

Introduction of Product

Introduction of Touch Panel Type Information Appliance "WebLight"

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Since 1998 Komatsu has marketed the touch panel type information appliance "WebLight" that enables anyone, even those unaccustomed to personal computer, to easily access Internet and utilize the information obtained. Recently the "WebLight" series were greatly upgraded in speed and functions, compared with conventional models, and began to be marketed from January 2005. This report introduces the new models.

Key Words: Internet, Information Appliance, Touch Panel, WebLight, Digital Divide, xDSL, FTTH, CATV Internet

1. Introduction

In these several years, in Japan, the high-speed Internet connection environment by means of CATV has spread to more than 15 million households and higher-speed FTTH has spread to 1.6 million households, and their charges per month is reduced to the lowest level in the world (according to the data publicized in August 2004 by the Ministry of General Affairs). According to the spread of these high-speed lines, diverse information has come to be provided via Internet, and the reinforcement of the infrastructure for electronic commerce and electronic government systems has been progressed.

However, personal computer is inevitable to utilize the information and services that are provided via Internet. Personal computer has pursued higher performance and functionality, on the other hand, its operation has come to be more and more complicated. As a result, information gap (digital divide) arose between the people who can use personal computer and the people who cannot.

In addition, because a personal computer requires a keyboard, a mouse and a display, certain space is necessary to install it. Further, movable parts such as hard disk and CPU fan are susceptible to failure. And, due to the problem of computer virus, it is hard to maintain and manage the functionality of personal computer.

In order to solve these problems, we developed the touch panel type information appliance "WebLight" under the concept of "Incorporate a Simple User Interface that Anyone Can Use and Achieve High Reliability".

2. Product Overview

WebLight has the appearance of small-size liquid crystal TV set (**Photo 1**). It, however, is a product in which the functions necessary to access Internet and display or input information as well as a simplified user interface are incorporated.



Photo 1 Appearance of Product

3. Targets of Development

WebLight was developed for people who are unaccustomed to personal computer and system integrators (Sler) who take charge of synthetically performing a series of work, from analyzing the content of customer's duties, planning the information system that matches the subject, developing programs, selecting and installing necessary hardware and software, to maintaining and managing the completed system, for the purpose of achieving the following targets.

- ① Easy to operate, like household appliances
- ② Has the user interface that enables those (the aged and children) unaccustomed to personal computer to easily operate
- ③ Space saving
- ④ High reliability
- ⑤ Security of the information on individuals

4. Main Features

4.1 Easy operation like household appliances

One of the great differences between personal computer and household appliance is the method for turning the power off. In the case of personal computer, “shutdown operation” must be done before the power is turned off. On the other hand, there is no household appliance, such as TV set, video recorder and washing machine, which requires “shutdown operation”. Therefore, the people who are not accustomed to personal computer often turn the power off without performing the “shutdown operation”, resulting inoperability of the personal computer, in the worst.

Then we consider the case where multiple sets of information appliance are installed in a public establishment, etc., as the information kiosk (Photo 2) for providing diverse information. In this case, when personal computers are used as information appliances, it is necessary to manually perform the “shutdown operation” on individual computer.



Photo 2 Information Kiosk

To solve these problems, for “WebLight”, the boot disk in which an OS is written is write-protected to make “shutdown operation” unnecessary.

As a result, it became possible for the power to easily be turned off, like household appliances, and for those unaccustomed to personal computer to easily operate the “WebLight”. When multiple sets of “WebLight” are installed, it is possible to connect them to a same power supply and turn the power off at a time or to connect them to different power supplies each having a built-in timer and turn the power off when the preset time elapses.

4.2 User interface

4.2.1 Character input

One of the barriers for those who cannot use personal computer is the operation of keyboard. Unless this problem is solved, it is impossible to develop an information appliance that can be used by anyone. Therefore, “WebLight” is equipped with 3 types of software keyboard. One is the simple keyboard on which keys are arranged in the order of Japanese syllabary or alphabet (Fig. 1, Fig. 2). Unlike the keyboard of personal computer, because keys are arranged in the order of Japanese syllabary or alphabet, buttons are sorted by color according to their functions, and various other devices are incorporated, it became possible that even those unaccustomed to personal computer easily look for characters and input them.



