

# A WEB-BASED HOME WELFARE AND CARE SERVICES SUPPORT SYSTEM USING A PEN TYPE IMAGE SENSOR

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## Introduction

In Japan, Home Helpers, analogous to the U.S. “Home Care Specialists”, provide home welfare and care services for the elderly, such as cooking, bathing, washing, cleaning, shopping, etc.

In this study, we enhanced the home welfare and care services support system, using an Internet client computer having a pen type image sensor. The system can automatically transfer the requests to the Home Helper’s mobile phone for 24 hours.

# System description

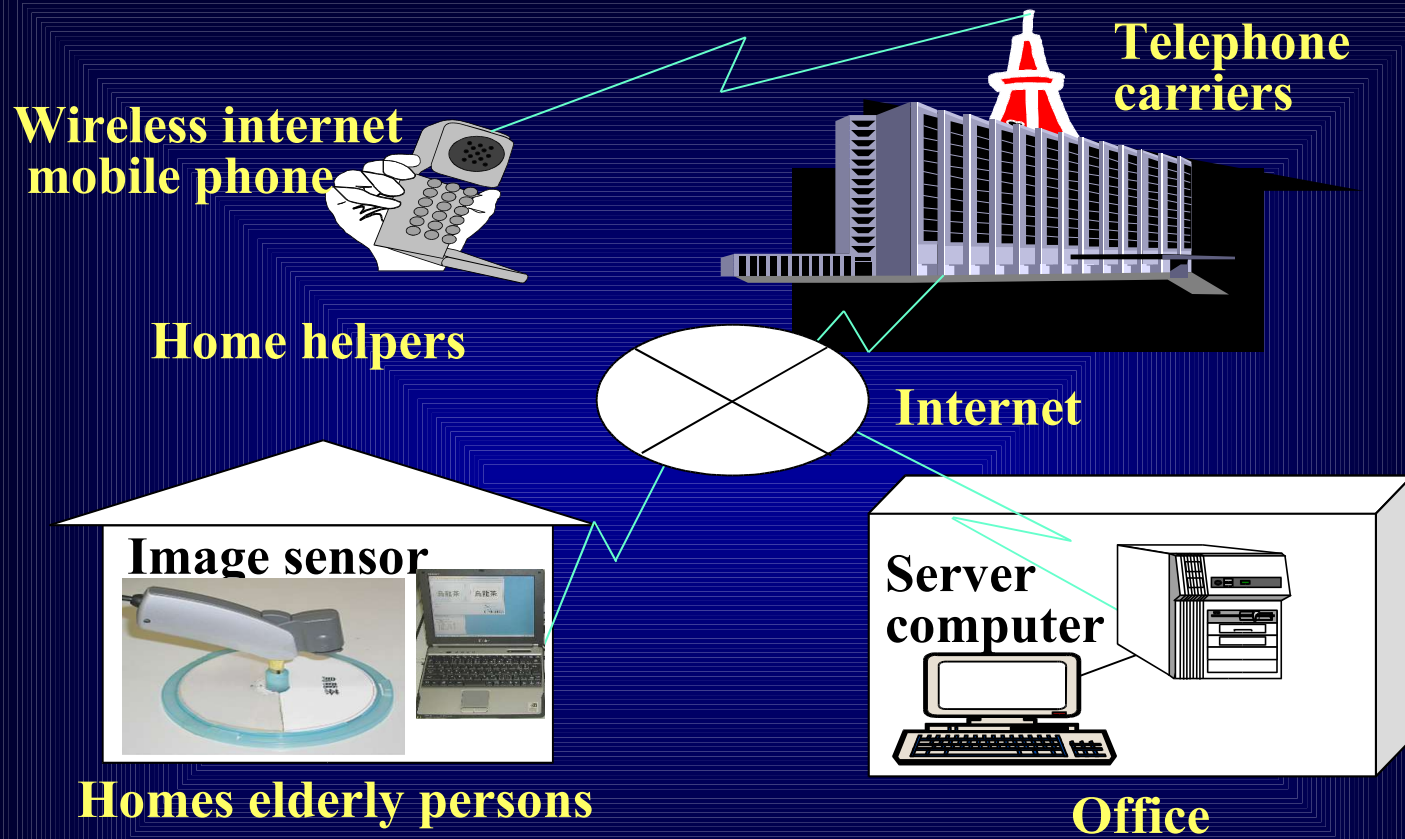


Figure 1. The schematic diagram of the web-based home welfare and care services support system.

