Name of the result: Speech Recognizer for Readmio

English name of the result: Automatic speech recognition for Readmio application

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Type and number of the project: Contract

Customer: Inspira publishing s. r. o., Petelenova 2, Banská Bystrica

Funds raised: € 22500

Result annotation:

The READMIO application for iOS and Android smartphones is intended for parents who are reading fairy tales to their children. It provides the texts of hundreds of fairy tales and the parent can read them aloud, while the smartphone automatically plays illustrative text-related sounds.

Author and implementer of the project, as well as the owner of the application, is the publishing house *inspira publishing s.r.o*.. The Department of Speech Analysis and Synthesis UI SAS has created the part of the application that monitors what the speaker when reading aloud and detects where in the text he is, so that the illustrative sounds can be played at appropriate times.

From a technical point of view, a speech recognizer was developed based on deep neural networks with minimized computational and memory requirements so that the program can run on smartphone without using recognition services on remote servers. The main task was to create acoustic and language models, a pronunciation module (orthographic-orthoepic transcription) as well as the FST (Finite State Transducers), optimized for use in the smartphone, for Slovak and Czech.

The second task was the design and implementation of a network service for automatic generation of specialized language models from the text of each fairy tale. The owner of the application prepares a new fairy tale, sends its text to the UI SAS server, which automatically generates special language model from it. This is then supplied to the user together with the respective fairy tale. We currently generate language models in Slovak, Czech and English. Work has begun on the German version. So far, 60,000 users have downloaded the application in Slovakia and the Czech Republic. READMIO plans to enter the English and German markets with the arrival of the new year 2021.

Main popularization outputs:

1. Report on Radio Slovakia about the Readmio application (Radio Slovakia)

2. FM Radio Report on Readmio (FM Radio)

3. Report on Radio Regina about the Readmio application (Radio Regina)

4. The Institute of Informatics has developed an application for interactive reading of fairy tales. (Article on the teraz.sk portal)
https://www.teraz.sk/english/sav-ustav-informatiky-vyvinulaplikac/495819-clanok.html

5. The Institute of Informatics has developed an application for interactive reading of fairy tales. (Article on trend.sk portal)
https://www.trend.sk/technologie/ustav-informatiky-sav-vyvinulaplikaciu-pre-interaktivne-citanie-rozpravok

6. Slovaks have revived a hundred fairy tales, their work is a success. (Report on the RTVS portal)

https://www.rtvs.sk/novinky/zaujimavosti/240422/slovaci-ozivili-stovku-rozpravokich-praca-ma-uspech

7. Fairy tales can now be read with a soundscape. (Article in the daily Pravda)

https://kultura.pravda.sk/kniha/clanok/564295-rozpravky-uz-mozno-citat-sozvukovou-kulisou/

8. Interactive reading of fairy tales: Slovak researchers have developed an application that yours

reading will be supplemented by sounds. (Article on the eductech portal)

https://www.eductech.sk/novinky/interaktivne-citanie-rozpravok-slovenskivyskumnici-vyvinuli-aplikaciu-ktora-vase-citanie-doplni-o-zvuky

9. Fairy tales will be more attractive for children also thanks to SAS scientists. (Article on WebSAV)