**Sample pages for English and Sanskrit research article**

**(Article may be completed in even pages i.e. 6/8/10/12)**

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**शोधलेखविषयः**

**नाम**

**शोधलेखसारांशः**

नायकः नायिका पट्टमहिषी इत्यादीनां समीक्षणं सोपपन्नं कृतमस्ति। इयं नाटिका सम्प्रति अप्रकाशिता मातृकावस्थागता वर्तते। सन्दर्भेऽस्मिन् कवेः विश्वेश्वरपाण्डेयस्य देशकालादिनिष्कर्षोऽपि प्रदत्तो वर्तते।

**उपक्रमः**

विदितचरमेवैतत्सुरभारतीसाहितीसमुपासकसमूहस्य तत्रभवतो विद्वन्मणिमण्डलस्य च यत् सहृदयहृदयावर्जकं काव्यं दृश्यं श्रव्यञ्चेति स्थूलतो द्विविधमिति। श्रव्यकाव्याद् विशेषतो विद्वांसः परिणतमतयः एवं शिक्षितव्यक्तय आनन्दमनुभवन्ति, न परे सामान्याः। परन्तु दृश्यकाव्यं सर्वजनाह्लादकं सत् बालानामपि सुखोत्पादकं बोभवीति। तदुक्तं नाट्यशास्त्रे -

**दुःखार्तानां श्रमार्तानां शोकार्तानां तपस्विनाम्।­**

**विश्रान्तिजननं काले नाट्यमेतन्मया कृतम्।।[[1]](#footnote-1)**

इत्थम्भूतस्य दृश्यकाव्यस्य नाट्यमिति संज्ञितस्य नाटकप्रभृतीनि दश रूपकाणि लोकविख्यातिं गतानि परिलक्ष्यन्त एव विद्वज्जनैः। उपरूपकाण्यपि सन्त्यमीषां नाटिकादीनि अष्टदशसंख्याकानि । यथोक्तं साहित्यदर्पणकारेण विश्वनाथेन –

**नाटिका त्रोटकं गोष्ठी सट्टकं नाट्यरासकम्।**

**प्रस्थानोल्लाप्यकाव्यानि प्रेङ्खणं रासकं तथा॥**

**संलापकं श्रीगदितं शिल्पकं च विलासिका।**

**दुर्मल्लिका प्रकरणी हल्लीशो भणिकेति च॥**

**अष्टादश प्राहुरूपरूपकाणि मनीषिणः॥[[2]](#footnote-2)**

अमीष्वाद्यः प्रभेदो नाटिकाख्यस्तथैव मूर्धन्यः सर्वाङ्गीणतया विलसितः सन् सहृदयहृदयाह्लादको वरीवर्ति यथैव रूपकेषु नाटकं वरीवर्ति। नाटिकाश्चेमाः संस्कृतसाहित्यजगति विलसन्ति हर्षवर्धनप्रणीतरत्नावलीप्रभृतयः अतिविरलाः अल्पसंख्याकाश्च। अस्यां पङ्क्तावेव काञ्चिदपरामप्रकाशितां मातृकावस्थास्थितां नाटिकां समानेतुं संयोजयितुं वा प्रयतमानो वर्तते प्रकृतशोधपत्रलेखकः स्वकीयशोधकर्मद्वारा । सेयं भवति श्रीमद्विश्वेश्वरपाण्डेयप्रणीता **नवमालिका** नाटिका ।

**नवमालिकानाटिकाकर्तुः कवेः देशकालादिनिर्णयः**

विदुषां साहित्येतिहासकाराणां च मतानि, नाटिकागतप्रस्तुतिं च समालोच्य विविच्य च निष्कर्षरूपेण कवेः देशकालादिविषये इत्थं निर्णयः कर्तुः शक्यो यत् श्रीमद्विश्वेश्वरपाण्डेयाभिधोऽयं कविः साम्प्रतिक-उत्तराखण्डराज्यस्य अल्मोराजनपदे कस्मिंश्चित्पाण्डेयवंशे जनिमलभत। भारद्वाजगोत्रोद्भवस्य अस्य पिता श्रीमान् लक्ष्मीधरः सुप्रसिद्धो महान् पण्डितः इति ज्ञायते। कालविषये त्वयमष्टादशशताब्द्याः आरम्भवर्तीति न कस्यापि विप्रतिपत्तिरिति सुस्पष्टमेव। बहुमुखप्रज्ञाशाली नितान्तप्रतिभासम्पन्नश्च अयं कविवरः नैकान् अलङ्कारशास्त्रग्रन्थान्, नानारूपकाणि च इत्येवं प्रायः उपविंशति कृतीः विरचय्य, ‘पापी चिरायुः सुकृती गतायु’रिति लोकोक्तेः सत्यतामापादयन् नितरामल्पीयसि वयसि (34 वर्षाणि) अस्माल्लोकान्निर्गतः।