Fig. 1 Simple Keyboard (Hiragana Input Mode)



Fig. 2 Simple Keyboard (Alphanumeric Input Mode)

On the other hand, for those accustomed to the operation of personal computer, the keyboard on which keys are arranged the same as the keyboard for personal computer is more familiar and easy to use than the keyboard on which keys are arranged in the order of Japanese syllabary or alphabet. Therefore, 106 keyboard with such key arrangement is also incorporated (Fig. 3).



Fig. 3 106 Keyboard

In addition, for more efficient input, a macro keyboard is incorporated, with which you can enter frequently used words and sentences with only one button (Fig. 4).



Fig. 4 Macro Keyboard

These three types of keyboard can easily be changed over as needed only by clicking once on the tab provided at upper part of them.

4.2.2 Browser

“WebLight” has the “KTL Browser” which was developed assuming the use in information kiosk and can easily be operated by anyone (Fig. 5). This browser has the following features:

- A cross-shaped scroll bar is provided at upper right on the screen so that even the aged who cannot easily operate the scroll bar for dragging can easily scroll the screen only by pressing the button.
- In order that operators can intuitively enter characters, it is devised that the software keyboard is automatically displayed when a character input field in contents is touched.
- In the case of information kiosk, you may not want to display URL for security or other reason. Therefore, it is made possible to hide the address bar.
- In order that operators can be unaware that content are displayed on the browser, it is possible to display contents on full screen without displaying tool and address bars.
- To prevent the browser from being terminated by misoperation or mischief or the setting from being changed, resulting in an impossibility of providing services, it is possible to set the KTL browser such that the "Exit" button is not displayed or that the setting of the KTL browser cannot be changed after it is started.
- In the case of information kiosk, it is often required that the start screen including menu screen be displayed automatically for the next operator when an operator finished operation. To meet such needs, it is possible to automatically display a preset screen when the touch panel is not operated for a given period of time.



Fig. 5 KTL Browser

4.3 Space saving

The main unit of personal computer and the display (LCD) are integrated into “WebLight”. The operating section is equipped with a touch panel, which makes mouse and keyboard unnecessary. As a result, space saving installation became possible. In addition, when the stand is removed, “WebLight” can be mounted on wall. Thus, “WebLight” can be installed in a narrow space where conventional personal computer cannot be installed, and it is expected that “WebLight” will be used in various places and applications in the future.

4.4 High reliability

A personal computer uses a hard disk as boot disk and has a CPU fan to prevent the thermal runaway of CPU. On the other hand, none of them is installed in “WebLight” from the high reliability point of view because these movable parts are susceptible to failure. “WebLight” is equipped with a compact flash memory as boot disk, instead of hard disk. In addition, ultra low voltage Intel Celeron (Intel ULV Celeron) for embedded system, which is lower in calorific value than the CPUs for personal computer, is used as CPU, and the position and size of the vent holes on the rear of housing were devised to make CPU fan unnecessary (Fig. 6).

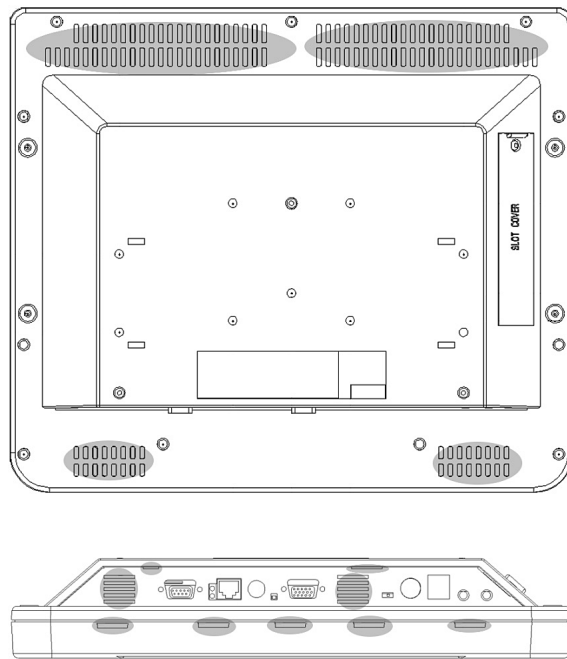


Fig. 6 Position of Vent Holes on the Rear and Bottom of the Main Unit (Shading Means Vent Hole)

In addition, as described in “4.1 Easy operation like household appliances”, it is devised that the power can be turned off at any time, which eliminates the occurrence of failure due to unexpected power-off.

