under Claim 1 **characterized with** a digital coupling data management system software (500) whereas able to, since the platforms are open source coded, favor such source codes and produces outputs in compatible format for the platforms. Such outputs may be all picture file formats (PNG, JPEG, JPG, TIF, TIFF and similar) and all soft document formats (Word, Excel, CSV, XML, JSON and similar). Since the data is digitalized, the server may perform bi-directional data transfer by using all the social platforms (facebook, twitter, e-mail, sms, mms, Google + and similar), web services or all data communication technologies. Moreover, the server may also perform bi-directional data transfer with, other than social platforms, all the automation platforms (SAP, MSCRM, Oracle, ERP, Logo, Nebim, IBM-BPM,

AS400 and similar) which are used on the B2B side and providing web service and/or integration end (REST, SOAP, FTP and similar).

16. A digital coupling data management system (100) under Claim 1 **characterized with** a server database (600) having the quality of Linux and/or Windows based MySQL 5.2 Server employing two different types of databases as dpp-registry database for keeping the user definitions, form (200) authorities, digital pen (300) authority and definitions, background (200) pattern (202) information, mobile terminal data and GPS data and dpp-application for keeping the digitalized data, background (200) designs, annexed file contents, all sending details, area based –background (200) based communication time information.

Figure 1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