**निष्कर्षः -**

**समाजोपयोगः -**

**उपसंहारः –**

इत्थमस्यां नाटिकायां नायकादीनि पात्राणि नितरां वैविध्यभरितानि चित्रयित्वा कविर्विश्वेश्वरपाण्डेयो नूनं साफल्यमवाप्नोदिति मे मतिः।

**सन्दर्भाः**

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नाम

पत्राचारस्तथा स्थायीसङ्केतः

चलदूरवाणी सङ्ख्या

ई-सङ्केतः

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**Title of the article**

**Name**

**Abstract:** National Sanskrit University has created a rich Sanskrit text corpus with search tools and made it available at <http://sansknet.ac.in>. To enhance and extend the functionality of the website it is thought of integrating speechification facility with the website. Hence a study was undertaken to identify evaluate existing python based open source modules. This paper discusses implementation of Speechification/TTS system for Sanskrit Text Corpus using python modules developed by various institutions/individuals under different projects. This paper also evaluates tangibility, nativity, roboticness of speechified output produced by employing various modules developed using Likert Scale and made available at http://pypi.org. Python Package Index (PyPI) is a repository of software for the Python programming language[[3]](#footnote-3). This paper selectively considered to employ and evaluate python packages: sanskrit\_tts, nltk, inltkgTTS, pyTTS, after thoroughtly surveying the available NLP, Text to Speech related python packages.

**Keywords:** TTS, Speechification, Sanskrit Text Corpus, NLTK, inltk, sanskrit\_tts, pyTTSLikert Scale

# Introduction

Rashtirya Sanskrit Vidyapeetha, Tirupatin now known as National Sanskrit University created a rich digitized rare Sanskrit text corpus in ASCII format and made it available on internet at web link <http://sansknet.ac.in/p>2. This web resource maintained by National Sanskrit University provides access to more than six lakh electronic pages, which were created by data entry operators using traditional data entry methods on GIST terminals, covering many areas of Sanskrit Literature. An electronic page is considered to have 2000 key strokes. With the shift to online medium during the pandemic, and the gradual build-up to the digital world of the 21st century, the process of digitalization has transformed countries.Enabling institutions and transforming processes to the digital medium constitutes digitalization. Sanskrit University authorities felt a strong need for providing Sanskrit Digital Learning/Text Resources to its stake holders as part of extending reading material for curriculum needs of the students. The pandemic situation forced Teaching and learning activities to become Screen based. Being constrained by the situation experienced by Sanskrit learners during the pandemic, the author was motivated to work for speechifying the existing digitized Sanskrit text corpus[[4]](#footnote-4).

Sanskrit Learner studying in traditional and online classroom settings must primarily rely on their listening and reading ability while attending live classes, specifically if the lecture is not available on video. Virtual courses enable learners to listen to the lecture online. Recording/ speechifying and providing digital text learning material enable learner to read and listen to the speechified Sanskrit text to better comprehend and revise the topic at their own speed. In either setting, educational institutions can collaborate with transcription services to help organize and present the information to students to promote better learning.

Any traditional Text to Speech/ Speechification system consists of the 1) Natural Language Processing, and 2) Digital Signal Processing Module. Two primary objectives of digitization are to provide access and for purposes of preservation. For access, a priority is extending reach geographically. For preservation, fragile records can be stored for years without much maintenance in digital storage. Fig 1 shows the three Ds-digitization, digitalization, and digital transformation and how they are interlinked.

Natural Language Processing

Digital Signal Processing

Fig.1.Simple Block diagramSpeechification

# Python based Text to Speech Processing packages

**gTTS**:There are several APIs available to convert text to speech in Python. One of such APIs is the Google Text to Speech API commonly known as the gTTS API. gTTS (Google Text-to-Speech), a Python library

Text Data

Scraped from sansknet

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Analysing Text

Using NLTK

Phonetic Analysis

Concatenation of Speech Unit & audio File Generation

Speech Database

Speechfied Audio

Figure 2 Various stages in Speechfication Process

and CLI tool to interface with Google Translate's text-to-speech API is a very easy to use tool which converts the text entered into audio which can be saved as a mp3 file. The gTTS python package available at pypi.org website suppors several languages including English, Hindi, Telugu, Tamil, Kanada, French, German and many more. The package creates audio in two available audio speeds fast or slow. It does not directly support Sanskrit language.

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# Findings:

1. **Social Utility**

# Conclusion: An experiment was conducted by implementing Sanskrit\_tts and pyttx3 modules for Sanskrit text speechification and to identify a best tts module from python packages repository. Both the packages were subjectively evaluated using Likert Psycho metrics as shown in above. From the evaluation Sanskrit\_TTS package performed better for integration with Sanskrit Text Corpus for computer based speechification.

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**Name**

**Correspondent and Permanent Address**

**Mobile No.**

**Email.**

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3. <https://pypi.org/>, a repository of software for the Python programming language. [↑](#footnote-ref-3)
4. <http://sansknet.ac.in> Unicoded Sanskrit text corpus developed at National Sanskrit

   University [↑](#footnote-ref-4)