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## **Quarterly Programmatic Report**

Developing Screen Reader and Text to Speech  
Synthesizer for Indian Languages

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**August 2012  
to  
November 2012**

Developing Screen Reader and Text to Speech Synthesizer for Indian Languages:  
Quarterly Report

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## Developing Screen Reader and Text to Speech Synthesizer for Indian Languages: Quarterly Report

### Highlights

- CIS received a grant of INR 85,16,000 from the Hans Foundation for Developing Screen Reader and Text Speech Synthesizer for Indian Languages on August 16, 2012.
- A steering committee of seven persons with relevant experience in the field has been constituted. Dipendra Manocha, Deepesh, Charu Datta Jadhav, Manish Agarwal, Avneesh Singh, Sunil Abraham and Nirmita Narasimhan are part of the steering committee.
- CIS contacted the NVDA team of Australia who have agreed to reflect in their main NVDA development page all the work done on NVDA development in India.
- CIS has identified Manish Agarwal and Dinesh Kaushal as Developers for NVDA and Anubhav Mitra as a tester for NVDA.

## Developing Screen Reader and Text to Speech Synthesizer for Indian Languages: Quarterly Report

### **Developing Screen Reader and Text to Speech Synthesizer for Indian Languages**

#### **Introduction**

CIS is engaged in developing an open source screen reading software solution “NVDA” to handle Indian languages and text to speech software in 15 Indian languages over a period of two-and-a-half years (2012 to 2015).

#### **Constitution of Steering Committee**

A steering committee consisting of seven persons with relevant experience in the field has been constituted. Dipendra Manocha from Saksham, Deepesh from Enable India Trust, Charu Datta Jadhav from Tata Consultancy Service, Manish Agarwal from Sapient Technologies, Avneesh Singh from DAISY Consortium, and Sunil Abraham and Nirmita Narasimhan from CIS are on the steering committee. The steering committee like an advisory board oversees the execution of the project. It reviews the progress, provides inputs and gives overall guidance for the project.

#### **Collaboration with International Development Teams on NVDA and eSpeak**

CIS contacted the NVDA team in Australia which has agreed that NVDA development done in India will be reflected in their main NVDA development page. On the e-speak development front, CIS is holding discussions to collaborate with KIIT who will provide developers to work under the supervision of Dr. Agarwal, who has experience in this area.

#### **Hiring of Developers, Testers and Language Experts**

Since development of screen reader and text to speech software is a very niche area, some time was spent in getting the commitment of persons having experience in this area. Since most of the experts are working with big companies they are unable to quit their jobs immediately. However, the following commitments have been obtained:

- Manish Agarwal from Sapient Technologies has been identified as a Project Manager. He will be working as a Developer for NVDA and has agreed to devote 42 hours to this project in a week. He will be quitting Sapient and joining the project full time from January onwards.
- Dinesh Kaushal from Wipro has agreed to work for two days a week for this project. His time on the project will be compensated by Wipro.
- Anubhav Mitra has been hired as one of the testers for NVDA. He is testing the latest version of NVDA, 2012-3-rC1 as well as MS Office 2010.

A working document containing deliverables and milestones for the NVDA development work has been created. This is given as Annexure from page 5 to 7.

#### **Status of Testing Work**

The actual testing work started after the release of public version on November 12, 2012. Currently, a few bugs which were identified earlier are being tested on the windows 7 environment so that the list of bugs can be finalized and further work can be streamlined. Username Anubhav having e-mail address [anubhav.mitra@gmail.com](mailto:anubhav.mitra@gmail.com) has been registered on the NVDA portal so that further bugs can be submitted to NVDA developers directly. It is estimated that initial bugs should be streamlined by November 30, 2012.

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## **Annexure - NVDA Tentative Milestone**

### NVDA Plan

#### Vision for NVDA

We imagine that NVDA should become useful for employment and studies for vernacular languages.

#### Development Plan:

It is hard to draw a definitive plan for a project in the initial phase. Often there is considerable variation due to many factors such as uncertainty of technology, developer skills, understanding of issues and understanding of solutions. Nevertheless, we must start somewhere and make progressive approximations to reach closer to the target. So in the first quarter, we plan to proceed as follows.

Since the developers would be mostly new to screen reader and screen reader development field, first 2 weeks would be orientation for screen readers, understanding NVDA, downloading of source and building of source.

Given the uncertainties above, we expect to fix 8 to 12 issues from the following 75 total issues in the first quarter. We also expect that by the end of this quarter we would have better idea of team's capabilities so we would have better estimate for the future.

#### Developers expected skill set

Working knowledge of Python: preferred to have some certification.

Understanding of Win32 API, Office Object model, Accessibility API.

Understanding of screen readers

#### Test plan

During the first quarter, user experts would provide detailed description about employment related and Indian Language related issues with NVDA. These experts would report the issues on the NVDA website and only against those issues the development plan will be created for the next quarter. Development team would interact with the experts but no issue will be fixed without reporting it to the NVDA website.

We envisage one user expert who should be a power user of NVDA and who would report Indian language issues.

We also envisage another user expert who would be employability expert and who would report all the issues that become hurdle in NVDA becoming choice for persons with blindness for their employment.

#### Shortlisted issues

We have selected following 75 issues out of more than 900 total issues listed on NVDA site. We feel these issues are important for employability and local language support. We would take 8 to 12 issues out of these issues in the first quarter.

#1658 a problem with reporting the cell content when pressing f2.

