# Voice Assistant for Sailfish OS

Petr Vytovtov
Kalashnikov ISTU
Izhevsk, Russian Federation
osanwevpk@gmail.com

***Abstract*—Nowadays voice assistants are widespread, and every popular mobile platform has it: Google Android has Google Now/Assistant, Apple iOS has Siri, etc. These tools are very useful and helpful while you cannot touch your device (e. g. during driving). Unfortunately Sailfish OS developed by Jolla (Finland) and Open Mobile Platform (Russian Federation) does not have the voice assistant which is available in the official store ans easy to install and use. Thus, the first version of voice assistant for Sailfish OS is developed.**

## I. Introduction

Sailfish OS [1] is developed since 2011 but unfortunately does not have any voice assistant in the official application store. Thus the development of the voice assistant for Sailfish OS is started.

A voice assistant should do three main functions: listen to a user, answer to a user, and do the command said by a user. Thus, following tasks should be solved: making the list of commands, recognizing a command, processing a command, showing to a user a result of command, and answer to a user with a voice. The paper describes all these steps in detail.

Even the first version of voice assistant must do the things which are common to users. Therefore four groups of commands are developed in the first public version: voice and text search in the Internet, getting information about weather, navigation, and simple device control.

## II. The Voice Assistant Functions

### A. Voice and text search in the Internet.

All text requests are considered as queries by search system. Thus if you write "Sailfish OS", the request will be passed to Google Search Engine [2], and the search information about Sailfish OS will be shown. The same is true for the voice search. But if you say "What news about Sailfish OS" the voice assistant will search latest news about Sailfish OS in Google. It may be not obvious at first glance but it is very useful.

### B. Getting information about weather.

There are several types of weather requests. A user may want to know weather for place where he is now or for another city, today or tomorrow, etc. Therefore several templates for requesting weather are built: for current place and time, for certain place, for tomorrow or a day after tomorrow, and their combination. The information about weather is uploaded from Open Weather Map service [3].

### C. Navigation.

For navigation the simple query is chosen – "Navigate to something" where "something" can by a place, a city, or a full address. The start point is always the current position. The provider for this type of data is Google Maps [4].

### D. Simple device control.

In this section there are commands for controlling Wi-Fi, Bluetooth, a flashlight, volume, brightness, and a camera, such as increasing or decreasing, turning on or off.

### E. Additional commands

It is clear that a set of these commands cannot fill the needs of all users. Therefore the capability of creating custom commands is added. Here a user can define for which voice command what particular shell-command or shell-script will start.

```
^increase brightness$
^(set )?volume to maximum$
^what(('|( i))?s)? news (about )?.*$
^turn( |-)?on wi( |-)?fi$
^navigate to .*$
```

Fig. 1. The regular expressions examples for parsing voice requests

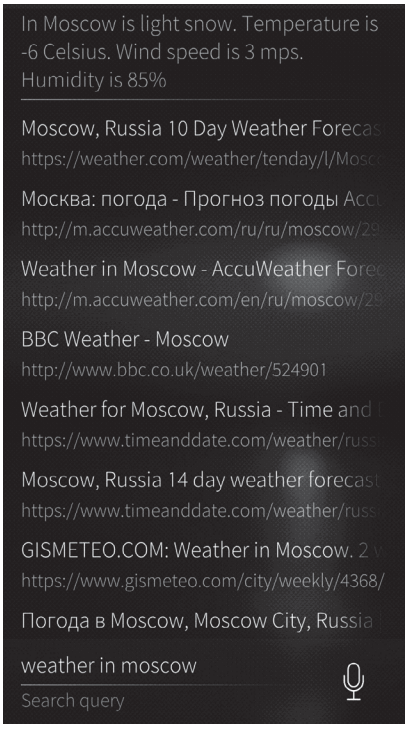


Fig. 2. The main screen of the voice assistant for Sailfish OS

## III. Speech recognition and synthesis

For voice commands recognition and voice replies synthesizing Yandex SpeechKit Cloud [5] is used. Thus the program records a voice commands, sends it to Yandex SpeechKit server and receives a recognized text. The similar way is for synthesizing a voice reply. The program creates the text of reply, sends it to Yandex SpeechKit server and receives an audio file.

Almost all commands are parsed manually with regular expressions (some of them are shown in Fig. 1) without several exceptions like requests for weather (for this type of requests the query is sent to Yandex SpeechKit server for getting parsable information about time and places).

The result of finished commands is duplicated in text in addition to a voice reply.

## IV. Conclusion

In the article the first version of the voice assistant for Sailfish OS is described, and the tool back-end and functions are considered.

Now the voice assistant for Sailfish OS is available in the official application store and in the community repository [6].

The main screen of the voice assistant is presented in Fig. 2.

The further work is focused on opening source code, increasing the number of possible voice commands and deeper integration into Sailfish OS and user's software installed on a phone or a tablet.

## References

[1] SailfishOS, Web: https://sailfishos.org/
[2] Google, Web: https://www.google.ru/
[3] Weather API – OpenWeatherMap, Web: http://openweathermap.org/api
[4] Google Maps Web Service API | Google Developers, Web: https://developers.google.com/maps/web-services/
[5] SpeechKit Cloud – Yandex Technologies, Web: https://tech.yandex.com/speechkit/cloud/
[6] Serra | OpenRepos.net – Community Repository System, Web: https://openrepos.net/content/osanwe/serra