Slate 8 – Current Status of Art

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Section 1: Status of Relevant Technology (Principle or Theory)

Have you ever experienced being left out of something that you really wanted to be a part of? Well, wanting to be part of everyday life and participate in all of its activities was very difficult for a certain population of our society. The Deaf Community! Before 1880 a sizable portion of our community could not communicate with the general public and others like them. Enter the American Sign Language (ASL). Through the principles of the ASL this small community communication with each other and society became less difficult.

In later years the advent of the mobile phone took the ASL to a higher level by making it easily accessible to everyone. Apps made learning the ASL commonplace and became a requirement in just about every aspect of societal life. Safety is very important to the Deaf community and ASL Apps helps to protect them with warnings of potential harm. Improvements of the ASL technology is increasing with real-time ASL symbol translations, text, and video.

What's the relevant technology (principle or theory)?

The core principles or theory of the American Sign Language was established in 1880 by the National Association of the Deaf (NAD). These principles represented the American deaf community on a national level and allowed them (deaf community), to come together on important matters concerning them. The American Sign Language is the National Associations of the Deaf core asset, and its use and practical application from birth for every deaf child is a basic human right.

Since the development of the American Sign Language, its use at birth is a fundamental principle of the United Nations, and World Federations. An important principle of the American Sign Language (ASL) is that it is developed according to linguistics such as Semantics (The study of signs and symbols and their relationship and what they represent), syntax (in this instance, the formation of patterns to form a sentence), morphology (the study of Linguistics, the form and structure of words of a language), phonology (distribution and patterning of a language and pronunciation governing it), and pragmatics (semiotics, the relationship between signs, and elements of language, and who use them).

In the early years of a child's life, the American Sign Language should be an instrumental part in its growth and development acquiring its fundamentals early. The psychological, cognitive, emotional, and social development comes from proficiency in any language. Assistive technologies are supported by the National Associations of the Deaf (NAD) for visual languages for deaf infants which assists the development of the child when dealing with family and others

such as care providers. Another core principle of the NAD, is the dual language approach for deaf infants. This dual approach maximizes the infant's attainment in both ASL and English.

Section 2: Status of the Relevant Products

What are their advantages and disadvantages against the needs?

The needs of the advantages clearly outweigh the disadvantages of American Sign Language Apps when it comes to issues concerning safety and warnings against potential hazards. Some American Sign Language apps warn through vibrations using a cell phone for the hearing impaired against an approaching emergency apparatuses, an energy siren warning of a community danger, or even a fire alarm.

An app on a cell phone or on a standalone device that is configured to automatic activation when turned on can handle this problem through a series of vibrations and messages and/or blinking the house lights via Wi-Fi. Users can have several different Apps for warnings, like someone ringing your doorbells, an infant baby crying etc.

What and how would improve the products and meet the needs?

For starters all American Sign Language Apps should protect the user's privacy by restricting the apps permissions for the user's protection. That means blocking or denying the apps permissions to trace your habits on the web, looking at contacts, and placing calls without your knowledge, logging your location, look through your documents and other issues concerning privacy.

An ASL app with the help of strategically place listing devices can convey to the deaf user the conversations going on around her/him like in their office, at meetings, or even at their home. Improvements to ASL would include the information on the history of the American Sign Language, from infancy to present, a feature that teaches the English Alphabets from A to Z, and numeral base counting systems such as decimal, hexadecimal, binary, and octal systems or the choice to learn other main languages. Also, a feature to help the hearing impaired to understand everyday phrases used in conversations along with a vocabulary ASL builder.

A good ASL App would contain videos on the basics of Hand and Facial Signs, signs concerning time, and place signs, and most importantly, family or group signs. The app should assist in the development in every possible way including using word and number matching games. If a user of the ASL sees an opportunity for improvements to the app, then the app should supply a feedback or comment feature where the idea or improvement well be sent straight to the developers of the app.

There are a number of apps developed when features combined would create and all in one app that meets a deaf user's needs. Singapore Association for the Deaf (SADeaf) created and app called "Say It With Signs", which helps the hearing impaired to receive phone calls that are translated into sign language with the ability to text messages in response to the caller (Android only).

Apple has several watch patent applications that monitor hand and wrist movement forming gestures that can be recognized by the watch as activations features or Sign Language symbols. One Apple watch patent application indicates that certain gestures like movement of the fingers

and wrist would initiate actions to the watch or send commands to a paired iPhone. This is perfect for a user who can't speak or is limited in his/her mobility.

The wristwatch when paired with an iPhone allows the user to convert hand, wrist, arm, and finger gestures into English and other languages. Apples patent application describes the use of many different sensors contain within the watch, myoelectric, optical, mechanical contact, and inertial sensors to help it sense movements by the user.

Section 3: How would the Status refine/change the Design Requirement?

How would the Status refine/revise/change the design requirement?

Is the problem already solved? Yes!

The next iPhone will read and interpret sign language! Apple, the maker of the iPhone has filed a patent incorporating language recognition software along with the use of its built-in camera to capture in-air-interface movements. The name of the new patent applications is, "Three-Dimensional Hand Tracking Using Depth Sequences":

Publication number	WO2016025713 A1
Publication type	Application
Application number	PCT/US2015/045055
Publication date	Feb 18, 2016
Filing date	Aug 13, 2015
Priority date	Aug 15, 2014
Also published as	US20160048726
Inventors	Feng Tang, Ang Li, Xiaojin Shi
Applicant	Apple Inc.
Export Citation	BiBTeX, EndNote, RefMan

Patent Citations (4), Non-Patent Citations (1), Classifications (15), Legal Events (2)

External Links: Patentscope, Espacenet

The patent applications describes in detail how any device will use face-tracking technology together with video streams to track the movements of hands in three-dimensional space. Apple plans to use this technology for ASL and gesture detection that allow movement of the hand and wrist to control features on its new Apple Watch 2.