

Development in Ubiquitous computing & Telephone Network

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1. Telephone

1.1 The L mode telephone

L mode is the service to transmit and receive the reference of the information on the easy image and mail with a telephone sense, the character from the menu of the screen such as telephone, FAX for the L mode by the button operation.

Moreover, a L mode card is used, and it can be used from the IC card public telephone machine as well.

How to use it is easy, and a L button is only pushed, and operation is easy to do on the big screen with a big button as to the big character without complicated setup like a personal computer it is easy.

There are various contents in the information which is useful for the life, the area close adhesion information, the town page, and so on, and the person who is poor at the old man and the operation of the machine can operate it easily, too, and convenient.

The outline of the L mode Telephone is shown in Fig 1.1.

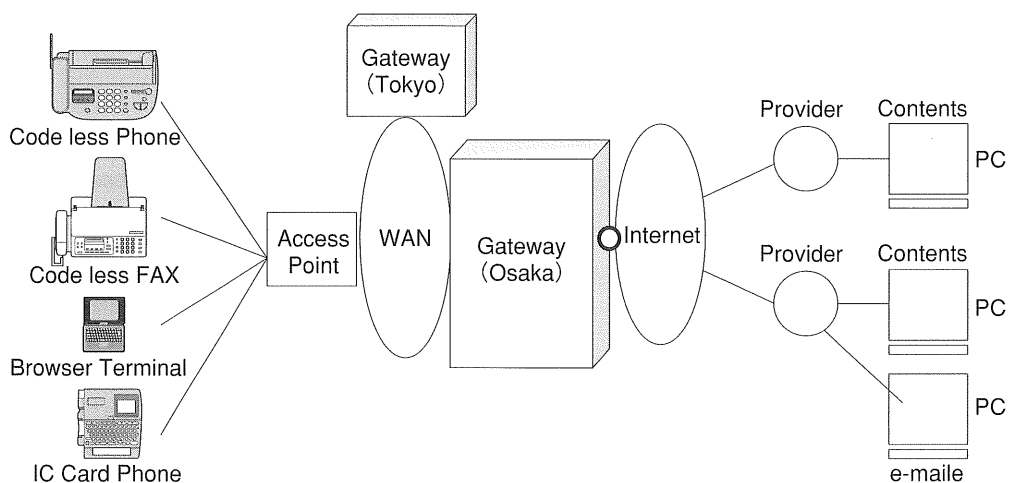


Figure 1.1 The outline of L mode telephone

1.2 IP telephone

IP telephone uses the technology which transmits and receives the voice of the telephone which it has ADSL Internet lines called VoIP (Voice over Internet Protocol) by over the IP network.

The voice of the general telephone passes a telephone line, and comes to reach a partner for a telephone call through the exchange machine of the telephone company.

A voice is digitized to this, and IP telephone is made an IP packet, and handled the E-mail and the IP packet of the Web access , and it flows in the IP network, and it comes to reach a partner.

It is hung free if telephone charges become cheap by using a cheap IP network and a partner for a telephone call is IP telephone without passing through the expensive telephone exchange machine by making a voice an IP packet. Telephone call quality sometimes goes down to the IP telephone when the communication speed of the network goes down because ADSL internetwork is being used.

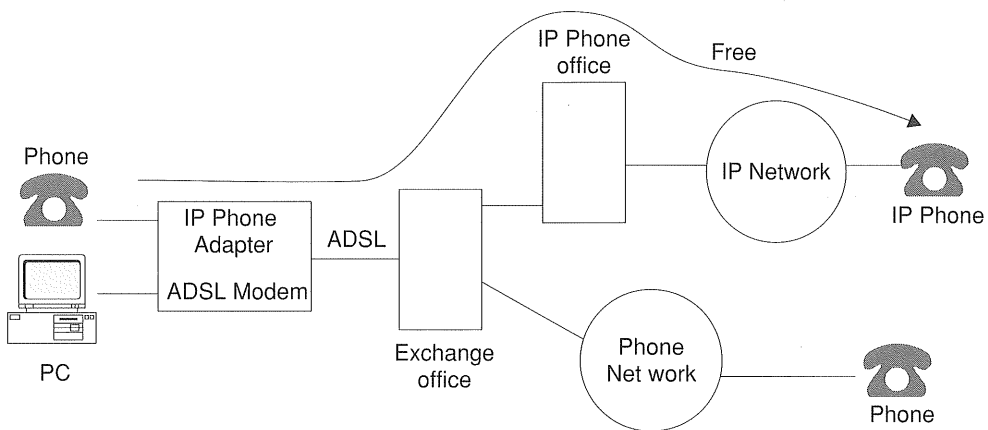


Figure 1.2 The outline of IP telephone

The outline of the IP telephone is shown in Fig 1.2.