#141 NVDA doesn't know a difference between Links and Same Page Links

#235 properties for human-readable or custom roles on NVDA Objects

#236 NVDAObjects should have a way to convey extended/custom states to the user.

#247 Name not rendered in virtual buffer for some ARIA roles

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- #279 Virtual synth driver which can automatically recognise and switch between certain languages/synths
- #310 inconsistent beeping on capitals when "speak cap for capitals" and "beep for capitals" both are turned on
- #374 NVDA should not split a linke into several links inside a virtual buffer when that links contains formatting tags
- #406 Each NVDA language should have a prefered voice
- #407 NVDA does not read selected items in the extended lists (combo boxes with a "multiple" property) when the list is collapsed (Firefox)
- #446 When deleting one before the last message in the outlook express message list NVDA fails to announce new item in focus
- #618 development documentation
- #715 NVDA not reading the first shown/highlighted result when typing in "search" box of Win Vista in start menu.
- #767 Added support to detect grammatical errors in Microsoft Word
- #779 Problem when deleting a selection in Microsoft Word, NVDA does not announce "Selected deleted" and NVDA does not announce the text that has followed the
- #781 Added support for detecting multiple selections in Microsoft Excel
- #913 aria-valuetext for progress bars not working
- #942 NVDA Should Announce Tracked Changes in Microsoft Office Word
- #949 NVDA causes word 2007 and older versions too, assume that document is modified while it is not
- #1195 ARIA Landmark Roles and Labeling the Landmark
- #1269 Some buttons in calculator are inaccessible
- #1277 Problem with automatic reading of header cells in HTML tables when more than one table on the page
- #1283 Aria-labelledby should precede aria-label attribute
- #1287 Pressing delete key doesn't announce the character deleted
- #1306 Reading tables in Microsoft Word
- #1307 Headlines in Word not possible
- #1353 When Pressing the following shortcut keys control plus b, control plus u , and control plus i, and control plus e in microsoft word, Nvda doesn't tell you
- #1404 ms word 2010 spell check reads full sentence instead of just misspelled word
- #1428 Keys which produce a compound character spoken as separate typed characters
- #1472 NVDA reads table headers two times in certain situations
- #1487 Hot Key to get line and percent statistics in virtual buffers
- #1519 reporting the column/row title in excel
- #1541 detecting shapes and charts in Microsoft Word
- #1571 NVDA reads more than one table header if there are more than one in a table
- #160 detecting different languages
- #1641 Retrieve color in Microsoft Word 2003
- #1654 NVDA doesn't read some graphics in webpage
- #1676 Announcement of keyboard layout changes depending on context should be optional.
- #1680 Enhancement NVDA+F to detect more information in Microsoft Word and Excel
- #1686 NVDA stops working when opening a document in Microsoft Word 2010 protected view
- #1699 Word 2003 status bar not vound
- #1836 extraneous verbosity in Word 2010
- #1899 NVDA should know how to handle soft carriage return (\0xb) in Microsoft Word
- #1911 Row/Column Table Navigation
- #1933 Word 2010: Application/context key/menu items double-speak, where each item should speak once

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- #1934 Word 2010: When applying list formatting, e.g. bullets or list, press ENTER for next bullet/number, NVDA is silent, where it should speak bullet/number
- #1935 Word 2010: With a bulleted/numbered list, selected using SHIFT+UP/DOWN ARROWS, NVDA doesn't speak the bullet/number, where it should
- #1936 Word 2010: Spell check, NVDA+TAB, and NVDA will error
- #1937 Word 2010: Open a protected Doc and Word will crash, doesn't happen with NVDA off or other screen readers
- #1938 Word 2010: While performing a spell check, initiated with F7, there are times, where NVDA will not read context and speak/read spelling mistake
- #1939 Word 2010: need a way to query cursor position, i.e. how many inches from margin - very useful for formatting
- #1940 Word 2010: Save as dialog doesn't gain focus, must ALT+TAB and then ALT+TAB back
- #1967 Attribute Announcements: Ability to toggle ON/OFF and long//short descriptions
- #1970 Review nextLine and previousLine commands does not work for large documents
- #1972 sentences are joined together when last word in the first is a link.
- #1987 Add the ability for NVDA to read charts in Excel
- #2009 added support for the list items when typing NVDA+F7 (Elements list)
- #2037 nvda doesn't move on bullets and numbers
- #2041 Command to reading by line in Microsoft Excel
- #2047 Support to detect languages in Word
- #2070 MS Outlook 2007: unable to use spell checker
- #2140 NVDA speech cuts off at end of lines
- #2140 NVDA speech cuts off at end of lines
- #2268 Add ability to read the current paragraph and the current, next and previous sentence
- #2268 Add ability to read the current paragraph and the current, next and previous sentence
- #2279 inconsistency when reading excel spreadsheets
- #2283 Word: NVDA+END does not report info in status bar, e.g. page x of y, total word count, etc.
- #2336 Feature request: The ability to jump to table boundaries
- #2336 Feature request: The ability to jump to table boundaries
- #2366 Automatically switch languages on Word documents
- #2396 announcing of tab in ms word
- #2446 Allow NVDA to speak the bullets and numbering, and list levels in Microsoft Word lists
- #2511 NVDA doesn't read some shapes in MS Word 2010
- #2614 Unable to read tables in a Word document given to me by an agency
- #957 Commands to facilitate navigation on the tables
- #1625 Announce the version of the application with focus
- #1786 excel 2010: copy from word, paste into cell, NVDA speaks cell coordinates, but not pasted content.