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Agent.	Seung Beom, Han | Yoo Byung Wook
Inventor	CHI,HyungGun
Applicant	CHI, Hyung Gun
Rightholder	NeilLab Co.,Ltd.

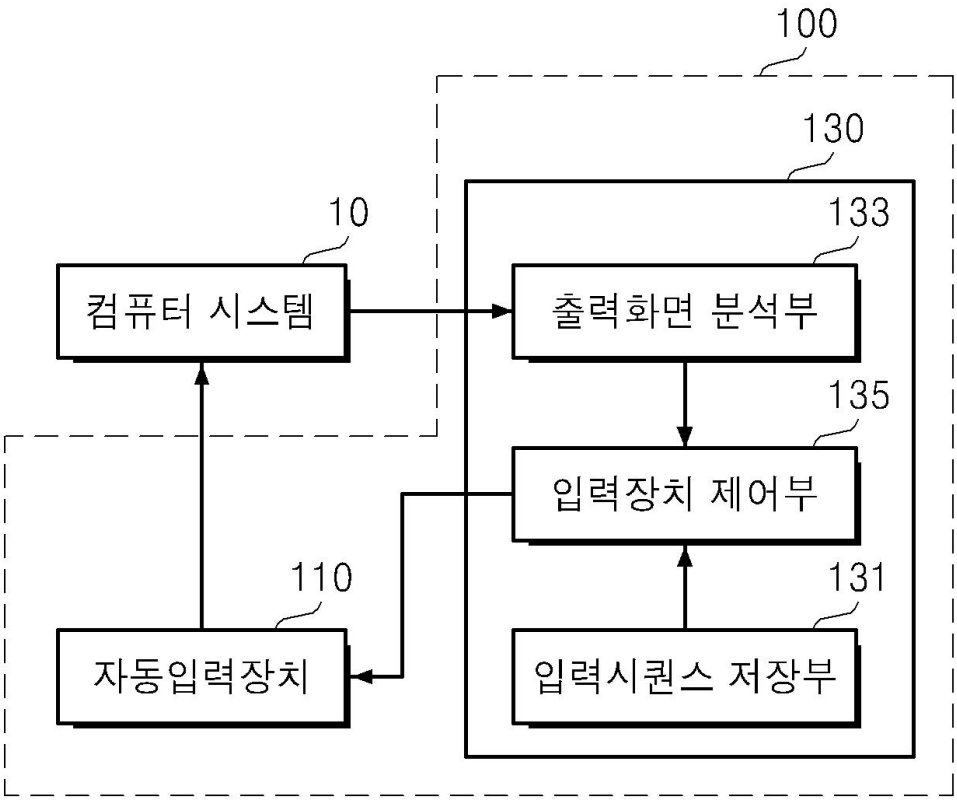
Title of Invention

COMPUTER INPUT AUTOMATION SYSTEM

Abstract

The computer input system for the deskwork / factory automation is disclosed. The computer input sy stem according to the present invention comprises the auto-input apparatus which produces the keyb oard input signal and transmitted in the computer system and the input agent who the pre-set input entry sequence is prepared for the computer system and controls the auto-input apparatus in order t o produce the keyboard input signal in which the auto-input apparatus corresponds to the input entry sequence.

대표도면(Representative drawing)



Scope of Claims

Claim 1:

The computer input system

for the deskwork / factory automation which produces the keyboard input signal and it includes the in put agent in which the pre-set input entry sequence is prepared for the auto-input apparatus :

of transmitting in the computer system and computer system ; it is provided to the script file analyzin g about the entry job required in the specific application program in which

input entry sequence is installed in

computer system in advance and is programmed ; and

script file is programmed based on the image information and coordinate information about the scree n outputted in

application program.

Claim 2:

As for claim 1, the computer input system for the deskwork / factory automation which controls the a uto-input apparatus so that

input agent produces the keyboard input signal in which

auto-input apparatus corresponds to the input entry sequence.

Claim 3:

Deletion.

Claim 3:

Deletion.

Claim 4:

Deletion.

Claim 4:

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Claim 5:

The computer input system for the deskwork / factory automation, wherein

input agent the keyboard input signal is produced comprises the output pictures analysis section :

that

input agent performs the image analysis about the output pictures the image about the screen output ted in

computer system is transmitted it controls the auto-input apparatus it produces the keyboard input si gnal in which

auto-input apparatus corresponds to the input entry sequence and the input unit control part reflectin g the analyzed result by the output pictures analysis section in order to produce the keyboard input si gnal in which the auto-input apparatus corresponds to the input entry sequence and , produces the c ontrol signal and transmits the control signal in the auto-input apparatus.