About 320kbps is about necessary because a voice is changed into the data on 64kbps and an IP telephone service is being done and a header, data for the call control, and so on are added to the voice data as to it and the communication data of the Internet are washed away at the same time, too.

But, a voice packet can't be processed, and it lacks it, and management becomes slow, and quality sometimes goes down when large quantities of data are downloaded even if ADSL is fast enough.

Quality can be prevented from going down if it is the service which the IP telephone adapter which it gives priority to a voice packet over is used for in such a case.

An IP telephone service is cheap, and unstable, and quality isn't perfect by the circuit conditions of the IP network of the thing that it is unchanged with the admission telephone, either.

IP telephone in 2000 was turned to the practical diffusion, and a society was made to make a start, and general affairs Ministry gave the telephone number which began with "050" in November, 2002.

This telephone number can call via the IP telephone net when eleven-digit telephone number to begin with 050 is given and it dials in the number for the IP telephone from the general telephone when it lays IP telephone.

The number of 050 will cope with about summer for 2003 years at present though it can't be put on the IP telephone from the general telephone because it doesn't cope with the exchange machine 050 of NTT though it is used with the usual number together and it is available.

It can have a number individually as well as the cellular phone at present if it is possible that technically more than one number is used and more than one number can be used though it is attached to 1 circuit and it can get only one 050 number.

IP net 050-XXXX-XXXX (after 2003-year summer) general telephone NTT.

Telephone net 03-XXXX-XXXX.

The outline of the IP video telephone is shown in Fig 1.3.

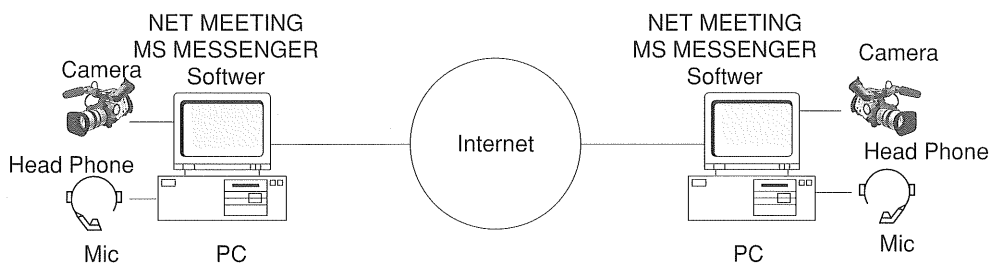
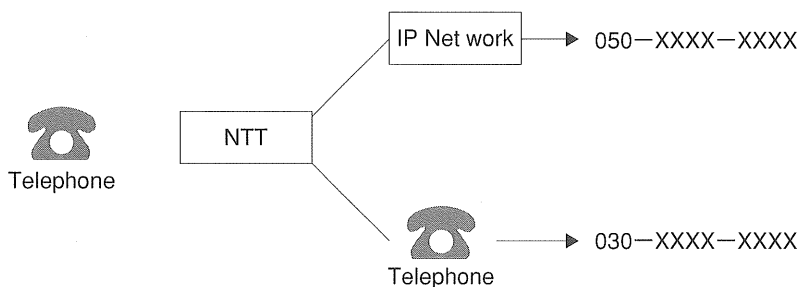


Figure 1.3 The outline of IP Video Phone



The Dial Numbering Configuration

A camera, a microphone and Headphone are connected to the personal computer, and software for the IP video telephone, Net Meeting and MS Messenger, and so on are installed, and it telephones it through the IP network.

It is difficult if smooth movements are not high-speed FTTH lines when a video screen is big even if ADSL lines are used.

Moreover, it is connected with more than one partner at the same time, and the television conference as well is possible.

