MULTILINGUAL MAILING LIST SYSTEM FOR JAPANSE AND KOREAN FARMERS

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ABSTRACT

In June 2000, we organized the first international meeting for Japanese and Korean farmers to exchange their opinion and/or problems. After this meeting, farmers of both countries decided to keep communicating with e-mail. But farmers do not use English often on their daily lives. They prefer to use their native languages. To solve this problem and enhance the communication environment, we have developed the multilinguistic mailing list system (MLMLS). The MLMLS has two major parts; a mailing list server and a translation engine. The MLMLS was built on the linux system. The mailing list server program was written by the perl scripts. The preciseness of the translation is not fully satisfactory. However, the potential demand for such mechanism is enormous.

BACKGROUND

Thanks to the development of the information Technology (IT), almost any kind of information is accessible to anywhere in the world. In Japan and Korea, it is remarkable that more and more farmers living in rural areas have begun to own computers and use the Internet. The rough estimate of the ownership is about 25 percents in Japan, and 20 percents in Korea. Those computer-using farmers have been exchanging information related to the IT use in agriculture. Such movements are very active in both countries, but they act only domestically.

In June 2000, at the second conference of the Asian Federation of the Information Technology in Agriculture (AFITA2000), we organized the first international meeting for Japanese and Korean farmers to exchange their opinion and/or problems. The participants were very satisfied to find the similarities and/or differences between two countries. After this meeting, we realized the importance of the grass roots communications. Farmers of both countries decided to keep communicating with e-mail. However as for such international e-mail exchange, language is a big problem. The common language for Japanese and Korean farmers was English, while farmers do not use English often on their daily lives. They prefer to use their native languages. At this chance, Takigishi translated mail of these farmers using translation software between Japanese and Korean. This works were done by manual operations, and farmers of the two countries were very happy to be able to communicate some useful information. However, these translations were quite big tasks and time-consuming. It is not possible to carry out continuously as volunteer jobs. To solve these problems and enhance

the communication environment, we have developed the multi-linguistic mailing list server (MLMLS) on December 2000.

METHODOLOGY

Mailing List

We utilize mailing list as the key technology of this system. Because communication by mailing list has more advantages than regular E-mail transactions. The mailing list transmits mail of the same contents to all members all at once. The following merits occur by using it.

i) It transmits a message to the address of the mailing list and can transfer mail to all participants.
ii) The addresses of all participants are registered on a server computer; therefore each participation member does not need to manage addresses of individual participants.
iii) Members do not need to rewrite an address to reply individually. It is referred automatically by the mail software.

But, usual mailing list software does not deal with multiple languages at once. Therefore, it is the fact that the use of mailing list is limited to a group of the same language. To solve this problem, we developed the mailing list that can handle multiple languages.

Japanese and Korean Code System

Japan and the Republic of Korea located closely to each other, but there are significant differences in languages. In addition, both of us learn English as a first foreign language. So, we are not familiar with each other's languages. The difficulties lie in other way; the characters of each language are completely different and both numbers of characters of both languages are enormous. (Cf. TABLE.) This fact requires two different code systems. Therefore, it is impossible for regular computer software to treat both languages at the same time. Furthermore, both Japanese and Korean have multiple kinds of code system, which complicate the problem more.

TABLE Comparison of Languages

Language	NUMBER OF CHARACTERS *(Exclude Numeric, Symbols)*	*Typical Code System.*
Japanese	6356	JIS, Shift JIS, EUC
Korean	2350	KS, Shift KS, JH
Chinese	6736(GB), 13060(BIG5)	GB, BIG5
Unicode	65536, 20902(Han Unification)	ISO/IEC 10646
English	26	ASCII, ISO/IEC 646

As for the Korean, we selected to use KS code system, and JIS code system for the Japanese. These code systems are used in the Internet mail system normally in each country. However, we have to make two mails of Japanese and Korean of the same semantics meaning in both native languages. It made by the single mail transfer automatically. In addition, to both mails, the system adds the compilation of English with what was included. The purpose of this attachment is to help understanding the translated contents with native language and to give guarantees of the same mail. Fortunately, there were no technical difficulties of adding

English messages to both native language mails so that code of English writings was contained in both JIS code and KS code. But few problem stays at a point of effective use of resources so that two mail includes the same English writings. However, we gave more priority for easy understandings than the effective use for the Internet resources.

Translation Engines

For translation between Japanese and English, we used software called "HONYAKU DAMASHII" or "Translation Soul "(Omron Software). It is a commercial package of translator and works on Linux. When a client requests translation, it works as a translation server system and gives back a translation result to the client program. On the other hand, we developed a translation engine between Japanese and Korean, because there were not any suitable products that can be used on a linux system as for mutual translation between both languages. This translation engine works as a filter program of Japanese and Korean. The preciseness of the translation is not fully satisfactory. However, as for basic nouns and verbs, it can be used. At least, we can guess the meaning of the original with some help of the English texts.

