

# King Sejong's Invention: Korean Alphabet and Mobile User Interface for Information Society

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**Abstract.** Real-time Korean information networking using the Korean alphabet invented by the King Sejong in the year of 1443, as mobile user interface, is useful to get information and to notify information in the wired Internet as well as in the mobile Internet. We studied the mobile user interface with Korean characters for Information Society, especially for typing-in the Internet URL as well as reading or writing text-based information for notification. We introduce the useful results from real implementation.

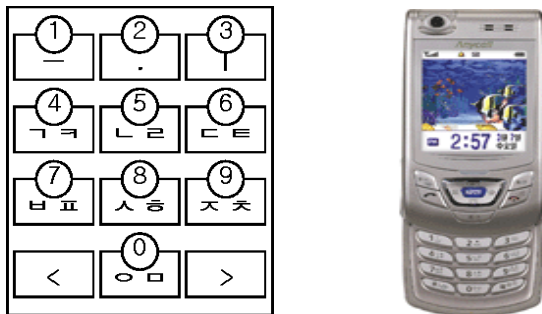
## 1. INTRODUCTION

Exchanges of information, with speech and characters, have evolved the human society enormously since the ancient age. King Sejong the Great is regarded as the most enlightened king in Korean history. He energetically promoted learning. He was responsible for the creation of the Korean alphabet, and this scientific alphabet is his most known achievement; the Korean alphabet composed of 24 Korean characters (14 consonants and 10 vowels) were invented by the King Sejong himself in the year of 1443. Two breakthrough inventions formed the information society's foundation: telecommunications and computers, introduced first time in the year of 1876 and 1946 respectively, which play roles similar to those that the steam engine and electricity played during the industrial revolution. Wired Internet and mobile Internet should be unified with convenient user interface, considering universal access [Stephanidis 2002] for Information Society. We introduce the real-time unified portal for worldwide information network based on wired and mobile Internet, and show the useful results from real implementation for Korean information network using Korean domain names.

### 1.1. Mobile User Interface for Information Society

For mobile devices, we need to use small screen space more efficiently [Kamba 96] for display, and we need to use small keypads more conveniently for stroking URLs or information. The usefulness of the Korean domain names, as a multi-lingual domain name, was studied for keypad stroke. Especially the convenience of the single Korean character and Korean alphabet as a URL or domain name was studied for mobile user interface. For the real-time service, the speed for typing URLs, e.g. Korean domain names, will be one of the dominating factors in performance especially for Korean mobile phone users in near future. The single Korean character is meaningful, because every word or acronym as a domain

name starts from a single Korean meaningful character as well as from a Korean consonant alphabet. The easy typing of the URL was also considered for both wireless and wired Internet. The Korean domain names, which become the key for retrieval of information or registration of information as well as advertisement, were considered as a user interface for Korean information networking. For real-time writing of contents with mobile phone, the speed of typing-in with keypads in the mobile phone was studied also using Korean characters and Korean alphabet invented by King Sejong. For typing-in a Korean alphabet among 14 consonants, one Samsung model, as in the Fig.1, shows the averaged keypad-stroke number is about 1.5. Based on the assumption of single Korean character composed of one consonant and one vowel; this is analyzed for the user's point of view and the average is around 4.14.



**Fig. 1.** Korean Keypads in a Mobile Phone

These instructions have been produced using a 12 point Times New Roman. Other recommended fonts are Times and Palatino. Title is 16 pt bold, authors' names in 12 pt italics, and abstract in 10 points. To access the unified portal ubiquitously, the user interface should be as convenient as possible even for typing-in the domain names or URLs. For writing the information in real-time way, the user's typing speed of characters, e.g. Korean characters, is one of important performance-affecting factors, especially with the mobile phone. We look at the user interface for handheld phone for mobile information service, and even for the URL typing-in interface for wired Internet, the single character is very convenient and useful because it is like a root node in the graph theory to generate any characters/words as well as domain names. The current commercial portal, however, cannot give the meaningful information after searching with single Korean alphabet or characters, even though it is very convenient to search with single alphabet/character especially in the mobile Internet with handheld phones. We implemented the unified information portal, <http://ktrip.net>, accessible with the single Korean alphabet or characters. The information portal is based on wired or mobile internet, many single Korean character domains for fast access to the required Korean domain name, the required information can be registered in any time and any place using wired or mobile Internet with the single Korean character domain name, e.g. '수.net', '고.net', 'ㄱ.com', 'ㄴ.com' etc. The results of implementation show the usefulness and convenience for mobile user interface in the ubiquitous Information Society.

## REFERENCES

- [Stephanidis 2002] C. Stephanidis and P.L. Emiliani, *Universal Access to Information Society Technologies: Opportunities for People with Disabilities*, ICCHP 2002, LNCS 2398, 2002, pp.8-10.
- [Kamba 96] T. Kamba, S.A. Elson, T. Harpold, T. Stamper and P.N. Sukaviriya, *Using small screen space more efficiently*, CHI96 in ACM, Vancouver, Canada, 1996, pp.383-390.