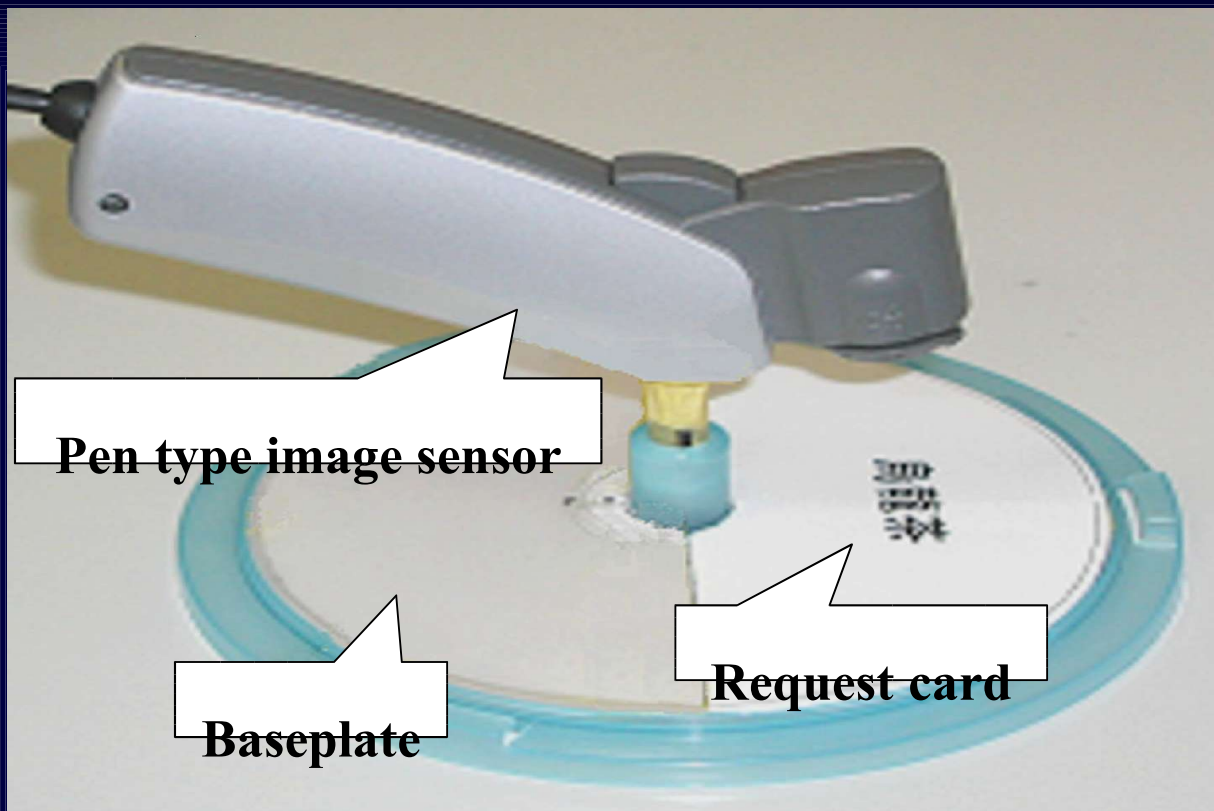


Figure 2. The over view of the pen type image sensor and a request card on a baseplate .

