# INTERTop WORLD Services – Official Homepage for New Portable Information Tool "INTERTop"

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**Keeping pace with the rapid progress of mobile computing, Fujitsu has released a new portable information tool called "INTERTop." One of the key concepts of INTERTop is to allow users to obtain on-line support over the Internet. Various departments of the company have combined forces to create a homepage that is specific to INTERTop and is called "INTERTop WORLD."**
**The key services of this homepage provide information for users, enable information to be exchanged among users, and allow software to be downloaded. Also, various homepage articles and the WebCAT server service are provided. We can thus provide improved access and other useful services for users. Therefore, the number of accesses to the homepage is increased.**

## 1. Introduction

In line with the growing demand for mobile computing, the portable terminal market has been growing rapidly. The growth of the Internet, too, has played a key role in the growth of the portable terminal market. Portable terminals, portable telephones, and the Internet, separately or combined, have brought about remarkable changes in the ways of doing business and life styles.

The Internet is also becoming useful in the development of products, as well as advertising, sales, and the provision of support for users. For example, homepages on the Internet are an efficient way not only to introduce products but also to promote sales, conduct research, and support users.

Although still at the provisional stage, Fujitsu already has set up an official homepage called "FM WORLD," which provides personal computer users with support information about Fujitsu's personal computers.

The INTERTop[1] portable information tool was announced in June 1997, and a homepage for it was planned in the development stage to promote sales and support users. In the present portable terminal market, the services that the mak-er provides for a product through the Internet can affect a customer's choice of product. In other words, an attractive official homepage for a product can induce customers to buy the product.

This article explains the planning, setting up, and operation of "INTERTop WORLD," which is the homepage for the INTERTop.

## 2. Background of INTERTop WORLD

The INTERTop portable information tool that was officially announced on June 3, 1997 is radically different from conventional portable information terminals. A special homepage for the INTERTop was planned early in its development stage to promote sales and for user support.

Fujitsu already runs its official homepages FM WORLD (**Figure 1**) and OASYS[note1] WORLD (**Figure 2**) to support product users. For the INTERTop, Fujitsu decided to set up a new server having the product name (INTERTop) in the domain name to promote the name in the market for portable information devices. The screen and page layout of the homepages were designed to match the functions and applications of the IN-

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note1)    OASYS is the trade name of a Japanese word processor of Fujitsu.

Figure 1.
Top page of FM WORLD.



Figure 2.
Top page of OASYS WORLD.

TERTop. The main contents of INTERTop WORLD were set as follows:

– INTERTop WORLD provides useful information to those who have bought an INTERTop.

– INTERTop WORLD enables Fujitsu to promote sales of the INTERTop.

INTERTop WORLD was planned as a unique homepage that meets the above requirements.

## 3. Issues on INTERTop WORLD

When planning INTERTop WORLD, the following issues were discussed.

### 3.1 INTERTop WORLD as a Source of Information

Announcements about support information and new models must be made quickly.

Users of the INTERTop include those who understand mobile computing in detail as well as computer novices. Fujitsu must show novices how to use the INTERTop through INTERTop WORLD.

If third-party makers release peripherals and software for the INTERTop, Fujitsu must intro-

duce them to users in a timely manner.

The Internet can carry data much faster than conventional paper-based data transfer, so INTERTop WORLD was designed to meet all the above requirements for distributing information quickly and efficiently.

### 3.2 INTERTop WORLD as a Site for Exchanging Information

Requests for INTERTop WORLD included a function that enables users to post their information on INTERTop WORLD.

Users like to be able to send their opinions and information about a site to the maker, and to exchange their own ideas about the product. In chat rooms and on-line forums, power users of a product often have enthusiastic discussions about the product in which the maker is rarely involved. However, users expect the maker to listen to their views.

Some people asked INTERTop WORLD to set up an official page where users can exchange opinions and, if necessary, a system for answering their questions.

### 3.3 INTERTop WORLD for Mobile Use

The INTERTop is a portable terminal that makes the user feel skilled. Its functions and appearance are designed for use outside the home and office. But what information do users on the move want from the Internet?

When connected to the Internet, the INTERTop offers access to huge databases located around the world, but it is often difficult to locate the re-

Figure 3.
Top page of a user's site of INTERTop WORLD.



Figure 4.
Top page of the promotion site of INTERTop WORLD.

quired information quickly. Therefore, INTERTop WORLD was designed to help users quickly find information, ranging from business information to entertainment information.

## 3.4 INTERTop WORLD for Download Services

The INTERTop has undergone several minor changes since it was first released. Users who purchased older models must buy an upgrade package in order to receive support.

