



A WEB-BASED HOME HELPER SUPPORT SYSTEM

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1 INTRODUCTION

In Japan, a long-term care insurance law for elderly persons was put in force this year. This insurance covers home welfare and care services such as cooking, bathing, washing, cleaning, shopping, etc. “Home Helpers”, analogous to the U.S. “Home Care Specialists”, are employed by hospitals, care companies or the welfare office, and are sent to the homes of elderly persons to provide the above services. They are required to check their schedules and input their reports into the computer at the employment office before and after care visits, which requires a significant amount of time and extra travel.

In this study, we developed a web-based "home helper" support system using wireless internet mobile phones.



2 SYSTEM DESCRIPTION

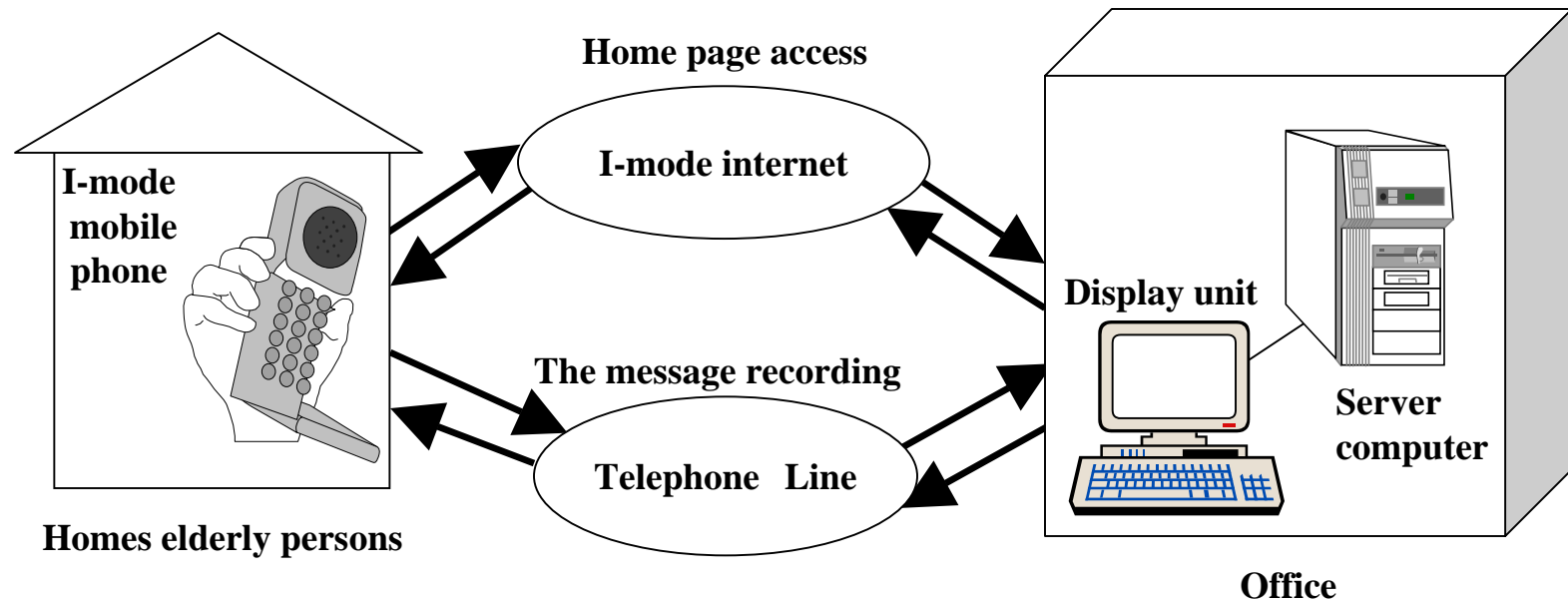


Figure 1. The overall web-based “Home Helper” support system. The system consists of a wireless internet mobile phone and a desktop computer. The desktop computer is used as a server computer, which contains home pages for entering care report by each Home Helper. The Home Helper accesses the homepage, and then enters their care reports directly from the mobile phone to the server computer. The Home Helper can also enter the message by the voice via telephone line .