Claim 6:

As for claim 5, the computer input system for the deskwork / factory automation wherein

output pictures analysis section produces the control signal based on the image information and coor dinate information that provide ; and

input unit control part are provided by the output pictures analysis section the image information and coordinate information about the screen outputted in the analyzed result the computer system.

Claim 7:

As for claim 5, the computer input system for the deskwork / factory automation wherein

input unit control part determines the input error situation that deviates from the input entry sequenc e based on the analyzed result by

output pictures analysis section.

Claim 8:

As for claim 7, the computer input system for the deskwork / factory automation wherein

input unit control part, is

input error situation provisionally ceases the operation of the auto-input apparatus it is generated, an d the input error situation reopens the control of the auto-input apparatus according to the input entr y sequence it returns to the point of time of the input entry sequence which corresponds to when bei ng generated.

Claim 9:

As for claim 5, the computer input system

for the deskwork / factory automation extracting the image about the screen which outputs from

computer system and further includes the apparatus of the image extraction which transmits in the o utput pictures analysis section

Claim 10:

As for claim 9, the computer input system for the deskwork / factory automation wherein

apparatus of the image extraction extracts the image about the screen that extracts or outputs in the computer system from the picture output terminal of the computer system the image the screen outp utted is taken a picture of in the computer system using

camera.

Claim 11:

As for claim 1 or 2, the computer input system for the deskwork / factory automation in which

auto-input apparatus is provided independently of the computer keyboard of

ordinarily and which is connected and the computer system and transmitting the keyboard input sign al in the computer system.

Claim 12:

As for claim 1, the computer input system for the deskwork / factory automation which

input agent is provided to one application program installed at

on computer system ; and is provided to the separate apparatus which includes software and hardwa re while being physically seceded from the computer system.

Claim 13:

As for claim 5, the computer input system for the deskwork / factory automation in which

input agent further includes the wireless communication unit for the wireless communication connecti on with the auto-input apparatus ; and

input unit control part transmits the control signal through the wireless communication unit in the aut o-input apparatus.

Claim 14:

As for claim 2,

input agent is the computer input system for the wire in the multiple auto-input apparatuses or the d eskwork / factory automation which wirelessly connects and summarily controls multiple auto-input a pparatuses it is provided to multiple auto-input apparatuses the respectively

auto-input apparatus corresponds to multiple computer systems

computer system is provided to multiple computer systems.

Claim 15:

As for claim 1, the computer input system for the deskwork / factory automation wherein

auto-input apparatus controls the auto-input apparatus the keyboard input signal and mouse input si gnal are produced that produces more and transmits in the computer system ; and the auto-input ap

paratus

input agent corresponds to the input entry sequence the mouse input signal.

Technical Field

The present invention relates to the computer input system for automatically processing the entry job in the Office Automation or the factory automation side about the computer system.

Background Art

In the computer system is the assumption, the office, the factory etc, it is widely used. It is regarded as the essential element in especially, the Office Automation and factory automation domain.

But the conventional computer input automation technology was implemented about the relevant co mputer system in the software side. Therefore in case of being blocked by the security module of the security program or the correspondence application program including the keyboard security program etc. from the relevant computer system or installed noted providing the open API (Application Progra mming Interface) in the correspondence application program it had the problem of using. Moreover, e ven in case of being different from the recent and the operating system, which it uses since the relev ant computer system (the embedded system applied to especially, the facility within the factory or th e equipment) is developed in blastema, the ancient time the programming language etc. setting up th e script file or executing this kind of problem is generated. The Office Automation and factory automa tion are to be implemented and such problem acts on the intrusive.

It has KR10-1278726 B (the title of invention: user data input device and user data security method using the same, and the issue date : 2013 year June 19) to the related advanced technology docume nt.

Summary of Invention

Problem to be solved

The object of the present invention provides the computer input system which can not be limited by the factor including the execution of the security program, the unoffer of the open API, the computer system etc. and is quite old automatically process required a series of entry job in the computer system.

Means to solve the problem

According to the invention, the purpose is achieved with the computer input system for the deskwork / factory automation producing the keyboard input signal and includes the auto-input apparatus transmitted in the computer system, and the input agent. As to the input agent, the pre-set input entry sequence is prepared for the computer system.

