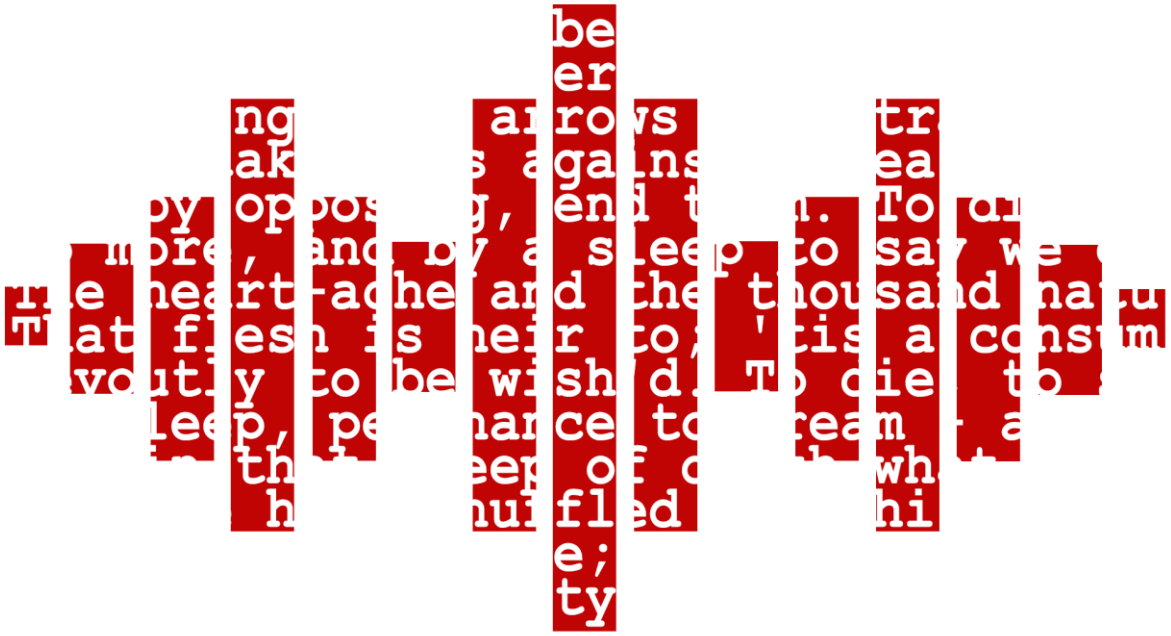
Speech Recognition System



stendhal.syndrome.studio@gmail.com

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1. About

Speech Recognition System is the plugin that provides high quality speech recognition offline.

Features:

- Does not require Internet connection;
- High quality and speed of speech recognition;
- Supports **17** different languages;
- Possibility to work with **Oculus Quest**;
- Multiplatformity;
- Easiness of integration.

Supported languages:

- English (download small model, download large model);
- Indian English (download small model, download large model);
- Chinese (download small model, download large model);
- Russian (download model);
- French (download small model, download large model);
- German (download small model, download large model);
- Spanish (download model);
- Portuguese (download model);
- Greek (download model);
- Turkish (download model);
- Vietnamese (download model);
- Italian (download model);
- Dutch (download small model, download large model);
- Catalan (download model);
- Arabic (download model);
- Farsi (download model);
- Filipino (download model).

Supported platforms:

- Windows 10, Windows 7 Service Pack 1;
- Android (armeabi-v7a or arm64-v8a).

Links:

Video instruction on plug-in usage

Demo. Windows build

Demo. Android build

Demo. Video

2. Quick start

- Import package **SpeechRecognitionSystem.unitypackage**.
- Make sure that the microphone is switched on and in working order;
- Enter settings of the microphone and adjust them: sensitivity is to be at zero;
- Load the scene **SampleScene** from folder **Demo**;
- Press button  to load the scene;
- Wait till there appear the words «Say something…» in the top right-hand corner of the screen. Say anything using the microphone (English is recognized by default). In real-time there will appear the Partial Result in the top right-hand corner and there will shortly appear the final result of speech recognition in the top left-hand corner.

3. API overview

3.1 AudioRecorder

Fields of class AudioRecorder:

- **Microphone Index** – the number (index) of the microphone that will be used during the work of the plugin.

