

# Spoken tutorials for IT literacy and employment

Kannan M. Moudgalya

13 October 2013

Spoken tutorial is an instructional methodology based on screen-cast technology, meant to teach and learn IT systems. It is based on the recording of an entire computer session. It is created for self learning. It is typically ten minutes long. In a typical spoken tutorial, there are about one hundred screen transitions. It is a lot more difficult to create such a rich collection of information through other methods. Spoken tutorials have a small file size: about 1MB per minute. This allows more than ten hours worth of spoken tutorials to be packed into a CD that costs about Rs. 8.

In this project, we restrict our focus to free and open source software (FOSS) only. A learner has to try out every command on the software on which the spoken tutorial is made. If the command works, they can go to the next command. If on the other hand, the command does not work, one can rewind, listen to that command again and repeat, until that command is successfully mastered. All the files required to practise every tutorial are also provided on our web page, [1]. In this page, we provide all the spoken tutorials in the order they should be studied. For every tutorial, we provide the outline and also the script that was used to create them. As each of the file is only about 10MB for a ten minute tutorial, only a small bandwidth is required to stream them.

As they are created for self learning, one can use a set of spoken tutorials to conduct workshops, even without domain experts. The workshops are conducted by volunteers using a clearly articulated and a regimented process. The learning happens only through the tutorials and additional instructional material created by the spoken tutorial team at IIT Bombay. Our staff members join through Skype mainly for motivation and moral support, as can be seen in Fig. 1. As no domain related questions are answered by the volunteers, the quality of the workshop is the same irrespective of in what part of the country it is conducted.

In the last 18 months, the spoken tutorial team at IIT Bombay trained more than 150 thousand students through SELF workshops, see Fig. 2. These workshops have been conducted on different open source software technologies, absolutely free of cost. One can see that the performance is not uniform. We are putting in extra efforts to improve the underperforming states.

We also conduct online tests and give certificates to those who pass the test, once again, free of cost. These workshops have been conducted in the following: LaTeX, Scilab, PHP, Python, ORCA, Linux, LibreOffice, Blender, Java, C, C++, GIMP, GeoGebra and OpenFOAM. We are in the process of creating spoken tutorials in many more open source software systems.

The workshops conducted through this method are beginning to payoff. We received



Figure 1: Our staff member Madhukriti motivating and giving moral support through Skype for a SELF workshop in Kerala