How It Works

The MLMLS was installed in a PC server with linux OS, which placed at the laboratory of the Aikoku Gakuen University. We developed this system with perl scripts to perform the control of all functions. As we mentioned above, the MLMLS has two major parts; a mailing list server and a translation engine. The system flow is shown as below (FIGURE. 1). It activated automatically when the server received a mail.

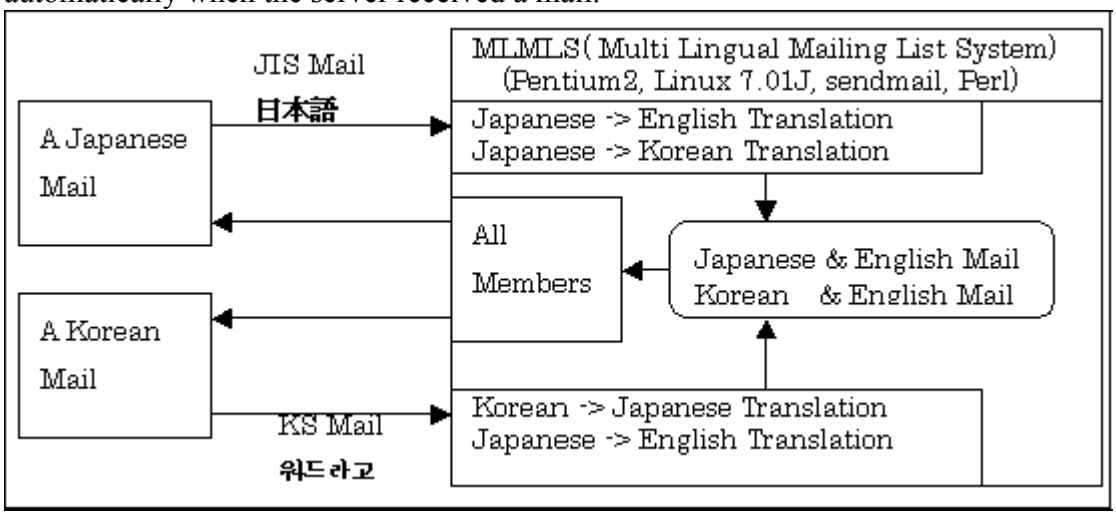

FIGURE 1. Flow Chart of the Multilingual Mailing List System

The MLMLS works as below when it receives a Japanese mail;

A) It converts Japanese into Korean.
B) It converts Japanese into English.
C) It combines these two (Korean and English) messages into one mail message.
D) It adds English part after the original Japanese message.
E) It sends two pieces of mail to the members of the mailing list.

On the other hand, it works similar when it receives Korean mail.

EXAMPLE

At first we send mail in Japanese (FUGURE. 2). Then the system translates the sentences into Korean and English (FIGURE. 3). It also creates messages in original Japanese and translated English (FIGURE. 4). These two messages are transmitted to all members automatically by a work of mailing list server. However, because a translated part in Japanese and Korean is not satisfactory. Sometimes the meaning of the original mail is not quite understandable. In such a case, we advice to send the mail again with easier expressions.

私は、日本で主に米を栽培してます。
しかし、最近の米の市場価格が低下しているため、唐辛子の栽培を始めたいと思っています。
質問があります。
今、韓国でもっとも多く栽培されている唐辛子の品種はなんですか？

FIGURE 2. An Original Japanese Message

[Korean]
나는일본서주로현아닐만들
그러나최근식자를저하될고추가식생활
질문존재하는
현재몸켜쥐다제일외많으신고추가실행불가능무엇입니까

[English]
I cultivate rice mainly in Japan and increase. However, I consider it as a red pepper including cultivation of red red pepper so that market price ofrecent rice falls.
I have a question.
Is a kind of red pepper cultivated most a lot in the Republic of Korea now?

FUGURE 3. An Output of Korean and English Message.

[Japanese]
私は、日本で主に米を栽培してます。
しかし、最近の米の市場価格が低下しているため、唐辛子の栽培を始めたいと思っています。
質問があります。
今、韓国でもっとも多く栽培されている唐辛子の品種はなんですか？

[English]
I cultivate rice mainly in Japan and increase. However, I consider it as a red pepper including cultivation of red red pepper so that market price ofrecent rice falls.
I have a question.
Is a kind of red pepper cultivated most a lot in the Republic of Korea now?

FIGURE 4. An Output of Japanese and English Messages

RESULTS AND FUTURE ISUUES

The MLMLS is just on it's developing stage and is only used experimentally. The experimental users are three Japanese and two Korean. They wrote less than ten messages during a one-month experiment on February 2001. The most serious problem of this system was the accuracy of the translation. On this account improvement of preciseness of translation, especially that of Japanese and Korean is the greatest issue. But the potential demand for such mechanism is enormous. We are now upgrading Korean and Japanese translator to achieve the practical level translation. After the revision was done, we will open the MLMLS for free at the Aikoku Gakuen University. Furthermore, we plan to extend this system so that it is adapted to other languages, such as Chinese or Thai.

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