

AUGMENTATIVE & ALTERNATIVE COMMUNICATION APPLICATION FOR ANDROID

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DESCRIPTION OF PROBLEM

We preferred this project to make general public relationships of speech-impaired people easier while communicating each other and with other people. Since we have been developing applications on android nowadays we are familiar to android and we believe in that in the future, mobile applications will take computers' place and in every platform, people will like and use it. Therefore if we develop a useful application for speech-impaired people, many people in Turkey and in the world would benefit from our application. This would give us great satisfaction without any doubt. We thought that we would encounter some problems during the procedure of this project. So then, we have been searching for libraries of android for a while. Impaired people can communicate with others owing to these libraries but our searches investigated that no adequate libraries are written for Turkish simple sentences. So we will firstly form a library which would include Turkish words and sentences to help Turkish people. We will utilize other libraries to generate the library. Second aim of us is to make graphical interface useful and more understandable.

SYSTEM TO SOLVE PROBLEM

We will develop an android application which can run on mobile operating systems. Our application should have greatly useful and understandable graphical user interface. To achieve this purpose, we will analyze best applications which run on android OS in positive and negative aspects. We will use their good points and improve nasty parts. In addition to these "Innova" would encourage us by giving us technical and material supports.

MARKET RESEARCH

AAC is used by those with a wide range of speech and language impairments, including congenital impairments such as cerebral palsy, intellectual impairment and autism, and acquired conditions such as amyotrophic lateral sclerosis and Parkinson's disease. Due to high demand we can find many AAC devices on the market. General features of such devices are converting the text entered to speech, expressing feelings using preloaded icons and voices associated with several situations and enable to create new icons and voices used mostly.

Xpress by DynaVox[1] is a portable augmentative communication device. Xpress has best features among similar. One of them is voice options. It offers users child and adult voices. In addition, accessing to internet allows users to navigate the web site and to copy images, text, audio and video directly from a web page onto a communication page. Also it provides Word/Phrase prediction and World List. Owing to word/phrase prediction words and phrases anticipated based on the message you are creating. Word Lists provide easy access to words, organized by category, that can be used to complete a message.

LightWRITERS[2] by ZYGO Industries, Inc., SpringBoard[3] by Prentke Romich Company, Mercury[4] by Assistive Technology, Inc. , The Palmtop Portable IMPACT[5] by Enkidu, LINK[6] by Assistive Technology, Inc. are other examples for AAC devices. In addition to these devices there are many mobile application of AAC for Android and iOS. For instance, Voice4u[7] is an AAC application for both. It has two language options, English and Japanese. iAugComm[8] for Android and Proloquo2Go[9] is a product from AssistiveWare for iOS are also mobile applications of AAC. All devices and applications have almost same features.

Solutions that are already exist for AAC and our project will be similar in general except a few differences. One of them is the language used in. Our project will be the first mobile AAC application for Turkish language.

CHARACTERISTICS OF THE PROJECT

Coverage

Augmentative alternative communication systems (AAC) involve the use of personalized methods or devices to supplement a person's ability to communicate. These systems help speech disordered people to communicate to other people. A mobile AAC application gets speech-impaired people to participate in a conversation easily. The basic goal of these applications is to convert input text into aloud speech. One can either enter the input directly or choose a picture or template data from the devise which has this AAC application. An important social impact can be gained by speech impaired people, thanks to these applications. Up to this point, despite the being of this application for English, there is no application in Turkish.

Limitations

Android SDK with Java programming language will be used in development of the main application which runs on android tablets. There will be a database (SQLite) to store some data in order to make the usage easier. In order to convert texts to voice we will be using some text-to-speech engines and some libraries to make it more understandable. And depends on the requirements we can use some web-based libraries and web-sites which will be implemented by ourselves by using Microsoft .net technologies and online databases (Mssql).

System to develop

This application will run on mobile devices which have Android operating system. Two basic functionalities will be developed in this project. One of them is a converting machine which converts text inputs into speech. This function enables the device to speak aloud the user's inputs. The second basic functionality is an expandable phrase library which contains pictures and voices loaded before.

Users of product

AAC is used by those with a wide range of speech and language impairments, including congenital impairments such as cerebral palsy, intellectual impairment and autism, and acquired conditions such as amyotrophic lateral sclerosis and Parkinson's disease.

Product to be expected

This will be a Turkish AAC application for speech impaired people which will enable them an alternative way of expressing their feelings and joining regular conversations.

[1] Dynavox Xpress, <http://www.dynavotech.com/products/xpress/>

[2]ZYGO-USA for Augmentative and Alternative Communication Systems & Assistive Technologies ,
http://www.zygo-usa.com/usa/index.php?page=shop.browse&category_id=6&option=com_virtuemart&Itemid=11

[3] SpringBoard Lite, https://store.prentrom.com/product_info.php/cPath/11/products_id/8

[4], [5],[6] Augmentative Alternative Communication devices, <http://www.abilityhub.com/aac/aac-devices.htm>

[7]Voice4u, <http://voice4uac.com/>

[8]AndroLib, <http://www.androlib.com/android.application.com-ideal-iaugcomm-jznA.aspx>

[9] About Proloquo2Go, <http://www.proloquo2go.com/About/>