It is connected to the network as well as time to be in the company and the house.

2. Ubiquitous computing

2.1 Mobile computing movement again.

A cellular phone, PHS, a wireless router, and so on are being used to connect it to the network. The outline of Mobile computing is shown in Fig 2.1.

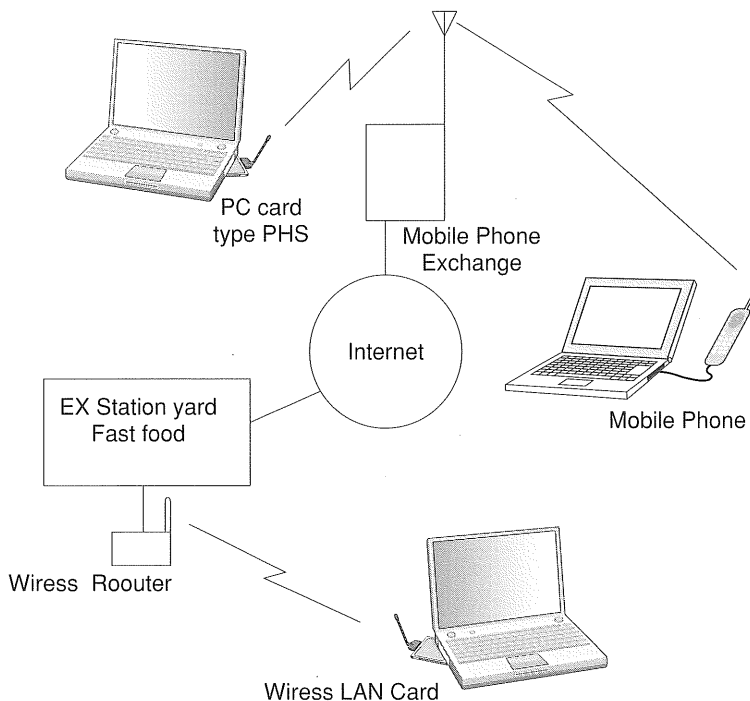


Figure 2.1 The outline of Mobile Computing

It can be connected to the network at a communication speed of 32kbps or 64kbps in case of PHS, and the high-speed communication of 384kbps can be done with FOMA 9600bps over the

common cellular phone in case of a cellular phone.

A wireless router can be connected with Broadband of 11Mbps.

2.2 Browser phone

Browserphone is a matter of cellular phone corresponding to the i mode that that it can be always connected to the Internet over the cellular phone everywhere and an E-mail can be transmitted and received and cellular phone homepage read, EZweb and J-sky.

The outline of Browser phone is shown in Fig 2.2.

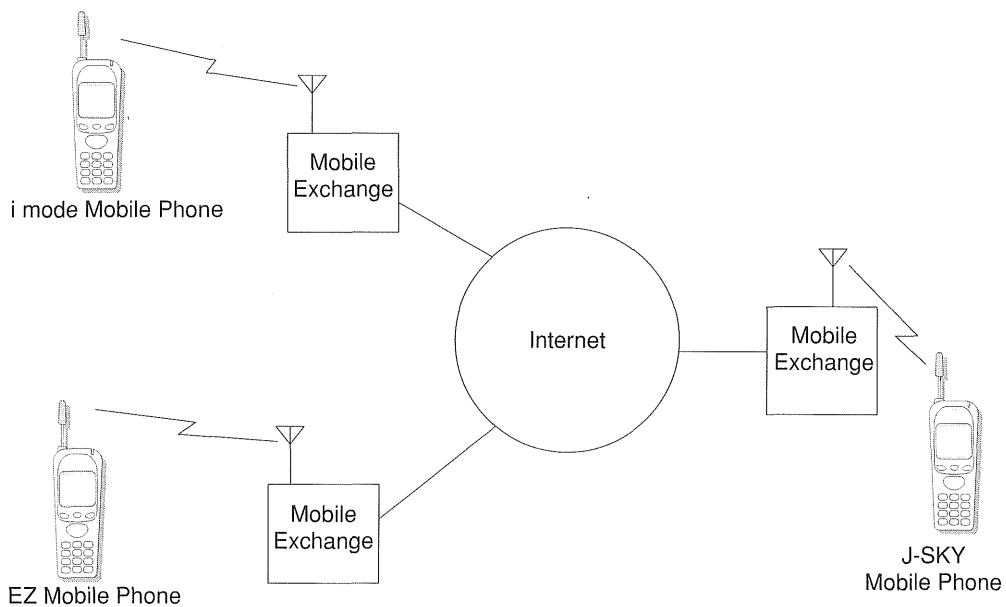


Figure 2.2 The outline of Browser Phone

It is connected to the Internet, and it is in the result which various contents services will make use.