This is very important for those who are not accustomed to personal computer because they have the preconception that personal computer is fragile, which makes them unable even to touch personal computer. If there is an information appliance that is less susceptible to failure, including those resulted from power-off, it can remove the users' anxiety that personal computer is fragile and will be used easily and comfortably.

In the case of installing information appliances as information kiosk in a branch office, etc., of a public body, they are installed not in one place but in multiple places in a same area. In case of failure, repair men must be dispatched to many places, resulting in high maintenance cost. If “WebLight” that has no movable parts and therefore is less susceptible to failure is installed in such places, there will be a great merit of reducing maintenance cost.

Further, because “WebLight” write-protects the boot disk in which OS is written, even if infected with computer virus, the virus can easily be removed only by turning the power off.

4.5 Security of the information on individuals

When installed as the information kiosk, many and unspecified persons operate “WebLight”. The log of who accessed what pages can be the information on individuals and should not be known by others.

For this reason, the KTL browser can be set to automatically delete access log when returned to the initial screen. Cache and cookie data of the browser are also automatically deleted when the power is turned off. Thus, “WebLight” prevents the outflow of operators’ access data.

5. Example of Introduction

In October 2004 Atsugi City of Kanagawa Prefecture started the “My Town Club” system that enables its citizens to use multiple administrative services, for example, reserving a public facility, such as public halls and sports facility, or the participation in various lectures and events, or exchanging information on local community, from a personal computer at home or an information kiosk installed on the street.

Conventional model of “WebLight”, or “WebLightEXP”, was valued highly for high reliability and easy operation with touch panel and total 72 sets were installed at 50 major places, such as stations, public halls and large superstores in Atsugi City. In addition, self-governing bodies over 70 have been already introduced the “WebLight”.

6. Main Specifications

Table 1 shows the product lineup that are put on the market this time; **Table 2**, their hardware specification; and **Table 3**, their software specification.

Table 1 Product Lineup

Model	Type code	CPU	LCD brightness	Capacity of system drive
WebLight EX	KDT715XAAAG-1	Intel ULV Celeron (400MHz)	250cd/m ²	256MB
WebLight FX	KDT715XABAG-1	Intel ULV Celeron (400MHz)	250cd/m ²	512MB
WebLight GX	KDT715XDBAG-1	Intel ULV Celeron (650MHz)	400cd/m ²	512MB

Table 2 Hardware Specifications

Item	Specifications			
Type code	KDT715XAAAG-1	KDT715XABAG-1	KDT715XDBAG-1	
Color of housing	Gray			
CPU	CPU	Intel ULV Celeron		
	CPU internal clock	400MHz	400MHz	650MHz
	CPU fan	None		
Storage	RAM	256MB(8MB for graphic memory)		
	System CF	256MB	512MB	512MB
Display function	Display device	TFT color LCD		
	Screen size	15 inch		
	Resolution	XGA(1024 x 768 dots)		
	Color	262,144 colors		
	Backlight	Cold-cathode tube		
	Brightness	250cd/m ²	250cd/m ²	400cd/m ²
Input function	Touch panel	Analog resistance film system		
Interface	Serial port	RS232C 1ch		
	Keyboard /mouse	PS/2 1ch		
	USB	USB1.1 2ch		
	LAN	10Base-T/100Base-TX 1ch		
	Image output	Analog RGB 1ch		
	Sound output	External stereo headphone(3.5mm mini pin jack)		
	Microphone input	External monaural microphone input (3.5mm mini pin jack)		
	CF	2ch TrueIDE mode, 5V power supply adapted CF only		
Power supply	Rated voltage	AC100 to 240 V (* Use the AC adaptor supplied with the product. The AC cable supplied with the product is dedicated to 100 VAC.)		
	Rated frequency	50/60Hz		
	Current consumption	Max. 1.9A(AC100 to 240V)		
	Power consumption	Max. 80W		
Power switch	Main unit front panel switch(soft switch) Power supply mode can be changed over with the slide switch on the rear of main unit. (Normal mode, Kiosk mode)			
Weight	Max. 5.5kg(AC adaptor, Weight of AC adaptor:1.0kg)			
Outside dimensions	360mm(W) x 310mm(H) x 64mm(D)			

