**Implementation Steps for Marathi TTS in Devanagari**

Ubuntu Version: 18.04

GCC version: Any version < 6 (5.4 or 5.5 recommended)

To check version of GCC:

Run the command in terminal: **gcc -v**

The default version of GCC is 7.4 in Ubuntu 18.04.

To downgrade the GCC version in Ubuntu 18.04:

<https://gist.github.com/Nannigalaxy/1e473cac77f9f7c8dc4dc3784cc0c2ef>

Install the following packages in the system

g++

libncurses5-dev

patch

libx11-dev

sox

perl

java

speechtools or speech\_tools

festival

Use **sudo apt-get install** (in terminal) command to install the packages.

For example:

sudo apt-get install g++

Follow the readme.pdf file for installation of festival and speech tools (**TBT Marathi Devanagiri.zip/TBT/HTS\_marathi\_male\_parallel/ReadMe.pdf**).

Festival and speech\_tools are already present in the TBT folder (run the commands except first step as the file is extracted given in the ReadMe.pdf)

Add voices in the **/usr/share/festival/voices/my\_voices/** using following command(Reference link: <https://askubuntu.com/questions/1324381/how-to-install-and-use-latest-nitech-hts-voices-for-festival-on-ubuntu-20-04>)

Run the command in the terminal:

* Create a directory in /usr/share/festival/voices**/** by running the command in the terminal (as root).

**sudo mkdir /usr/share/festival/voices/my\_voices**

* Download the two files **festvox\_cmu\_indic\_mar\_aup\_cg.tar.gz** and **festvox\_cmu\_indic\_mar\_slp\_cg.tar.gz** from <http://festvox.org/packed/festival/2.5/voices/>
* Run the command:

**cd ~/Downloads (or open the terminal in downlads)**

To extract the files:

**tar -xf festvox\_****cmu\_indic\_mar\_aup\_cg.tar.gz**

**tar -xf festvox\_cmu\_indic\_mar\_slp\_cg.tar.gz**

Copy the files in the **/usr/share/festival/voices/my\_voices/**

**sudo cp -r festival/lib/voices/indic/** **cmu\_indic\_mar\_aup\_cg / /usr/share/festival/voices/my\_voices/**

**sudo cp -r festival/lib/voices/indic/** **cmu\_indic\_mar\_slp\_cg/ /usr/share/festival/voices/my\_voices/**

**festival**

**(voice.list)**

The output will look like this:

(cmu\_indic\_mar\_aup\_cg cmu\_indic\_mar\_slp\_cg kal\_diphone)

Run:

**(voice\_** **cmu\_indic\_mar\_aup)**

**(SayText "** **तुझ्याकडे माझं पुस्तक आहे का ")**

**(voice\_cmu\_indic\_mar\_slp)**

**(SayText "** **तुझ्याकडे माझं पुस्तक आहे का ")**

* Extract the TBT folder in **/home/** directory.
* Change path of DUMPFEATS variable in **Data/Makefile** to the location of dumpfeats folder of festival (**festival/examples/dumpfeats**) and text2UTT (**festival/examples/text2utt**) in the system.
* Command to synthesize: perl synth\_text.pl "<text>" 123 marathi male

For example:

perl synth\_text.pl "तुझ्याकडे माझं पुस्तक आहे का" 123 marathi male