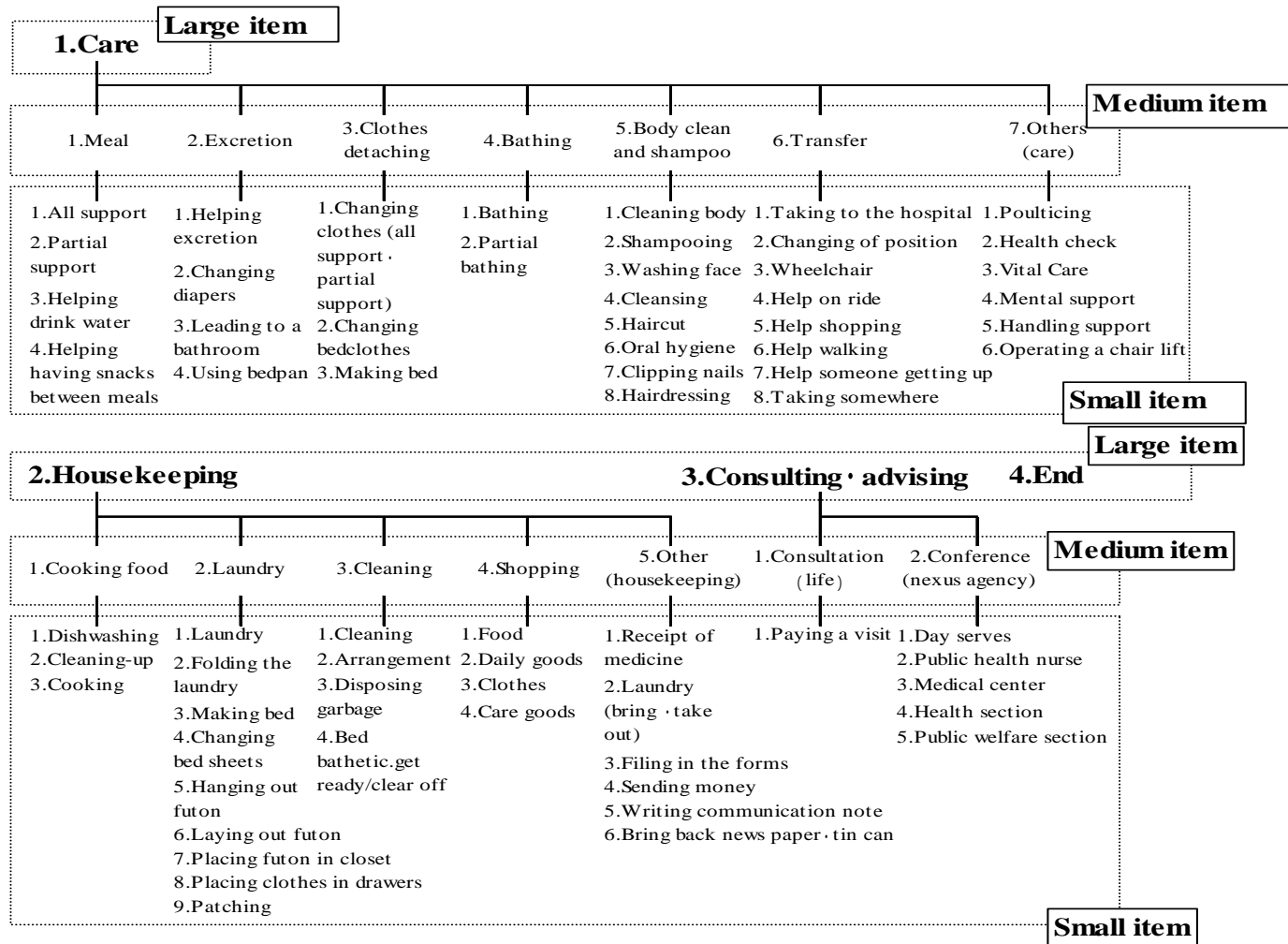


Figure 2. The care task table. The table is comprised of large, medium, and small items. Each item is numbered. The Home helper can enter the care report to the home page by the number corresponding the care items.



- 1.Meal
- 2.Excretion
- 3.Clothes change
- 4.Bathing
- 5.Body and head shampoo
- 6.Hospital
- 7.Others(care)



Meal support
Excretion help
Arrangement

Figure 3. The homepage displayed on a small size LCD of the mobile phone. The Home Helper accesses the homepage by a registered access key on the mobile phone, and then the server computer sends a pass-word to the Home Helper's mobile phone. After the Home helper sends back the pass-word to the server computer, the Home helper can enter the care report to the home page by the telephone number keys corresponding the care items. The server computer stores the entered data as a log file, and then the "filings" are created automatically, in the appropriate format for insurance and government use.