Table 3 Software Specification

Classification	Application/Function	Description	EX	FX	GX
OS	WindowsXP Embedded SP1	Japanese support package adapted	○	○	○
Shell	Explorer Shell	Desktop, etc.	○	○	○
System protection	System drive protect		○	○	○
Touch panel control	Universal Pointer Device Driver	Touch panel driver and utility application	○	○	○
Character input	Software keyboard*	Character input by touch panel	○	○	○
	Software ten key board*	Character input by touch panel	○	○	○
	Keyboard call button*	Software keyboard view /hide control	○	○	○
	Microsoft Japanese IME	Dictionary is only for standard	○	○	○
Internet	Internet Explorer 6.0	Windows standard browser	○	○	○
	KTL browser*	Simple operation browser with touch panel	○	○	○
Application control	KTL launcher*	Application startup tool allowing arbitrary design editing	○	○	○
Multimedia	Windows Media Player 9.0		—	○	○
	DirectX 9.0c		—	○	○
Image processing	Windows Image Acquisition (WIA)	Tool for using USB camera and scanner	—	○	○
	Windows Picture and Fax Viewer	Function to easily display image file on Explorer	—	○	○
	Image Color Management(ICM)	Color control	—	○	○
Database	Jet Database Engine	Database for Microsoft Access	○	○	○
	Jet Database expanded function		—	○	○
	MDAC	ADO, OLEDB, ODBC supported	○	○	○
Print	Local Printing	Supports printout on local printer	○	○	○
	Server Printing	Local printer is opened to network as common resource	—	○	○
	Client Printing	Print support while terminal is servicing	—	○	○
Network	TCP/IP connection	LAN connection	○	○	○
	Dial-up connection		○	○	○
	QOS	Quality of Service.	○	○	○
	DHCP Client		○	○	○
	Microsoft Network Client	Microsoft network	○	○	○
	File Sharing for Microsoft Network	File sharing	○	○	○
	Wireless Zero Configuration service	Wireless LAN setting	○	○	○
	Internet connection firewall	Windows XP simplified firewall	○	○	○
TCP/IP Version6		—	○	○	
Utility / Tool	Explorer	File browser	○	○	○
	Command prompt		○	○	○
	Paint	Image edit tool	○	○	○
	Word Pad	Document editor	○	○	○
	Memo Pad	Text editor	○	○	○
	Terminal Service Client	Connect remote desktop to server	○	○	○
	Volume control	Volume control	○	○	○
	Net.exe	Net command	○	○	○
Regedit	Registry editor	○	○	○	
Windows XP Embedded Standard USB driver	The following standard drivers are included. · Generic USB Composite Device · Generic/Standard USB Hub · USB Human Interface Device · HID keyboard Device · Japanese USB keyboard · HID-compliant Mouse · USB Audio Device · USB Speakers · USB Floppy Disk Drive · USB Storage Device · USB Mass Storage Device	—	○	○	○

*Komatsu TriLink's original application

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7. Future Subjects

Combining touch panel and software keyboard, and devising various features such as customized browser, "WebLight" realized an information appliance that can be used even by those who cannot use personal computer.

We will make further efforts to develop a more easy-to-use information appliance with the features of inputting commands by voice and reading contents by voice so that more people will use it in the future.

Introduction of the writer



Chiaki Suzuki
Entered KOMATSU in 1992.
Currently belongs to Komatsu TriLink Ltd.

[A few words from the writer]

We would like to bring up "WebLight" such that it will be recognized as a product helpful to the IT weak and spread widely in the Internet society.