

Developing Speech Enabled Applications in Indian
Languages
&
Dhvani Text Speech System

Santhosh Thottingal

Why?

For enabling visually challenged users to use Computers

For the education of visually challenged students

For generating the speech from dynamic text

For Eyes busy, Hands Busy digital systems

For audio books

For entertainment

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Why Indian Language?

- Screen readers and TTS systems exist in English.
- How will we use English Screen reader or TTS for a 4th standard student?
- What is the English literacy rate in India?
- We need to read our languages too...

How?

- Speech Synthesizers for Indian Language
- Integrate it with Screenreader frameworks of desktops
- Integrate TTS with existing applications
- Make your application speak

Making your App accessible

Set the accessible name and Description on all GTK+ widgets that are rendered on the screen

```
import gtk
def setNameDesc(widget, name=None, description=None):
    acc = widget.get_accessible()
    if name is not None:
        acc.set_name(name)
    if description is not None:
        acc.set_description(description)
```

<http://live.gnome.org/Accessibility>

Making your App accessible

C Example

```
AtkObject *obj;  
obj = gtk_widget_get_accessible (save_button);  
atk_object_set_name (obj, _("Save"));  
atk_object_set_description (obj, _("Saves all the settings and  
dismisses the dialog."));
```

But it is English...?!

* More info on developing Accessible applications in GNOME: <http://live.gnome.org/GAP/AtkGuide>

Localization

ଅନ୍ତରାଳ

ସଂଗ୍ରହ

ଗୁଣଗୁଣାକରଣ

କ୍ଷେତ୍ର

ସଂଖ୍ୟା

ସଂଖ୍ୟା

ସଂଖ୍ୟା

ଦା-ଚୁ

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How To Read ?

_(Save) =

Indian Language TTS

- **Dhvani : Designed for Indian Languages, Supports 10 Languages**
- **Espeak : Hindi support-experimental**
- **Festival : Hindi and Telugu--experimental**

Application level TTS

- Other than Orca/Screenreader, Applications can generate speech from its data and control the synthesizer by itself
- Screenreader is for all applications in the desktop
- All TTS engines provides APIs for this

Dhvani

- Dhvani: <http://dhvani.sourceforge.net>
- Language Modules exist for Hindi, Marathi, Oriya, Bengali, Panjabi, Gujarati, Kannada, Telugu, Tamil, Malayalam
- C/C++ APIs
- Demo...

Dhvani APIs

```
dhvani_ERROR dhvani_speak_file(FILE *, dhvani_options*);  
dhvani_ERROR dhvani_say(char *, dhvani_options*);
```

- And settings for Pitch, Tempo, Output File formats etc
- Demo..

Callbacks

```
typedef int (t_dhvani_synth_callback)(int);
```

```
typedef int (t_dhvani_audio_callback)(short*,  
int);
```

Demo...

How can you help this project?

- By Testing the speech
- By Adding/Correcting Language specific rules
- Each language module requires developers form that language.
- Number Reading logic
- And by helping in research on improving speech quality and intelligibility

Q&A

Website: <http://dhvani.sourceforge.net>

IRC Channel: #dhvani @ irc. freenode.net

Mailing list: dhvani-devel@lists.sourceforge.net