For example, to upgrade the internal software of the INTERTop, users of older models need to use an online download service, rather than take their device to a support center. INTERTop WORLD therefore had to provide a download service.

## 4. Solutions to Issues and Results
## 4.1 Distributing Information to Users

There are two general groups of users who access INTERTop WORLD for information from Fujitsu: those who have already bought the INTERTop and those who might buy the INTERTop.

Those who already own an INTERTop require an online manual and details on how to use the INTERTop. Such information does not need a special presentation or homepage design that makes it slow to view; on the contrary, the homepage must be designed to deliver immediate access.

**Figure 3** shows the top page of INTERTop WORLD for users who have already bought the INTERTop. The menu and layout are designed to enable all information to be accessed from the top page. Memory-intensive graphic images are minimized to increase the data transmission speed. In addition, data can be viewed on-screen very clearly with the built-in browser of the INTERTop.

For potential users who are interested in buying the INTERTop, the homepage must be visually attractive and graphically designed using the latest web techniques.

In the initial stage of development, an attempt was made to implement these contradictory features in one layer, but it was difficult to make the homepage appeal to both groups of users. Therefore, the initial design was changed and split into a site for existing users and a site to promote the product, thus appealing to both groups of users.

The promotion site uses ShockWave animation, shows the product specifications of the INTERTop, and is the official homepage. The top page of the promotion site is shown in **Figure 4**.

To enrich the information for users, a bulle-

tin board to which users could freely make postings was created in INTERTop WORLD in the early stages.

In principle, no posting is deleted from the bulletin board unless it threatens public order or morals, or slanders another person.

The bulletin board provided Fujitsu with feedback from users about the INTERTop. The postings were used to create files of frequently-asked-questions (FAQs) files about the INTERTop that were then fed back to users under the title of "How to use the INTERTop."

In short, users' candid opinions were collected and used to plan the information to be put up on the homepage. Most of the FAQs in INTERTop WORLD are not model questions created by Fujitsu but are based on actual postings from users.

The bulletin board proved to be a very effective way to collect information and distribute it quickly to users.

### 4.2 Information Exchange among Users

The bulletin board system is useful for exchanging information not only between Fujitsu and users, but also among users.

Some users participate in chat rooms or forums to exchange information with each other, and a maker can access these to learn about the users' opinions of their products. However, very few users actually use such chat rooms and forums.

A novice user of the INTERTop cannot easily use a chat room or forum to read log information and post opinions. However, a novice can easily access the On-line Chat Room of INTERTop WORLD via the Internet because INTERTop WORLD is set as a homepage of the built-in browser of the INTERTop.

In the On-line Chat Room, all kinds of personal computer users, from power users to novices, can exchange questions and answers about products with each other without considering the maker. Indeed, this exchange of information through INTERTop WORLD has greatly reduced the volume of support that Fujitsu is asked to provide.

### 4.3 Mobile Use

INTERTop WORLD was designed not only to accept and exchange information about the INTERTop, but also to add value to the INTERTop as a mobile computing device.

The fields of information which enrich mobile computing range widely from business to entertainment. Because the editors of INTERTop WORLD cannot prepare all the necessary information, INTERTop WORLD was designed to provide links for quick access to various information sources. However, the links alone do not differentiate INTERTop WORLD from conventional homepages.

To achieve this, an information map was developed for INTERTop WORLD in cooperation with the company that developed a homepage of map information called "WildBird." WildBird had long been offering map information under the title of "InfoMap" on the Internet (**Figure 5**). The InfoMap system covers not only the retrieval of map information on location, but also the retrieval of additional information, such as information on stores, by using keywords and a special database.

The company that developed WildBird was



Figure 5.
Top page of the map information InfoMap.

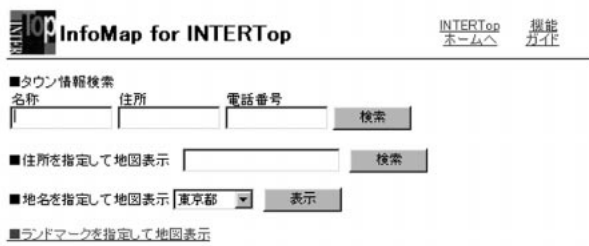**38**

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Figure 6.
Top page of InfoMAP for INTERTop WORLD.

requested to customize InfoMap to create an InfoMap for INTERTop, which was then incorporated into INTERTop WORLD to supply map information to users.

The built-in browser of the INTERTop initially took a long time to display the conventional InfoMap. To shorten the time, the user interface with InfoMap was improved in various ways. **Figure 6** shows the InfoMap screen that was customized for INTERTop WORLD. The time taken to display map information was reduced by changing the image formats and HTML tags that can be displayed by the browser and by improving the design and resolution of the browser.

