“Development of Intelligent User Interfaces”

MSc (PhD candidate) Valbon Ademi, a lecturer at the State University of Tetovo

e-mail: valbon.usht@gmail.com

Abstract

Advanced techniques for developing intelligent user interface attempt to resolve a number of needs that occur during the time dealing with human-computer interaction finding adaptive communication method for the user. Techniques dealing with natural language systems knowledge gesticulations, knowledge of photography and multimedia interfaces.

Considering therefore artificial intelligence techniques of this kind, then the intelligent interface agents are computerized anthropomorphic beings that enable automation of a problem, we believe that in the future there will be a changed approach moving from the interface of adaptive current in a multimedia interface that would demonstrate an intelligent interface and stronger.

New research in the field of modern computer science and information technology is impossible to think without the use of artificial intelligence, where as a fundamental pillar presented the development of intelligent systems.

Recently much has been invested in the creation of Intelligent User Interfaces applications for different purposes to facilitate the use of information technology achievements, trends and simplified relationships or interactions between users and machines. To achieve these investment opportunities to create which Intelligent User Interfaces simplifies work and enables optimal use of computer and other equipment from different walks of life.

A particular benefit of the Intelligent User Interfaces certainly people with disabilities (impaired vision(blind), hearing). The answer lies in the use of intelligent interfaces, in addition to conventional units and peripheral inputs to a system and applied modern methods of interaction, such as speech, movement, gesticulations etc..

Keywords: : *artificial intelligence, interface, disabilities, computer, communication.*

1 Introduction

In everyday life, for the purposes of communication in society, people use their senses - speech, vision and touch as their primary assets. This idea is increasingly used for the development of multi-sensory communication with machines. This type of communication will increase the efficiency of today's applications, and create many new applications. Just one example where the multi-sensory communication combat aircraft, where pilots, because it affected both hands, interact with the equipment in the cabin through voice commands and commands given by the view.

Also, such interfaces are built into the latest versions of commercial vehicles, the vehicle through voice communication devices. Thus driving becomes safer and more comfortable.

Of particular importance is the use of intelligent interface for people with disabilities which will enable uninterrupted use not only computers, but also other household devices.

The development of the modern computer user interfaces leads to the opportunity to be able to match the movements and speech. At this stage, it still does not mean that the keyboard and mouse are discarded. Researchers working on new generations of interfaces that are taking a pragmatic approach to how people can communicate machines adding support for text, speech, sight, gesture.

Architecture interfaces can be divided

Human characteristics-Human information processing, language, communication and interaction, ergonomics.

Computer system and interface architecture - Input and output devices, dialogue techniques, dialogue genre, Computer Graphics, Dialog Architecture.

Process Development - Design approaches, implementation techniques, assessment techniques, prototyping systems and case studies, project presentations and exams

The following three different sub-areas are key in developing intelligent user interface.

1.1 CONCLUSIONS

In this paper we investigate to offer a new model of intelligent user interface with you to use advanced techniques for processing images and sound.

Considering that the development of Intelligent user interfaces is a broad field of research, the thesis as a whole sets the following requirements:

- To give an overview of where this place Macedonia in the use of intelligent user interfaces
- To review the possibilities of adapting existing interfaces to use for people with limited abilities.
- To propose a model for image recognition for visually impaired (blind)persons who will be enhanced compared to existing devices.
- To propose a model to convert text to speech in two languages - Albanian and Macedonian.

In Macedonia operate several organizations whose main task is to facilitate the everyday life of the people with limited abilities. Provides intensive cooperation with these organizations in achieving the objectives of this thesis. Set challenges will be discussed and experimented with persons who designed the successful realization of thesis.

With the help of the already established links with the University of Peja, will cooperate for development of software that can produce speech in Albanian language text written in the Albanian language and the same to be included in the development of new functionalities in the use of user interfaces. Will make an effort for the production of such a system model also and in Macedonian language.