### Workshop Statistics

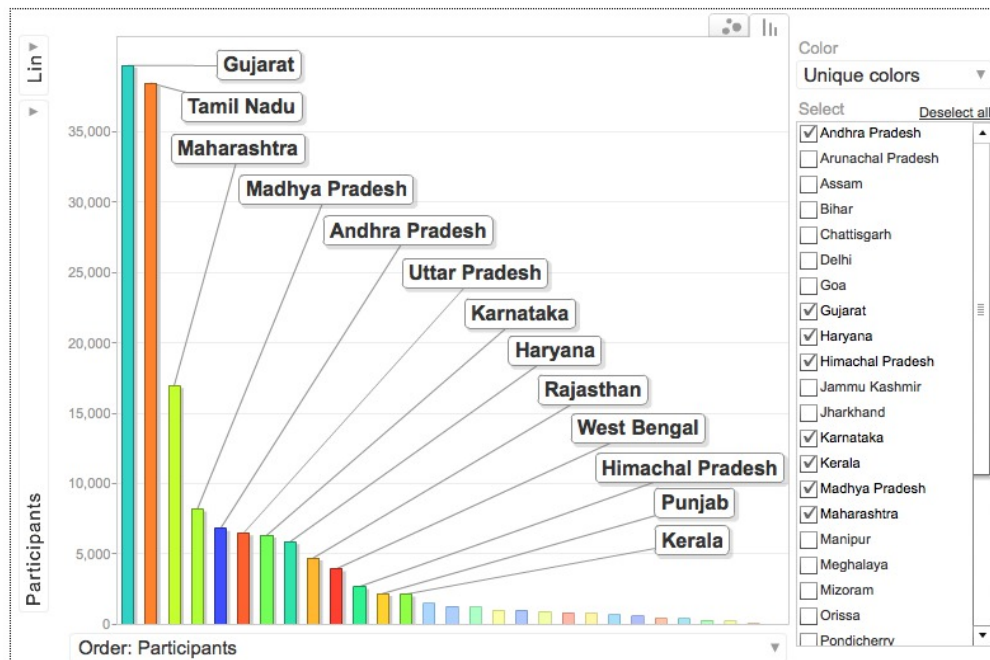


Figure 2: Number of students trained state-wise, during the past 18 months. The states where we trained 2,000 or more students are mentioned. Special efforts are under way to improve the levels of performance in underperforming states. [2] gives details of our staff members organising workshops in different states.

the following testimonial from the Head of an MCA department:

Recently, I came across one company which wanted students with sound knowledge in PHP MySQL. As our MCA syllabus does not cover PHP MySQL, I decided to train my students using Spoken tutorial. More than 30 students took up the course, and in a very short time, I could train my students. This helped place six students, by training them to meet the company requirement, without incurring any cost. The Spoken Tutorial courses are effectively designed to train a novice user, without the support of a physical teacher, and have taken care of all possible questions that may arise during a course.

[Dr. Chitra Desai, Head, MCA, MIT Aurangabad](#)

We received the following testimonial from a B.Sc graduate who attributes her landing a job as a Linux Developer at TCS to Spoken Tutorials:

I am very glad to inform you that I got an opportunity to speak about my experience with IIT Bombay for working on a project (Spoken Tutorials). This exposure seemed to be one of the reason for getting selected in TCS, which various engineers and other graduates would love to. The amazing certificates and having leadership qualities for organizing several workshops during my college days brought in me the confidence to undertake any task. I have got into TCS as a Linux developer. The first time I learned about Linux is when I conducted as well as undertook a test on Linux which was organized by IIT Bombay.

[Krishnaveni Nair, B.Sc Graduate, SIES Mumbai](#)

We received the following testimonial from a student who benefits by the honorarium we pay them in this participatory project:

I have learnt Scilab with the help of tutorials given on the website. My friends and mentor is also supporting me when I face any issue in the coding. This tool is very useful in computations and other academic activities. I have benefited from this internship, Since I no longer need to take Educational loan to pursue my study. I want to give thanks to complete Scilab Team.

[Nitin Kumar, B.Tech Mech. Engg. Student, NIT Hamirpur](#)

The Himachal Pradesh University has included Spoken Tutorials as an acceptable instructional material for their B.Sc (CS) and B.Sc (IT) students under a Choice Based Credit System, see [3]. The HP university has 77 affiliated colleges. The Tamil Nadu Department of Technical Education (DTE) recently trained teachers from 150 polytechnic college teachers on this methodology. They plan to make spoken tutorial based training mandatory for all the about 450 polytechnic colleges in Tamil Nadu, see [4]. Many universities and DTEs are in various stages of introducing this activity in their curriculum.

Dubbing only the audio portion has been done successfully in this project. This is an extremely easy procedure: it requires only about 5% of the effort involved in creating the originals. For students who are weak in English but desirous of using the normal keyboard, this is a godsend: their employment potential is maintained while the learning happens through their mother tongue. This also allows tutorials on high technology topics

[Daily](#) | [Weekly](#) | [Monthly](#) | [Quarterly](#) | [Yearly](#)

