Arabic Sign Language Translation System On Mobile Devices

Dr.Sami M.Halawani

Information Technology Dept., College of Computing and Information Technology,
King Abdulaziz University, Jeddah, Saudi Arabia

Summary
Sign Language Translation System/software that translates text into sign language animations could significantly improve deaf lives especially in communication and accessing information. In the last few years the usages of technology have increased rapidly. One of the most popular technologies is the invention of mobile devices. The most common application is mobile phones for voice transmission, but systems for data transmission are also available. The Wireless Application Protocol (WAP) is an open, global specification that empowers mobile users with wireless devices to easily access and interact with information and services instantly. Previous text-to-Sign Language projects have made limited progress by restricting their output to the PC base – thus avoiding important animation issues and mobilizations of people. This paper introduce Arabic Sign Language Translation Systems (ArSL-TS) Model that runs on mobile devices

Key words:
deaf, Arabic, sign language, translation, mobile devices, WAP, HCI

1. Introduction

Signing has always been part of human communications. The use of gestures or sign is not tied to ethnicity, age, or gender. Infants use gestures as a primary means of communication until their speech muscles are mature enough to articulate meaningful speech. For millennia, deaf people have created and used signs among themselves. These signs were the only form of communication available for many deaf people. Within the variety of cultures of deaf people all over the world, signing evolved to form complete and sophisticated languages. These languages have been learned and elaborated by succeeding generations of deaf children. Normally, there is no problem when two deaf persons communicate using their common sign language. The real difficulties arise when a deaf person wants to communicate with a non deaf person. Usually both will get frustrated in a very short time. For this reason, there have been several attempts to design smart devices that can work as interpreters between the deaf people and others. These devices are categorized as human-computer-interaction (HCI) systems [5].

In recent years, several research projects in developing sign language animations system have been developed [2]. Some previous projects have made efforts in translating English text into Sign Language Animation, but none have proposed practical systems for translating Arabic text into Arabic Sign Language use mobile technologies and mobile devices. And also, most of the previous systems are PC-base. The adoption of mobile devices in developing sign language animation systems is motivated by several considerations: they help deaf to upgrade quality of human-human communication by evolving animations; they have a positive impact on factors such as human-mobility and likeability; they can have a positive effect on a deaf perception of deaf learning experience because they can attract deaf attention.

The adaptation of mobile devices makes sign language translation more attractive and more valuable. Using mobile devices instead of PC-base in sign languages presents several advantages. With PC base, term of anywhere and any place in deaf learning cannot be applied. With mobile devices one can obtain communication more realistic, a wider usage of sign language applications becomes possible and practical.

During the last several years the usages of mobile services have increased rapidly. The most common applications are mobile phones and PDA for voice transmission and data transmission between mobile units or mobile units to server units, for example from mobile units to Internet is also available. The WAP is a global specification that empowers mobile users with wireless devices to easily access and interact with information and services instantly. WAP makes it possibly to communicate with the mobile user and to send and receive information [3]. This could be very useful for deaf in implementing of text translation into sign language animations through sign language animation systems. For example, deaf who want to translate certain

Manuscript received January 5, 2008
Manuscript revised January 20, 2008