The processing of the images to be recognized for the visually impaired is another challenge set as the goal of this thesis. It is necessary to examine what degree of visual impairment(blindness), which filter and which algorithm should be used to recognize the image.

It is expected that in the course of this research results will contribute in many ways.

The most significant results would be:

- To get a picture of the use of Intelligent user interfaces in the world, but also in Macedonia
- To identify the real needs for the development of such a user interface for the visually impaired(blind).
- To make a model that will integrate
- The advanced processing techniques for machine learning that will be used and modified to produce the actual algorithm (technique) for processing, the Image filtering that can be recognized by the visually impaired(blind)
-The technique for reading text (Albanian) and transforming it into speech, again a function of the visually impaired(blind).

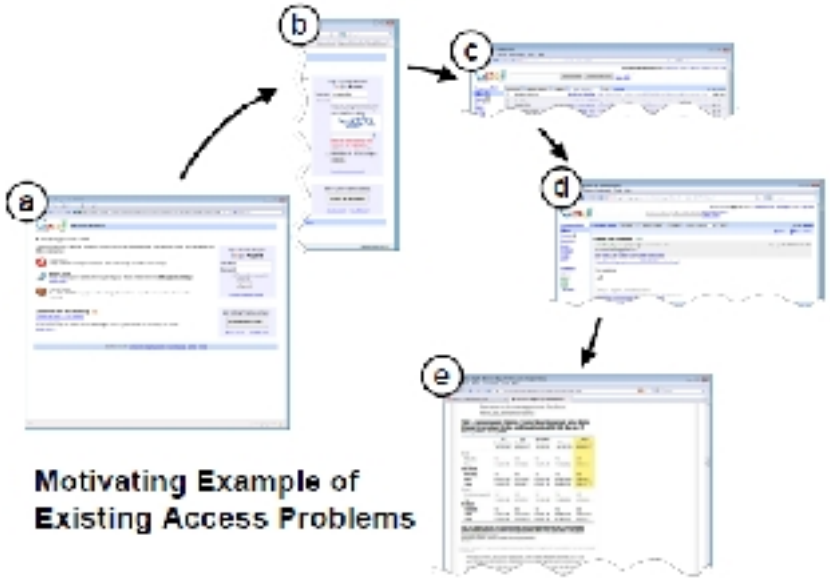

Figure 1.1: A motivating example of existing access problems. (a) Finding content, even on the relatively simple gmail.com login page can be time consuming. (b) An incorrect login is difficult to detect and an audio CAPTCHA must be solved to try again. (c) The most efficient route to the inbox requires knowing arbitrary key mappings tied to the underlying HTML structure of the web page. (d) no clues finding the beginning of the messages. (e) A table of important statistics and other information on uptimes.com is an image assigned the uninformative alternative text "INSERT DESCRIPTION," making it impossible for a screen reader user to read.

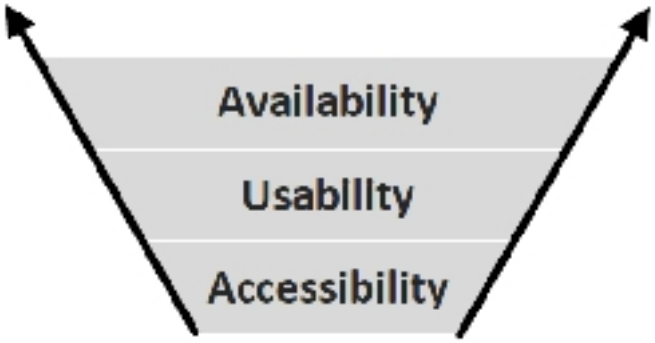

Figure 1.2: Effective web access involves more than simply making it possible for users with disabilities to access content. Content must also be usable and tools needed to access it widely available. Accessibility is the formation of usability and availability, usability increases the potential audience for whom access is possible, and availability determines where content can be accessed and who will be able to access it.

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