WiTKoM - Virtual Sign Language Translator Project

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Abstract. WiTKoM (Virtual Sign Language Translator) is an interdisciplinary research project carried out by AGH University of Science and Technology and VoicePIN.com, which aims to create a Polish Sign Language (PJM, pl. Polski Język Migowy) translator. This work was supported by the Polish National Centre for Research and Development – Applied Research Program under Grant PBS2/B3/21/2013 tilted Virtual sign language translator. Website: www.witkom.info.

Description

WiTKoM is intended to promote the social inclusion. Hearing-impaired people constitute a considerable language minority in Poland. PJM is currently experiencing a renaissance, having 50,000–100,000 users, according to recent statistics. The practical goal of the project is to develop the technology and solutions for communication support for hearing-impaired.

Project WiTKoM consists of various separate elements, responsible for the particular stage of Polish to PJM translation, and statement creation by the signing avatar. Within the project, several developments have been made: know-how, technologies, and automatic PJM translation software. The developed technology includes:

- real-time user-independent gesture recognition system;
- PL–PJM translator, from Polish sentence analysis, through machine translation methods, to avatar transcription system employing HamNoSys;
- mobile application prototype for gesture recognition;
- accelerometer-based sensor glove for gesture motion acquisition;
- computer application for conducting automatic dialogues, module for building and managing dialogue;
- computer application for multi-stream data acquisition and management;
- a rich set of developing tools for conducting researches in the fields of image processing and gesture recognition;
- annotated PJM gesture corpus acquired with RGB and depth cameras;
- Polish-PJM parallel corpus for machine translation research.

WiTKoM project is still in progress. The main focus is currently on the development of continuous statement recognition algorithms and practical use-case deployments.