Preferably, the auto-input apparatus can be controlled so that the input agent produces the keyboard input signal in which the auto-input apparatus corresponds to the input entry sequence.

Preferably, it can be provided to the script file analyzing about the entry job required in the specific application program in which the input entry sequence is installed in the computer system in advance and is programmed.

Preferably, can be programmed based on the image information and coordinate information about the screen which the script file outputs in the application program.

Preferably, the input agent comprises the output pictures analysis section in which the image about the screen which outputs in the computer system is transmitted and performing the image analysis about the output pictures and the input unit control part reflecting the analyzed result by the output pictures analysis section in order to produce the keyboard input signal in which the auto-input apparatus corresponds to the input entry sequence and , produces the control signal and transmits the auto-input apparatus the control signal.

Preferably, the output pictures analysis section can provide the image information and coordinate information about the screen outputted to the analyzed result in the computer system and generate the control signal based on the image information in which the input unit control part is provided by the output pictures analysis section and coordinate information.

Preferably, the input unit control part can determine the input error situation deviating from the input entry sequence based on the analyzed result by the output pictures analysis section.

Preferably, in case it determines that the input error situation the input unit control part is generated it returns to the point of time of the input entry sequence which corresponds to when it provisionally ceases with operation and the input error situation is generated and the control of the auto-input apparatus according to the input entry sequence can be reopened.

Preferably, the image about the screen outputted is extracted from the computer system and the apparatus of the image extraction transmitted in the output pictures analysis section is further include might.

Preferably, the apparatus of the image extraction takes a picture of the screen outputted using the camera in the computer system and the image is extracted or the image about the screen outputted can be extracted from the picture output terminal of the computer system from the computer system.

Preferably, the auto-input apparatus is provided independently of the normal computer keyboard and it is connected and the computer system and the keyboard input signal can be transmitted in the computer system.

Preferably, the input agent is provided to one application program installed at on computer system or it can be provided to the separate apparatus which includes software and hardware while being physically seceded from the computer system.

Preferably, the input agent further includes the wireless communication unit for the wireless communication connection with the auto-input apparatus and the input unit control part can transmit the control signal through the wireless communication unit in the auto-input apparatus.

Preferably, the computer system is provided to multiple computer systems

It is provided to multiple auto-input apparatuses so that the respectively the auto-input apparatus corresponds to multiple computer systems and the input agent wirelessly connects to multiple auto-input apparatuses as wire and multiple auto-input apparatuses can be summarily controlled.

Preferably, the auto-input apparatus controls the keyboard input signal in which it more produces the mouse input signal and it transmits in the computer system and the auto-input apparatus the input agent corresponds to the input entry sequence and the auto-input apparatus the mouse input signal is produced.

Description of Embodiments

Only when referring to the attached view which exemplifies the preferred embodiment of the inventio n in order to enough understand the purpose of being achieved with the advantage of the invention a nd in operation of the invention and operation of the invention, and the content written in the attache d view it does.

The technical term used in this specification is used. Has to note being not intention of limiting the inv ention to describe area, the specific embodiment. Moreover, as long as the technical term used in this specification is not defined as the meaning of being specially different in this specification the meanin g has to be construed as the meaning generally of being understood in the technical field in which the invention belongs with a person skilled in the art and the meaning is construed as the meaning of bei ng excessively comprehensive or the meaning should not be construed as the meaning of being exces sively reduced.

The attached preferred embodiment of the invention is hereinafter illustrated. In that way the inventi on is particularly illustrated. But in describing the present invention, the description to the publicly kn own function or the configuration is for the gist of the invention to do and it decides to omit.

Figure 1 is a block diagram for illustrating the computer input system configuration for the deskwork / factory automation according to a preferred embodiment of the present invention. It is the summar y configuration diagram in which figures 2 and 3 show one examples in which the computer input sys tem of 1 is connected to the computer system.

Referring to figures 1 through 3, the computer input system (it hereinafter says to succeed ' compute r input system ' with 100) for the deskwork / factory automation according to a preferred embodimen t of the present invention produces the keyboard input signal and/or the mouse input signal and the a uto-input apparatus (110) transmitted in the computer system (10), and the input agent (130) are in cluded. As to the input agent (130), the pre-set input entry sequence is prepared for the computer sy stem (10). And the auto-input apparatus (110) is controlled so that the input agent (130) produces t

he keyboard input signal and/or the mouse input signal in which the auto-input apparatus (110) corre sponds to the input entry sequence. In the meantime, in the computer system (10) is the Office Auto mation domain, it can be the official personal computer and it can be each equipment, installed within the factory the computer system, or the embedded system which is connected to the facility and uses this in the factory automation domain.

