HUMAN COMPUTER INTERACTION FOR ILLITERATE AND SEMI-ILLITERATE USERS TO ACCESS E-GOVERNANCE APPLICATION

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INTRODUCTION:

In multimodal, we refer to the inclusion of speech and hand-writing interfaces along with the key-board interface of the computer. Since, by creating these facilities the rural people can access the power of internet to either communicate with a relative somewhere else, access an e-governance application, to contact a city hospital or get vital crop information. Since, there are lots of issues relating technical and social use context in introducing computing in local languages.

The creation of software in Indian languages is of prior importance, helpful for e-governance applications development. Availability of affordable native language software has positive impact on interface design related usability issues. Since, it promotes appropriate social use of I.T to marginalized sections of society.

So, There is a need to design software tools, computer applications supporting user interfaces in different local languages.

The study was undertaken in two subsequent phases, each one addressing a specific dimension of iconicity. The results showed some interesting effects in the interworking of icons and texts, which corroborated the strategy of designing interfaces where redundancy and diversity of audiovisual and textual elements improve the intelligibility of the overall content.

Icons as helpers for interactions of illiterate users with computers. Iconic representation of different concepts through the use of audiovisual elements and compared the intelligibility of ten types of representations – text, static drawings, photos, handmade cartoons and video each one of them alternatively with voice description.
DETAIL OF WORK:

In order to design an application independent multimodal interacting system, there is a need to make modifications in the kernel part of the operating system, modifications are made to the kernel part of the operating system to enable speech and hand-writing interfaces. Advantage of this approach is new interfaces enabled in kernel are inherited by all applications.so, no need to modify and recompile to use them.

Better to follow an iterative software development like agile (scrum) for local language based interface design by enhancing this feature to software applications based on priority to be translated first.

Steps for development:-

- An editor program to prepare text in one or more local languages.
- Develop a generalized viewer program to display some text in different local languages.
- A program to prepare printed output. There is a need to develop this application for various platforms.
- There better to develop a native language interface at operating system level rather than at application level.
- To improve the reliability of voice input mode, better interface by combining lip movement recognition by pattern recognition along with voice recognition.

An O.S is flexible, robust and provides good multi-lingual support, better to opt for. Clustering of characters is a predominant task to be accomplished and care should be taken regarding cursor positioning. We need to modify tele-type based tty drivers, context-sensitive parsing at the I/o level, designing different parsing rules for different languages, and making the kernel to be able to interpret and process the appropriate language specific parse rules is of prior importance. In order to accomplish parse tree implementation design a forward-D.F.A & backward D.F.A are to be entertained. There is a need to change parse rules and fonts specific to particular language transition.

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Using pictures can improve the intelligibility of the presented concepts and facilitate the inferences that illiterate users make, but the quest for perfect icons is meaningless, since the iconicity depends on the previous experiences of every individual, and what is “perfect” for someone may be inadequate or insufficient for others.

KEY FINDINGS:

- Local language interface for computer applications is a necessity for majority of people in less-developed and developing nations.
- Since, giving input for computer applications in local languages with the available standard keyboard interface is very complex because they are syllable-centred and there are about 3500 graphemes. There is a need for natural interfaces like speech and handwriting to provide local language input to the computer.
- The natural interfaces should coexist with the keyboard.
  Multimodal interaction (MMI) system with additional input modes such as speech and handwriting interfaces along with the keyboard and mouse interfaces is proposed. This MMI permits the switching of these input modes from one to another interface instead of replacing it.
- There is a need for testing higher versions of this newly developed user-friendly interface.
- since the iconic interpretation does not suppose schooling or proficiency in a given language initiates better accessing for illiterate group of users.

FUTURE PLAN:

- There is a need for incorporation of natural interfaces such as lip movement, hands movement etc. to the Multi Modal interface.
- The recognition mechanism of natural modes is not fully advanced. To make the MMI more robust and to reduce the
errors in the recognition of natural modes the inputs from different modes can be used to get the resultant input.

- iconicity can be understood as “richly grounded meanings”, in which the sign and the represented object are connected in a more natural, rather than arbitrary way.
- There is a need to compare the intelligibility and the credibility of drawings and photos and try to correlate these aspects with sociodemographic factors of the target users.