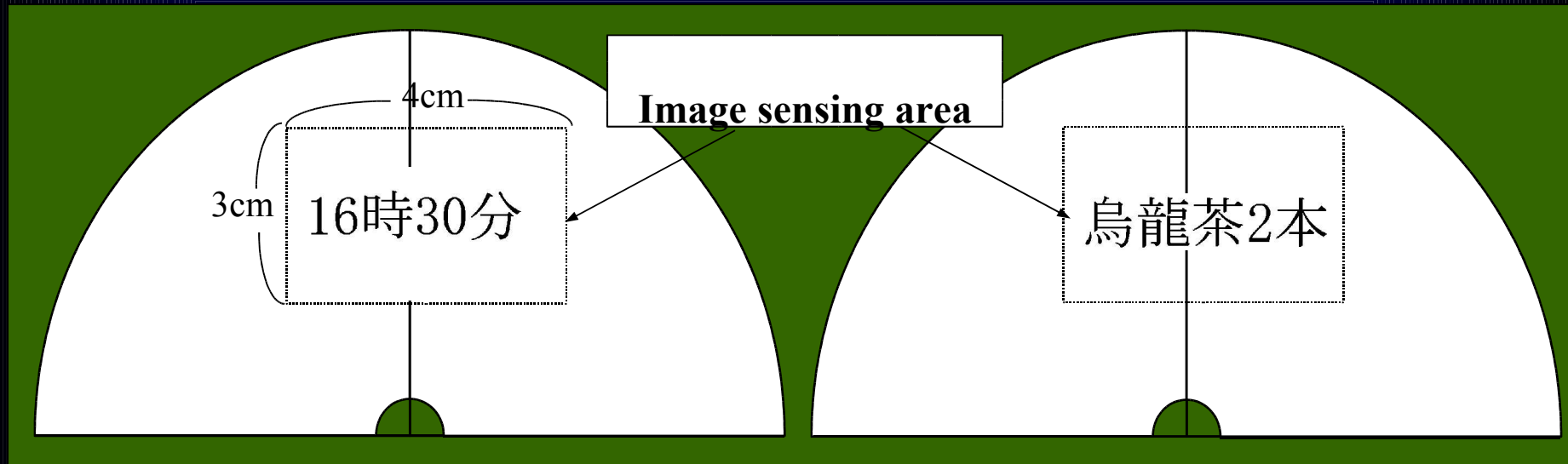


Figure 3. The request card and image sensing area. The care item cards shown are described in Japanese characters consisting of the Kanji, Hiragana, Katakana and Roman alphabets, are used to send the elderly person's care requests.

# The trial experimental system

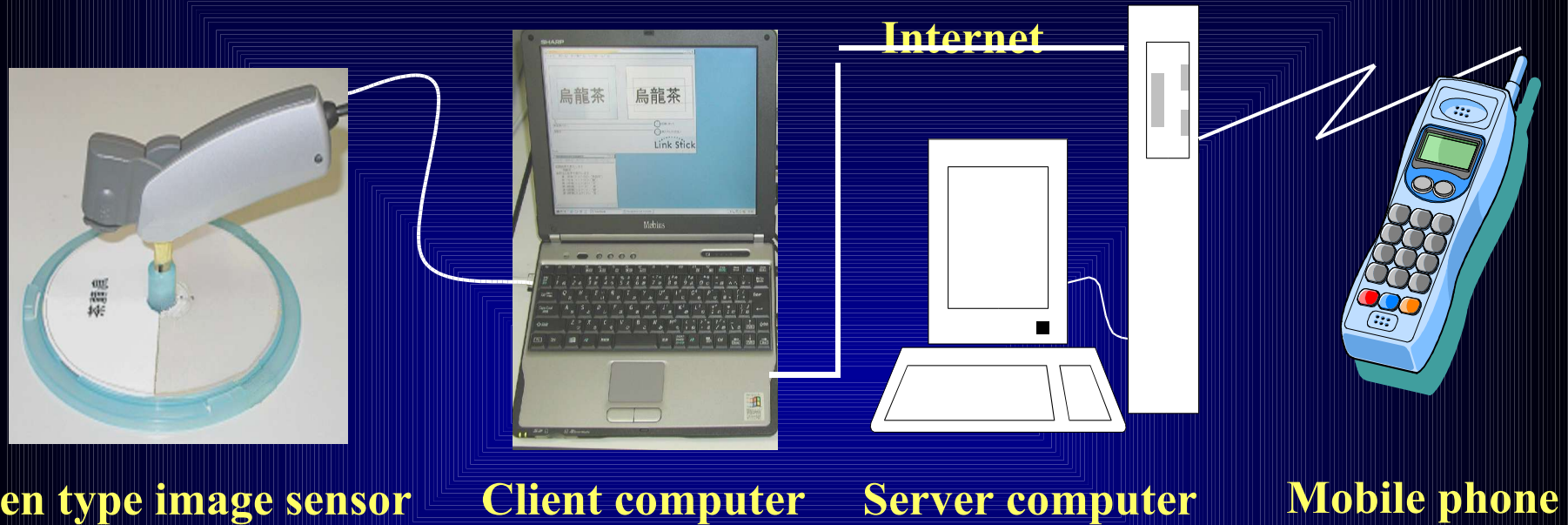


Figure 4. The trial experimental system for the character recognition rate measurement.