Here, entry events for performing a series of entry job required in the specific application program in which the input entry sequence is installed at the computer system (10) are set up according to the fi xed order. Specifically, it can be provided to the script file analyzing about a series of entry job requir ed in the specific application program in which the input entry sequence is installed at the computer s ystem (10) in advance and is programmed. Easily, if it illustrates , it can be understood as the script f ile in which the input entry sequence performs a kind of the macro function.

The technology which automatizes the input about the computer system in the Office Automation side although it applies the script file, in which such input entry sequence is defined for example, the java script file and the user directly does not perform the entry job through the computer keyboard or the computer mouse is already well known.

But this kind of conventional computer input automation technology was implemented about the relev ant computer system in the software side. Therefore in case of being blocked by the security module of the security program or the correspondence application program including the keyboard security pr ogram etc. from the relevant computer system or installed noted providing the open API (Application Programming Interface) in the correspondence application program it had the problem of using. More over, even in case of being different from the recent and the operating system, which it uses since th e relevant computer system (the embedded system applied to especially, the facility within the factor y or the equipment) is developed in blastema, the ancient time the programming language etc. settin g up the script file or executing this kind of problem is generated

Thus, as for the factory automation as well as the Office Automation a series of entry job about the c omputer system can be automatically processed the software element called the input agent (130) co ntrolling the auto-input apparatus (110) with the hardware dependent element called the auto-input apparatus (110) producing the keyboard / mouse input signal according to the pre-set input entry se quence is together applied and in that way the security program is performed in the relevant comput er system or the correspondence application program or the conventional computer input automation technology of the etc. which does not provide the open API cannot be used in the correspondence ap plication program of the invention, contribute. Furthermore, in the same context, the invention autom atically can process the entry job between the heterogeneous application program liver or the hetero geneous computer system without any limit.

In other words, the user just types the normal computer keyboard in the position of the computer sys tem (10) although automatic a series of entry job in which the invention is required by the configurati on of the input agent (130) and auto-input apparatus (110) in the specific application program on the computer system (10) is inputted according to the pre-set input entry sequence or clicks the normal c omputer mouse and is manually inputted it recognizes identically with . therefore it can not be limited by the factor including the execution of the security program, the unoffer of the open API, the comput er system etc. and is quite old required a series of entry job can be automatically processed in the sp ecific application program of the computer system.

The auto-input apparatus (110) produces the keyboard input signal and/or the mouse input signal. H owever it as shown in FIG. figures 2 and 3 is the normal computer keyboard (11) which is the comput er input device or the separate input unit different from the computer mouse (13). It is transmitted t hrough the keyboard input signal generated with the auto-input apparatus (110) and/or the keyboard driver or the mouse driver in which the mouse input signal is installed at the computer system (10) li ke the normal computer keyboard (11) or the computer mouse (13) in the computer system (10). Th us, in the position of the computer system (10), although the auto-input apparatus (110) is the separ ate input unit different from the normal computer keyboard (11) or the computer mouse (13) it is un able to classify and it is identical with the keyboard input signal which automatic is memorized with th e auto-input apparatus (110) or the input signal in which the user types the normal computer keyboa rd (11) or which clicks the normal computer mouse (13) and which is the mouse input signal generat ed it recognizes.

In the meantime, the keyboard input signal and/or the mouse input signal in which the auto-input ap paratus (110) is connected to as shown in FIG. figures 2 and 3 and the computer system (10) throug h USB port of the computer system (10) etc. and produced can be transmitted in the computer syste m (10). It is provided with this to the form in which the auto-input apparatus (110) is differently built in the computer keyboard (11) or the computer mouse (13) or the form can be provided to the form connected and the computer keyboard (11) or the computer mouse (13) to one adapter. In this case,

the auto-input apparatus (110) produces the predetermined keyboard / mouse input signal through t he computer keyboard (11) or the computer mouse (13).

As described above, the input agent (130) controls the auto-input apparatus (110) so that the auto-in put apparatus (110) produces the keyboard input signal and/or the mouse input signal according to t he pre-set input entry sequence. Such input agent (130) can be provided to one application program which as shown in FIG. 2, is installed at the computer system (10). In this case, the input agent (13 0) can control the auto-input apparatus (110) connected and the computer system (10) through the c omputer system (10). The this, differently, the input agent (130) controls as shown in FIG. 3, the co mputer system (10) and the auto-input apparatus (110) in this case, as shown in FIG. 3, the input ag ent (130) connects to the auto-input apparatus (110) through the wireless communication network in cluding the Bluetooth, the Wi-Fi etc. it can be provided to the separate apparatus (or, the computer s ystem) which includes the predetermined software and hardware while being physically separated.

