TALK - An AAC Device: Converting Breath into Speech for the Disabled

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People suffering from Developmental-Disabilities, Tetraplegia, Parkinson’s disease etc. are almost entirely paralyzed and are not able to communicate in any way except using an Augmentative and Alternative Communication (AAC) device. Estimates show that approximately 1.4% of world population suffer from such disorders which is more than the entire population of Germany. The Life Expectancy of such people is estimated at 20 years below average because of lack of expression. Current AAC Devices cost thousands of dollars and are slow, bulky & not generic. I decided to find a better solution - An AAC device which is affordable, faster, portable & generic. TALK employs an innovative technology requiring a person to be able to give two distinguishable exhales (by varying intensity/time) to be converted into electrical signals using Micro Electrical Mechanical System (MEMS) Microphone. The electrical signals are processed by a microprocessor and labeled as Dots - for Short Exhales & Dashes - for Longer Exhales. These Dots & Dashes are further interpreted as Morse Code, converted to words/sentences and sent to another microprocessor for synthesis into speech. TALK features two modes one to communicate in English supporting 9 different voices (male/female) suiting to different age groups and other to give specific commands/phrases. In communication mode, with embedded feature of encoding facility, user can communicate frequently used phrases by just dictating a few words. TALK has made two major breakthroughs by increasing speaking rate and becoming the world's most affordable AAC device. TALK will mark beginning of ‘Whole New Life for Speech Impaired People’. In future I would like to add auto-predictions to my Computing-Engine and integrate TALK with wearable technology.

Awards Won:

Third Award of $1,000

Patent and Trademark Office Society: Award scholarship of $5,000