**T0:Team Formation**

**Project Title**
Hear Me

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**Project Detail**
"Hear Me" (Java on Microsoft Surface)
People with speech impairments have a hard time communicating with the general public. For Dysarthria (a class of neurological speech motor disorder), in the beginning patients are able to communicate with people because people can understand them (though with difficulty). However, as the impairment progresses the communication becomes labored and eventually the patients reduce the communication attempts. As a result, the social network of the patients shrinks considerably. So much so, that only the caregivers of the patients are able to understand them for a very limited set of utterances. This reduces the self-reliance and autonomy of these patients.

There are no demographics available for patients suffering from various kinds of dysarthria, but Parkinson's disease, ALS and MS are just some of the conditions where dysarthria is a symptom. This means that there are more than 5 million patients in the US alone.

This application will be a simple recognition system, which will take the patients' utterances and generate comprehensible speech for it. However, this communication will be similar to the communication between the patient and the caregiver, where the caregiver can only understand a very limited set of utterances of the patient. The caregiver will train the system by recording the patient's utterances ten times for each output sentence. The system will then be able to listen to the impaired speech utterance from the patient, identify the matching sentence and then synthesize the speech for it. There might be a limitation in the number of utterances the system can recognize so as a further addition, the sentences will be grouped into categories according to situations (for example a doctor's clinic, or a restaurant). The patient will choose the category before speaking. This will allow the system to recognize larger number of utterances.

There have been efforts to build a free-speech recognition system for Dysarthric speakers but with little success. However, this is not a speech recognition system per se. This is a much simpler application, which will only endeavor to recognize a limited number of sentences.

**Team webpage URL**
http://www.ccs.neu.edu/home/zhichun/team/index.html