Figure 4 is drawing showing the appearance the computer input system of fig. 1 performs the straight forward or the entry job about multiple computer systems.

Referring to Figure 4, the computer system (10) is provided to multiple computer systemses (10-1,10 -2,10-3, ~,10-N) and it is provided to multiple auto-input apparatuses (110) so that the respectively the auto-input apparatus (110) corresponds to multiple computer systemses (10-1,10-2,10-3, ~,10- N). And the input agent (130) connects to multiple auto-input apparatuses (110) through the wireless communication network including the Bluetooth, the Wi-Fi etc. and or multiple auto-input apparatuse s (110) are summarily controlled. In the meantime, multiple auto-input apparatuses (110) the input agent (130) can be respectively connected to this and the differently to the wire.

Like this, the invention automatizes the entry job about one computer system (10) but it does not sto p but the entry job can be automatized through one input agent (130) about multiple computer syste mses (10-1,10-2,10-3, ~,10-N). That is, the invention can expand the number of subjected computer system of the automatic input operations. This can look because of applying a kind of N screen (N-scr een) concept to the computer input system (100) of the invention. Thus, more efficiently, the inventi on can implement the Office Automation or the factory automation.

Figure 5 is a block diagram for illustrating the detail configuration of the input agent and function in t he computer input system of fig. 1.

Referring to Figure 5, the input agent (130) comprises the input entry sequence storage (131), the o utput pictures analysis section (133), and the input unit control part (135). Moreover, the input agent (130) as described above may further include the wireless communication unit (the not illustrated) th rough the wireless communication network in case the auto-input apparatus (110) connects so that t he input agent (130) wirelessly transmit the predetermined control signal in the auto-input apparatus (110). The wireless communication unit can be easily implemented as the bluetooth module, the Wi-F i module etc.

The input entry sequence provided to the script file analyzing about the entry job in which as describe d above, the input entry sequence storage (131) is required in the specific application program of the computer system (10) in advance and is programmed is stored. Then, the specific application progra m which the automatic input is subjected can update the update or the case of being upgraded, and t he input entry sequence in which the corresponding script file is programmed again and which is defin ed in the input entry sequence storage (131).

The image about the screen which the output pictures analysis section (133) outputs in the computer system (10) is transmitted and the image analysis is performed about the output pictures. And the ou tput pictures analysis section (133) provides the image information and coordinate information about the screen outputted to the analyzed result in the computer system (10) to the input unit control part (135) which will be described later. Here, the image analysis is the process of applying the image mat ching algorithm etc. and seeking out the image information including the specific icon image etc. at t he output pictures of the computer system (10) and getting the coordinate information for example. More specifically, the script file implementing the input entry sequence is programmed in the specific application program based on the image information and coordinate information about the screen out putted. For example, in the specific application program in the script file, in case the command inputti ng the icon image outputted to the screen in advance and clicks the icon image and progresses the e ntry job is set up the corresponding icon image is sought out at the output pictures through the imag e matching analysis and the output pictures analysis section (133) provides the coordinate informatio n to the input unit control part (135). Thus, the auto-input apparatus (110) can be controlled in order to produce the keyboard / mouse input signal in which the auto-input apparatus (110) clicks the corr esponding icon image and the input unit control part (135) performs the predetermined entry job bas ed on the coordinate information. Furthermore, the output pictures analysis section (133) applies the

character recognition algorithm and the necessary predetermined character information can be obtain ed in the output pictures of the computer system (10).

The input unit control part (135) controls the auto-input apparatus (110) so that the auto-input appar atus (110) produces the keyboard input signal and/or the mouse input signal based on the pre-set in put entry sequence. That is, the input unit control part (135) produces the keyboard input signal in w hich the auto-input apparatus (110) corresponds to the input entry sequence and/or the control signa l producing the mouse input signal and this is transmitted in the auto-input apparatus (110). Thus, in the position of the computer system (10), in which the user types the normal computer keyboard (1 11) from the just or which clicks the normal computer mouse (13) and which is manually inputted auto matic a series of entry job required in the specific application program on the computer system (10) i s inputted according to the pre-set input entry sequence with the input agent (130) and auto-input a pparatus (110). In spite of that it recognizes identically with.