The users of Browserphone show a tendency of increasing all the more because they are easy rather than they break through 40,000,000 people in February, 2003 at present and connect it to the Internet with a personal computer.

Packet communication is being used with Browserphone.

When it telephones it with the normal telephone and the cellular phone, it is being done in the method of the circuit exchange form.

It costs a charge by the packet communication only so long as data such as a character and an image were sent though telephone lines are connected even with the silence while speaking and it

costs telephone charges corresponding to the time until a telephone call is finished from the beginning.

Data are divided into the lump (packet) of the fixed length on the transmitting side, and it is assembled by the packet communication in the feed and the receiving side.

A charge is decided corresponding to the number of packets.

Packet communication can do the effective use of the electric wave because it is not an electric wave when data aren't transmitted and received.

2.3 Internet household

Remote control does a family electric appliances product such as a Internet household electric appliances television, a refrigerator and a microwave range through the Internet from the outside of the house, and the thing that information can be exchanged is being called net household electric appliances.

The thing that the contents of the refrigerator aren't checked in a point which a cooking menu was taken in on the Internet from and which it was made to indicate in the display of the microwave range and to record a program on videotape over the cellular phone from the place to visit and which it went shopping through and which be short of is bought, and it can be done.

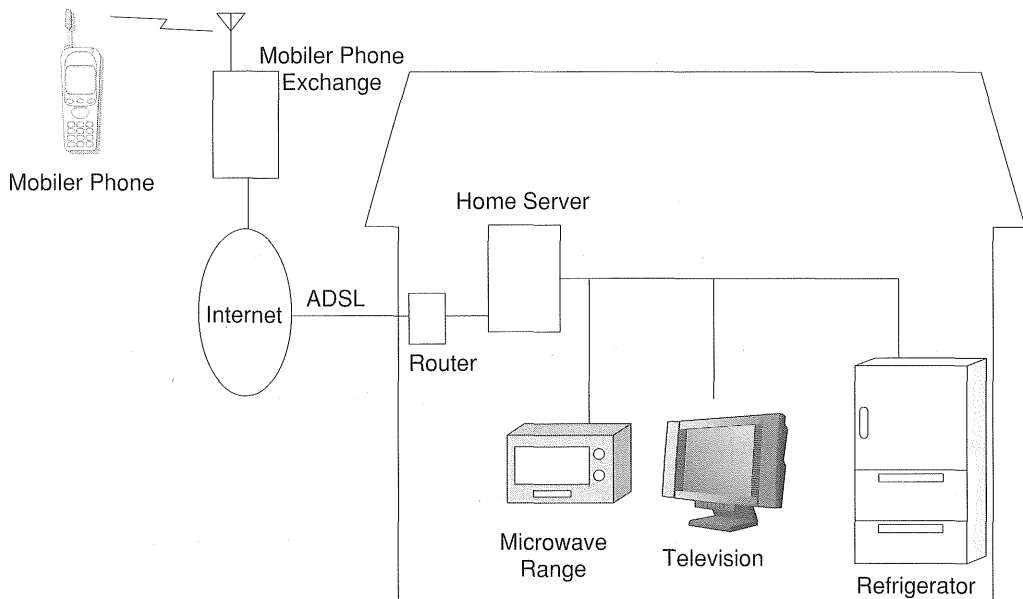


Figure 2.3 The outline of Internet household electric appliances

An IP address is necessary to recognize household electric appliances on the net when household electric appliances are connected with the Internet like this.

The new standard IPv6 of the IP address is necessary, and because it becomes the tremendous number and IPv4 till now stops being enough for the address when household electric appliances are connected with the net.

The outline of Internet household electric appliances is shown in Fig 2.3.

