

Towards ICT based Solution for Stuttering

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Abstract— Stuttering is speech disorder that has affected a large group of people in the world population. ICT based solutions for stuttering treatments are not well known. Information about the existing ICT based solutions, their effectiveness, and the user satisfaction of the currently available solutions are not studied thoroughly. Therefore, present day researchers have fell into greater trouble in delivering the best possible solution to the masses. This paper provides the results of a cross sectional survey conducted towards identifying the differentiation of age groups, duration of existence of stuttering, use and experience of existing solutions, and the effectiveness of their performance. This paper will be an initial step towards engineering an ICT based solution to assist stuttering treatments.

Keywords— Stuttering, Survey, Treatments

I. INTRODUCTION

Stuttering, a disruption in the fluency of verbal expressions characterized by involuntary, audible or silent, repetition or prolongations of sounds or syllables (Büchel C, 2014). History of stuttering dates back to the Biblical Mosses, “Slowness of speech and tongue”, which stated back then as a significant disruption that cause to fluency of all people, irrespective of their ethnicities or cultures. Even to date the mystery of language production amuses speech experts, disorders like stuttering are even more poorly implied (Büchel C, 2014). Studies show that 1 % of the total population at a given time suffers from stuttering (Bloodstein, 2008). Stuttering is classified under 3 categories, which are repetition, prolongation, and blocks (Reardon, 2010). Their nature is explained in table 1.

Table 1. Types of stuttering

Type	Nature
Repetition	Repetition of multisyllabic words (“mommy- mommy-mommy let’s go”)
	Repetition of monosyllabic whole words (“I-I-I want to go”)
Prolongations	Syllable prolongation (“lllllllike this”)
Blocks	If the pause exists for more than 2 seconds (“I----ike this”)

These categories are diversely spread among the stutter community. Many tend to have multiple types of stuttering and some may become dominant in one.

Symptoms results in creating social awkwardness and mental pain gained by not able to speak the way they want.

A survey performed by “I Have a Voice” foundation (QUIÑONES, 2012), which got 52 responses shows that different age groups suffer at different stages in life. It presents the symptoms that aroused in the respondents under 3 categories: core, secondary, and psychological.

At present, research and development work has been carried out on the cause and effect of stuttering. Though information about the biological and social aspects of stuttering are available, focus on getting help of ICT for the domain of stuttering is lacking. This paper addresses the study results in different features utilized as a tool for ground preparation in developing a software solution to facilitate comfortable oral communication with the people suffering from speech disabilities.

Section II provides the methodology used for the cross-sectional survey. Section III discusses the results of the survey via an analytical explanation on the collected data. Section IV concludes the paper indicating the future avenues and the nature of the solution where the performed study can be utilized.

II. METHODOLOGY

This section presents the methodology used for the cross-sectional survey. The survey was done focusing on two groups: general public, who is suffering from stuttering and experts/professionals related to the domain.

A. General Public

A questionnaire was used, created using Google forms, with 14 questions, for respondents to provide reliable answers anonymously without directing to any privacy issue. The fundamental goal of arranging the questionnaire is to obtain overall understanding of the following areas.

- Self-identity (gender, age)
- Genetic and family background
- Commencement of the stutter (starting point)
- Stutter type
- Opinion on usage of existing solutions
- Desire for a ICT based solution

The questionnaire was distributed among the members of two Facebook groups, namely “Stuttering hangouts”