

[0012] FIG. 2 is a top view illustrating an external view of a mobile information terminal (PDA) shown in FIG. 1;

[0013] FIG. 3 is a block diagram illustrating an exemplary general hardware configuration of the PDA shown in FIG. 1;

[0014] FIG. 4 is a block diagram illustrating an overview of a general hardware configuration of a server for use in the present embodiment;

[0015] FIG. 5 is a schematic diagram illustrating an online user registration process in the present embodiment;

[0016] FIG. 6 illustrates an exemplary structure of a customer database of a client service provider in the present embodiment;

[0017] FIG. 7 is a schematic diagram illustrating a general procedure for transferring information between a mobile phone (a client) and each of the servers at the time of Web channel registration (so-called subscription or My Menu registration) in the present embodiment;

[0018] FIG. 8 is a schematic diagram illustrating a procedure in which the user accesses a Web site from the user's mobile phone after the Web channel registration performed in FIG. 7;

[0019] FIG. 9 illustrates an exemplary initial menu screen on the PDA supplied from a Web server of the client service provider in the present embodiment;

[0020] FIG. 10 illustrates another exemplary screen on the PDA in the present embodiment;

[0021] FIG. 11 illustrates further another exemplary screen on the PDA in the present embodiment;

[0022] FIG. 12 illustrates still another exemplary screen on the PDA in the present embodiment;

[0023] FIG. 13 illustrates still another exemplary screen on the PDA in the present embodiment;

[0024] FIG. 14 is still another exemplary screen on the PDA in the present embodiment;

[0025] FIG. 15 is still another exemplary screen on the PDA in the present embodiment;

[0026] FIG. 16 is a flowchart describing time-series operations to be performed by the client and each server at the time of My Menu registration in the present embodiment;

[0027] FIG. 17 is a flowchart describing time-series operations to be performed by the client and each server at the time of service usage in the present embodiment;

[0028] FIG. 18 is a flowchart describing time-series operations to be performed by the client and each server at the time of cancellation in the present embodiment;

[0029] FIG. 19 is a flowchart describing the flows of the processing operations for the client service provider authentication to be performed in a terminal browser between the same and client service provider and for the transmitting of encrypted data from the browser to the client service provider;

[0030] FIG. 20 is a schematic diagram illustrating an overall configuration of a network system practiced as a second embodiment of the invention;

[0031] FIG. 21 is a perspective view illustrating an external configuration of a camera-equipped digital mobile phone shown in FIG. 20;

[0032] FIG. 22 is a partial perspective view illustrating a display section of the camera-equipped digital mobile phone shown in FIG. 21 with its camera section rotated; and

[0033] FIG. 23 is a block diagram illustrating a circuit configuration of the camera-equipped digital mobile phone shown in FIG. 21.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0034] This invention will be described in further detail by way of example with reference to the accompanying drawings.

[0035] Now referring to FIG. 1, there is shown an exemplary configuration of an information providing system practiced as a first embodiment of the invention. Term "system" here used denotes a logically assembly of a plurality of units, which need not necessarily be integrated in a same housing.

[0036] When connecting to the Internet, a mobile information terminal (or PDA (Personal Digital Assistant)) 10 is connected to a mobile phone 15 (including a so-called PHS (Personal Handyphone System), which is an existing communication device, via an adapter 13. The mobile phone 15 is connected to a mobile network 161 via a predetermined base station BS and further to the Internet 400 via a gateway 162. In this example, an Internet connection provider 16 of a carrier is used; however, Internet connection providers of other than carriers may also be used.

[0037] A Web server 403 forming a plurality of mobile content providers 17 (hereafter referred simply to content servers) for performing various information providing services mainly for mobile information terminals, a Web server 413 forming a client service provider 18 which functions as a so-called portal site for the mobile information terminal in the present embodiment, and a charging server 423 forming a charging surrogate service provider 19 for surrogating the charging to the mobile information terminal user for the mobile content provider 17 are interconnected by the Internet 400.

[0038] The mobile content provider 17 is mainly composed of a router 401, a LAN 402, the Web server 403, and a customer database 404 (hereafter a database will also be referred simply to a DB). The Web server 403 provides, to clients, documents written in a markup language such as HTML (Hyper Text Markup Language) by following HTTP (Hyper Text Transport Protocol). The customer DB 404 stores the flash ID, name, age, birthday, gender, home and office addresses, telephone and facsimile numbers, and the password (if necessary) for service concerned of each user registered for an information providing service concerned. The flash ID is unique identification information allocated to each mobile information terminal. The flash ID is so called because it is normally stored in a flash memory. Generally, the flash ID is represented by alphanumeric characters of