3 SYSTEM EXPERIMENTAL TRIAL

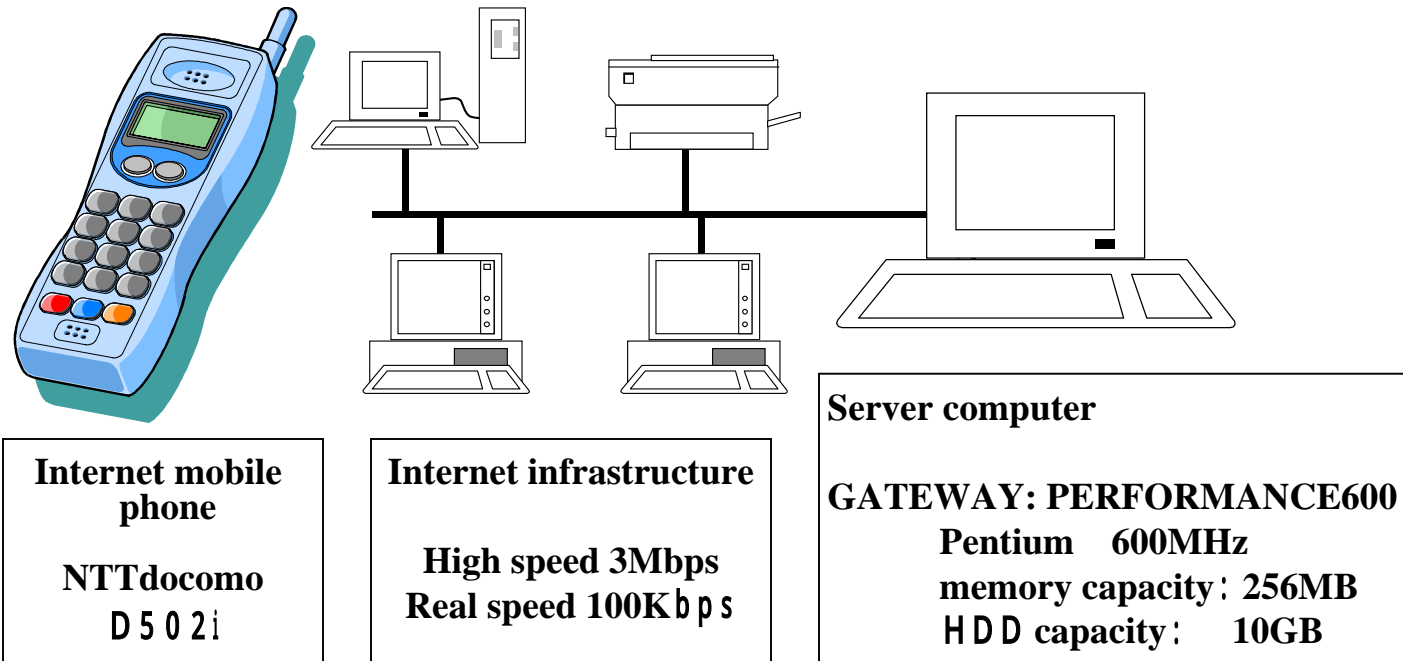


Figure 4. The experimental system for care report entry time and data capacity measurement. The mobile phone used was i-mode, The i-mode runs on a packet-switched network, which allows NTT to deliver a high volume of access at low cost. The server computer used is the PERFORMANCE 600, Gateway. For this trial, the Home Helper's data entry time and capacity to input the five items were recorded.



4 RESULTS

	The number of persons	Minimum time (s)	Maximum time (s)	Average time (s)
Female	13	114	297	206
Male	25	93	266	172
Mobile Phone user	11	93	297	192
Mobile Phone non-user	27	114	266	180
Age				
20-29 years old	13	137	244	187
30-39 years old	6	152	242	194
40-49 years old	13	75	314	176
50-59 years old	8	93	297	187
60-65 years old	3	125	221	174

Elapsed time	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
Time (s)	81	126	109	286	168	157	166	158	194	188	179

Table 1. The data entry time recorded from the 38 subjects. These results show that there is no significant data entry capability difference due to sex, age and mobile mail experience. It must also be considered that the recorded entry time range from 9:00 to 19:00 was influenced considerably by the congestion conditions of internet communication changing with time of day. The server computer takes only 1 second to create the file, and only 4 seconds to display the care report in documentation form. Therefore, this system can create the file and display the information in almost real time.



5 CONCLUSION

This system consists of standard internet mobile phones and a desktop computer, and therefore does not require any specialized equipment. The system, as tested with 38 Home Helpers, can be easily operated by them, regardless of sex, age and experience. Stored data in the server computer can be arranged in various types of documents. Also, the manager of the main office is able to monitor the incoming care reports in real time.

The developed care support data system operates easily by using Internet mobile phones and enables Home helpers to save a significant amount of time and extra travel.