Myelofon: Way of Expressing Thoughts for the People with Speech Disorders

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According to WHO, nowadays 466 million people worldwide have difficulties in communication because of speech or hearing disturbances. Most of them use sign language as the main communication method but due to absence of effective methods of its interpretation, issue of communication with deaf-mute people remains urgent. The goal of my project is to create a convenient device automatically recognizing sign language (ASL) and translating it into English. I've developed technology that allows to recognize hand position according to muscles activity tracking in real time. My device uses Electromyography (EMG) to obtain data about muscle's biopotentials. I've developed the special system to collect raw EMG data from hand muscles and to process it by microcontroller unit. I decided to use machine learning to "predict" actual hand position based on it. The device recognizes the gestures with up to 85% precision and 120 Hz update rate allows to recognize gestures in real time. Developed technology could greatly simplify communication with the deaf-mute community. In future I want to continue making it more convenient for everyday usage, expanding its word bank, because everyone deserves to be understood.

Awards Won:

Second Award of $1,500