
Towards a VOCA with Expressive Synthesised Speech

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We often wish to transmit our feelings as well as our attitude towards the interlocutor. Customary Voice Output Communication Aids (VOCAs) do not provide users with the option to dynamically change the emotional content of speech (Higginbotham, 2010). So, VOCA users do not have the possibility to express emotions, such as pleasure, distress or irritation, vocally. The importance of expressive speech has been recognized, the topic is hardly addressed in research on Alternative and Augmentative Communication, yet (Pullin & Hennig, 2015). The aim of our work is enhancing a VOCA with techniques for synthesis mimicing the expressive power of human speech. The EmotionTalker (ET) provides users with a GUI that allows them to input utterances and choose an appropriate emotional tone (neutral, angry, sad or happy) via specific buttons. We use the synthesiser CereVoice by CereProc Ltd. It employs a set of sub corpora to convey particular emotional states rather by different qualities of voice than by modification of speech using signal processing techniques (Aylett & Pidcock, 2007). We conducted a first study and demonstrated ET to five VOCA users (4 female, 1 male) with cerebral palsy. Our users came up with social situations in which emotional speech would be desirable, such as having dinner or playing board games. The approach to convey emotions via voice quality appeared to be more promising than the manipulation of the speech signal (e.g. to increase the pitch as an indicator of happiness) which often resulted in comic-like speech. Despite of being only able to convey emotions in a rather subtle manner by using CereVoice, our users saw a great need to make use of a vocal channel (in addition to gestures and facial expressions).

References: • Higginbotham, J. (2010): Humanizing Vox Artificialis: The Role of Speech Synthesis in Augmentative and Alternative Communication. In: J. Mullennix & S. Stern (eds.), *Computer Synthesized Speech Technologies – Tools for Aiding Impairment*, 50-70. • Pullin, G. & Hennig, S. (2015): 17 Ways to Say Yes: Toward Nuanced Tone of Voice in AAC and Speech Technology. In: *Augmentative and Alternative Communication* 31(2), 170-180. • Aylett, M.P. & Pidcock, C.J. (2007): The Cerevoice characterful speech synthesiser sdk. In: *AISB*, 174–178.