Specifically, the analyzed result by the output pictures analysis section (133) is reflected so that the i nput unit control part (135) produces the keyboard input signal in which the auto-input apparatus (11 0) corresponds to the input entry sequence and the control signal is produced and the control signal t he auto-input apparatus (110) is transmitted. Then, the control signal is produced based on the imag e information and the coordinate information provided by the output pictures analysis section (133) i n which the input unit control part (135) describes in the above. For your reference, the input agent (130) can transmit the control signal through the wireless communication network in the auto-input a pparatus (110) in case the connects through the wireless communication unit (not illustrated) in whic h the input unit control part (135) describes in the above in the auto-input apparatus (110).

Moreover, the input error situation where the input unit control part (135) deviates from the input ent ry sequence based on the analyzed result by the output pictures analysis section (133) can be judge d. Here, in 'input error situation' is the relevant computer system, the system down or the system fail ure etc. are generated due to the problem of hardware or software and any more normally cannot per form the operation the situation in which the automatic input operation is unable to move forward acc ording to the pre-set input entry sequence is said. Moreover, in the relevant computer system, althou gh the system down or the failure does not occur the situation , and the situation in which for exampl e, the arrival sequence is successively one by one pushed include where the automatic input operatio n is unable to move forward due to reason for any according to the pre-set input entry sequence. Suc h input error situation can determine in the computer system (10) based on the image analysis about the screen outputted. For example, the input unit control part (135) analyzes the output pictures of t he computer system (10) the image with the output pictures analysis section (133). Then if the scree n is on the whole outputted to black the computer system (10) goes down and it can determine.

And in case it determines that the input error situation the input unit control part (135) is generated i t returns to the point of time of the input entry sequence which corresponds to when it provisionally c eases and the input error situation is generated as the disposition about that and the control of the a uto-input apparatus (110) according to the input entry sequence can be reopened.

Like this, the disposition in which the invention determines the input error situation in the computer s ystem (10) based on the image analysis about the screen which outputs and which is thus appropriat e is taken. In that way the computer input system reliability for automation can be more improved.

Figure 6 is a block diagram for illustrating the computer input system configuration of further includin g the apparatus of the image extraction of fig. 1.

Referring to Figure 6, the computer input system (100) according to a preferred embodiment of the p resent invention extracts the image about the screen outputted from the computer system (10) and i nput agent (130), and the apparatus of the image extraction (150) further are included. The apparatu s of the image extraction (150) more specifically, it transmits in the output pictures analysis section (133).

In case such apparatus of the image extraction (150) the input agent (130) cannot obtain the screen outputted about the computer system (10) through the screen capture mode in the computer system (10) the screen is used. That is, in the specific application program of the relevant computer system (10), in case the screen capture is limited to the reason of the policy phase or in security or it blocks the input agent (130) directly cannot secure output pictures about the relevant computer system (1 0). Therefore this is transmitted through the apparatus of the image extraction (150).

Specifically, the image is extracted in the mode in which the apparatus of the image extraction (150) takes a picture of the screen outputted using the camera in the computer system (10) or the image a bout the screen outputted can be extracted from the picture output terminal of the computer system (10) from the direct computer system (10).

The or more illustratively illustrates the invention the or more is nothing but and the various deforma tion will be possible in the range that it does not deviate from from the technical field in which the inv ention belongs with a person skilled in the art from the technical mapping of the invention. Therefore, the disclosed embodiments does not limit the invention to the specification of the invention. The scop e of the present invention has to be interpreted by the following patent claim and all the technology s that are in that and the equal range are included in the scope of the present invention and it should i nterpret.

Brief explanation of the drawing

Figure 1 is a block diagram for illustrating the computer input system configuration for the deskwork / factory automation according to a preferred embodiment of the present invention.

Figure 2 is a summary configuration diagram showing one example the computer input system of fig. 1 being connected to the computer system.

Figure 3 is a summary configuration diagram showing the dissimilar example the computer input syst em of fig. 1 being connected to the computer system.

Figure 4 is drawing showing the appearance the computer input system of fig. 1 performs the straight forward or the entry job about multiple computer systems.

Figure 5 is a block diagram for illustrating the detail configuration of the input agent and function in t he computer input system of fig. 1.

Figure 6 is a block diagram for illustrating the computer input system configuration of further includin g the apparatus of the image extraction of fig. 1.