Thus, InfoMap became one of the major attractions of INTERTop WORLD.

Another user service related to mobile computing is the G-Search mobile information service. This service supplies business information that is useful to mobile users from the database of the G-Search which is a database service company. Users of this service can access various business information quickly even from outside the office.

## 4.4  Download Service

When INTERTop WORLD was started, the only main data available for downloading was various background wallpapers for the menu screen because there was no upgrade data about the INTERTop. Even at that time, most accesses were accesses to the download service.

This fact showed that users were very interested in downloading, so the download service has been enhanced in each upgrade of the INTERTop.

Users continue to frequently access such download items as the INTERTop upgrade kits and an introduction to Lotus 1-2-3 for INTERTop. The download service also gives a detailed explanation of how to install each download in the user's INTERTop and displays an estimate of the download time. Esimates of the download time were developed by creating several model cases of downloading and taking the average of the time required for each download.

## 4.5  WebCAT – Server Service for Users

A bulletin board system was incorporated in INTERTop WORLD as explained in Section 4.2. In the stage of planning INTERTop WORLD and creating its contents, an advanced service to allow users to post information was suggested. Bulletin boards allow simple posting and sharing of information, but we investigated how to provide users with an area for their own homepages and a chat room.

The WebCAT application was developed to deliver the service. The WebCAT system enables each registered user to create a personal homepage and set up a chat room from the input page of INTERTop WORLD.

The data that was entered by users via INTERTop WORLD was designed to be stored on a disk array in the INTERTop WORLD office. The contents of INTERTop WORLD used to be held on a UNIX server, but because the reception of user data directly on the UNIX server posed a security problem, a dedicated NT server was installed to receive data from users.

Although NT servers have rapidly become popular, security holes have often been found, and its integrity as a platform for handling user-originated data is suspect.

Nevertheless, because the NT server has the advantages of low cost and a short development period, it was selected and the server system was designed to execute detailed security checks. These security checks include verification of authority in case a third party intentionally makes

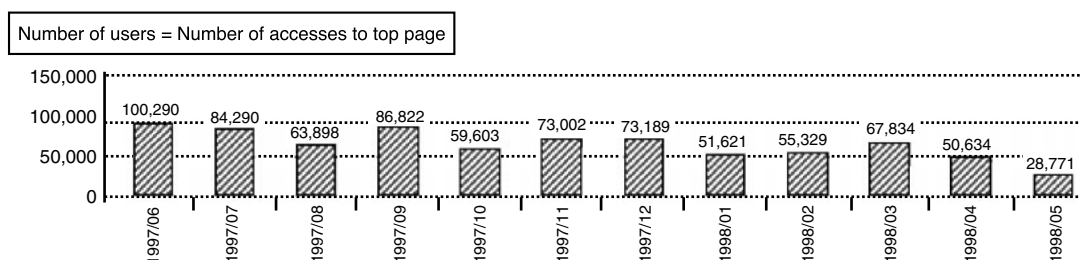Number of users = Number of accesses to top page

Figure 7.
Number of accesses to INTERTop WORLD.

an illegal access to the data of another user.

WebCAT was set up to provide users with a place to share information freely, and to allow registered INTERTop users to set up personal homepages and chat rooms on the NT server.

## 5.   Effects of INTERTop WORLD

INTERTop WORLD has had a huge effect on user services and publicity, has effectively publicized the INTERTop, and has quickly delivered information to purchasers of the INTERTop.

INTERTop WORLD receives 74,000 hits per month (average for June 1997 to February 1998), putting it second after FM WORLD among Fujitsu's homepages (**Figure 7**).

On the other hand, if the sole emphasis was on services to existing owners of the INTERTop, INTERTop WORLD would not appeal to poten-

tial customers.  To redress the balance, INTER-Top campaigns are periodically held to attract new visitors to INTERTop WORLD.  The main purposes of these campaigns are to increase the number of accesses and to research public trends.

For example, many banner advertisements for INTERTop WORLD have been placed in news mailing lists and Fujitsu-related sites on the Internet.  The type of publicity must match the characteristics of the Internet, and effective methods of advertising are still being studied.

Product homepages will continue to be used for user support and publicity.  The knowledge and practical skills obtained from the setting up and operation INTERTop WORLD will be of great use for other Fujitsu products.

## Reference:

1)  Fukuda, M.: INTERTop. *FUJITSU, Sci. Tech, J.*, **34**, 1, pp. 30-34 (1998).

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