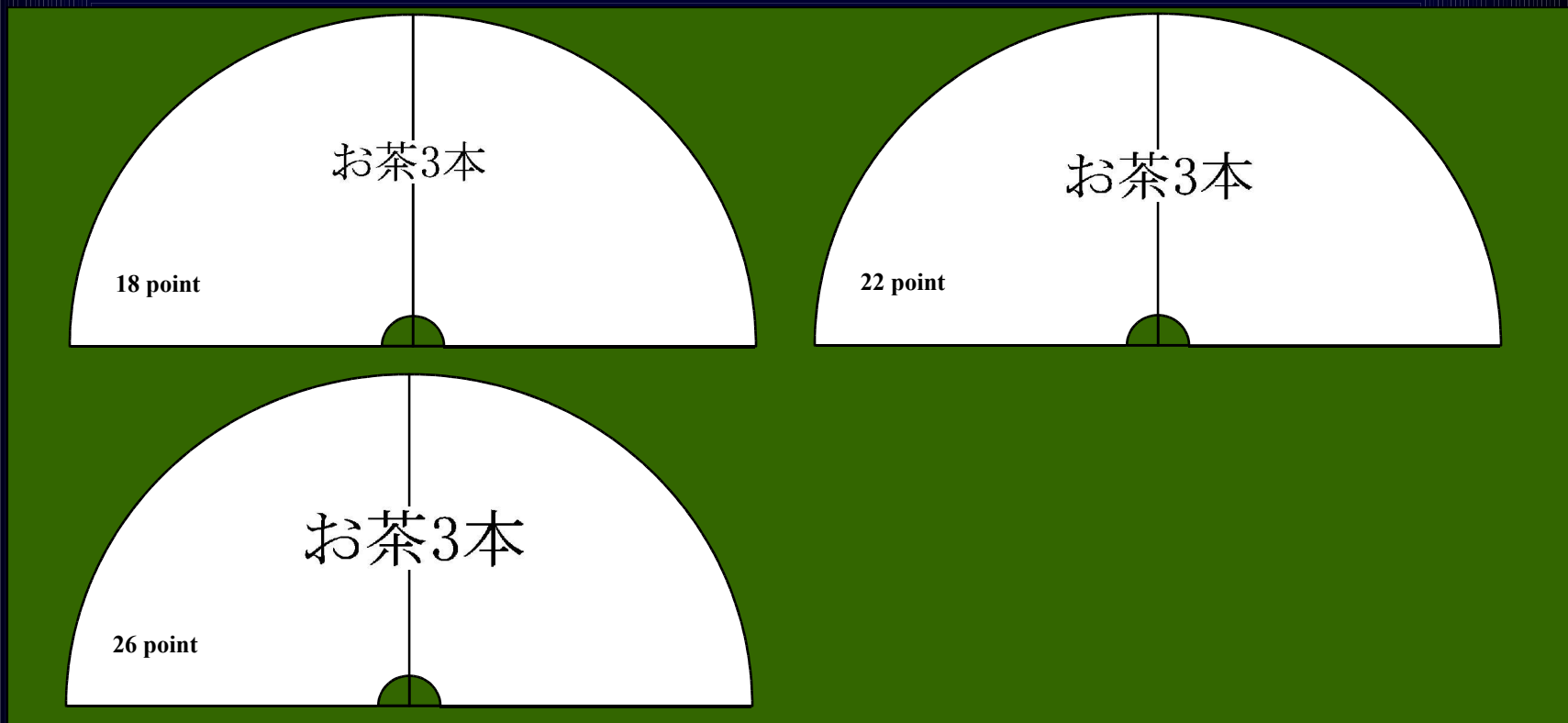


Figure 5. The request cards. The character recognition rate was measured by the kanji, Hiragana, Katakana and Roman alphabet characters printed in 18, 22, and 26 point sizes.

## Results

Character size	Roman alphabet	kanji hiragana katakana	Average
18 point	90%	80%	85%
22 point	100%	90%	95%
26 point	100%	100%	100%

Table 1. The results of the character recognition. These results indicate that the large 26 point character size is most suitable for the request card. However, the maximum character number was 5 in kanji, Hiragana, Katakana characters and 8 in Roman alphabet characters.



## Conclusion

The developed system, which consists of the conventional computers, pen type image sensor and standard Internet mobile phones, has the advantage of not requiring any specialized equipment. Moreover, elderly persons can easily operate the image-sensing request card entry device, even if they are seriously disabled.