2.4 Digital television viewer

A TV station is united with both directions communication with the digital television viewer.

The electric product which comes out to the accessories which it wears on the clothes which a character wears, and the body, and the screen, furniture, and so on can be ordered with seeing the screen of the drama.

Simultaneous indication is made of weather forecast figure, chart figure of the stock prices, and so on as well in a part of the screen.

A viewer can participate, too, and the answer of the questionnaire as well can be done with seeing a screen by the quiz program and so on.

The outline Digital TV is shown in Fig 2.4.

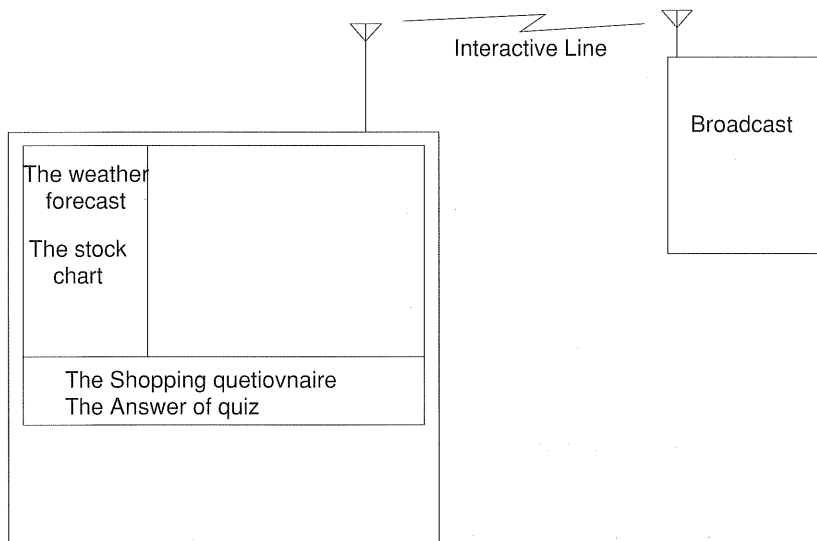


Figure 2.4 The outline of Digital TV

2.5 Car electronics

Many computers are being included into the car of the car electronics present.

A computer is being used for the control such as an engine, a fuel jetting device and a brake.

The concentration of the gasoline of the fuel jetting device is controlled corresponding to the number of rotation of the engine, the load.

The oil pressure of the brake is controlled, and the direction of the car prevents a wheel from locking because it can't be controlled even if a handle is cut when a wheel locks.

The navigation system included to the personal computer more comes out though the cars which a navigation system is put on recently have been increasing, too.

It is connected to the Internet with a personal computer, and an E-mail is received in the car, and it accesses various web sites, and it has been learning to get various information.

The outline of car electronics is shown in Fig 2.5.

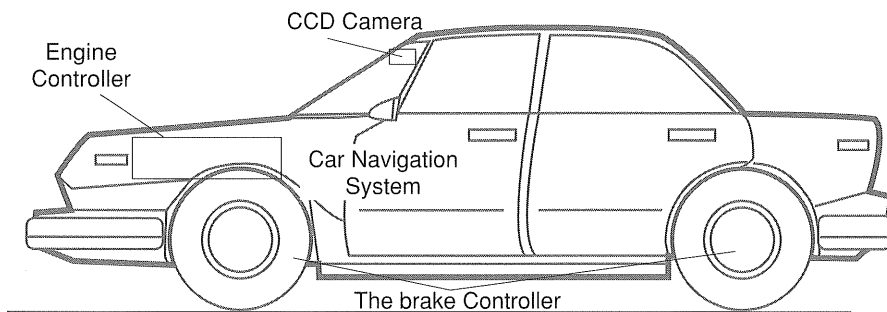


Figure 2.5 The outline of Car Electronics

There is a thing called the automatic operation support system to ease the fatigue of the operation person at the expressway by the latest car.

If an operation person adds a hand to the handle, the white line of the road is recognized with the CCD camera installed at the top of the front window, and an interval with the former car is measured with mm wave radar in the front grill, and this controls a brake to keep a constant interval.

Even if nothing is done, a handle moves, and an operation person can go to the interchange of the purpose.

A navigation system tells that it becomes the inter-front of the purpose with a voice.