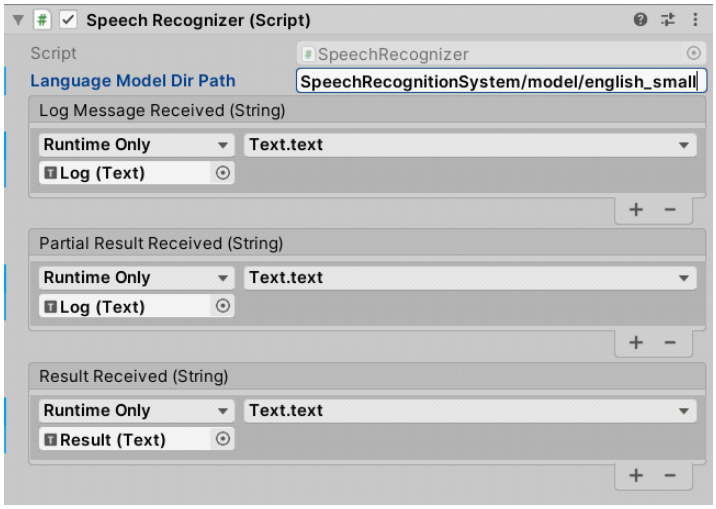
Class events of AudioRecorder:

- **MicReady (IMicrophone)** – event (**UnityEvent<IMicrophone>**) with results of initialization of the microphone (Unity Microphone). As the parameter the event transmits the object implementing the interface **IMicrophone.**

Methods of class AudioRecorder (implementation of IMicrophone):

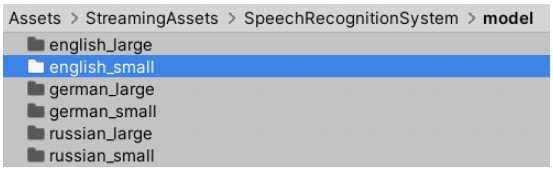
- **GetRecordPosition** – get the position in samples of the recording;
- **GetAudioClip** – the function returns null if the recording fails to start or the object of the AudioClip type if the recording has started successfully;
- **IsRecording** – query if a device is currently recording.

3.2 SpeechRecognizer



Fields of class SpeechRecognizer:

- **Language Model Dir Path** – the path to the directory with the files of the language model (in respect to Streaming Assets).



Methods of class SpeechRecognizer:

- **OnMicrophoneReady** – event handler **MicReady** of the component **AudioRecorder** of the object **AudioRecorder**. The method receives the object implementing the interface **IMicrophone** and saves the link to it for the further access to the microphone buffer;

Class events of SpeechRecognizer:

- **Log Message Received (String)** – event (**UnityEvent<bool>**) with log message.
- **Partial Result Received (String)** – event (**UnityEvent<String>**) with partial results of speech recognition;
- **Result Received (String)** – event (**UnityEvent<String>**) with results of speech recognition;

4. How to add the required language

Download the archive with the required language using the corresponding link provided below:

- English (download small model, download large model);
- Indian English (download small model, download large model);
- Chinese (download small model, download large model);
- Russian (download model);
- French (download small model, download large model);
- German (download small model, download large model);
- Spanish (download model);
- Portuguese (download model);
- Greek (download model);
- Turkish (download model);
- Vietnamese (download model);
- Italian (download model);
- Dutch (download small model, download large model);
- Catalan (download model);
- Arabic (download model);
- Farsi (download model);
- Filipino (download model).

For some languages there exist two types of language models: **small** one – for reasonable accuracy and high speed of speech recognition (for example, could be used for the work on mobile devices) and **large** one – for high accuracy and reasinable speed of speech recognition.

Unpack the contents of the downloaded archive to the directory **StreamingAssets/SpeechRecognitionSystem/model**. Specify the path to the language model in respect to **StreamingAssets** in the field **LanguageModelDirPath** of the component **SpeechRecognizer** of the object **SpeechRecognizer**. For example, «**SpeechRecognitionSystem/model/english_large**». Please pay attention that the line it not to end with «/» symbol.

5. Contact us

Do you meet issues while using this plugin?

Do you have suggestions how to improve API?

Feel free to contact us: **stendhal.syndrome.studio@gmail.com**