17:23:45 28 September 2013 ■ Summary L

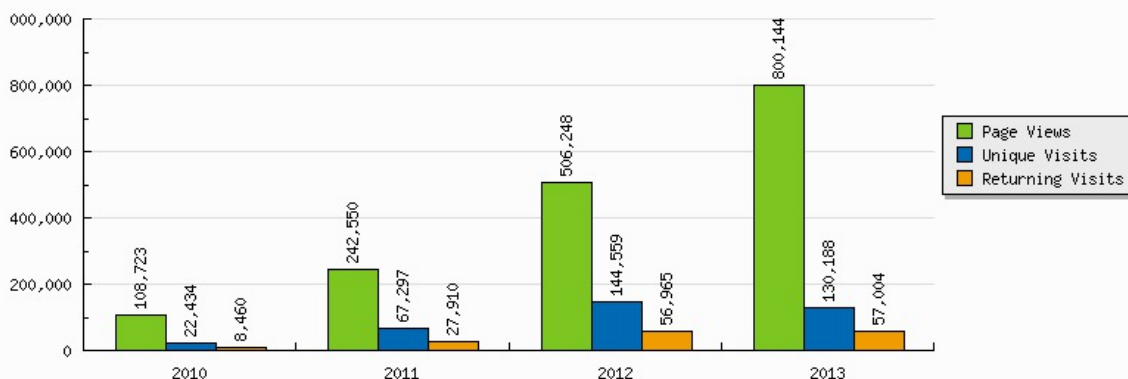


Figure 3: Annual visits to our web site [1], as reported by statcounter. Year-wise page views, unique visits and returning visits are shown Year-wise. The Page views are doubling every year. These numbers are an understatement, see [5].

be made available even to minority linguistic groups, for example, those whose mother tongue is Sanskrit or Bodo. This approach has the benefit of bootstrapping difficult skills in such groups, even if there are no domain experts who speak their language. As dubbing into other languages happen from the same original high quality spoken tutorials, the standard will be maintained in all language dubbing. This will greatly help the poor children of our country, who typically end up in vernacular medium schools without access to good teachers. Finally, Dubbing only the audio has the potential to promote national integration.

At the time of writing this article, there are 462 spoken tutorials of about ten minutes each. In addition, we have about 1,000 tutorials dubbed into various languages: Gujarati (193), Hindi (192), Marathi (151), Bengali (105) and Tamil (99) are the top five languages in terms of number of tutorials dubbed. Many more tutorials, both original and dubbed, are in various stages of preparation. We hope to create 1,000 original spoken tutorials and 10,000 dubbed tutorials in the next three years. We have just started offering these workshops to school teachers in pilot mode, as there are a lot of differences between schools and colleges, and also because it has taken time to build a substantial number of local language dubbing. The initial response is very encouraging.

This web site is quite popular amongst the users: We first present the information given by statcounter.com. The number of page views started at 100,000 in 2010, and has doubled every year. We expect one million page views this year, possibly in November itself, maintaining the same rate of growth, see Fig. 3. These numbers are an under-representation, as many of the pages in our portal are possibly not monitored. Awstats, in which we got our portal registered recently, gives a much larger number. According to this analytics, we are currently clocking about 600,000 unique page views and 40 million hits a year, see [5]. Considering that our tutorials are only about ten minutes long, the time spent on our portal is quite substantial.

The Spoken Tutorial method has the potential to be useful in all demonstration

based subjects. For example, it is useful for skills training, to bridge digital divide, and to convey health related information. It is our desire to get into this area also.

Although the emphasis of this effort was mainly documentation/e- content creation at the beginning [6], the spoken tutorial project has now been morphed into one that has equal emphasis on training with a mandate to put the created content into use.

## References

- [1] Spoken Tutorial Project. Official web page. *See <http://spoken-tutorial.org/>*, Seen on 9 Oct. 2013.
- [2] Spoken Tutorial Project. Events team contact details. *See [http://process.spoken-tutorial.org/index.php/Software-Training#Organising\\_Workshops](http://process.spoken-tutorial.org/index.php/Software-Training#Organising_Workshops)*, Seen on 9 Oct. 2013.
- [3] HP University. Circular issued to all affiliated colleges. *See [http://hpuniv.nic.in/pdf/CBCS/cbc\\_workshop13.pdf](http://hpuniv.nic.in/pdf/CBCS/cbc_workshop13.pdf)*, Seen on 9 Oct. 2013.
- [4] Tamil Nadu Dept. of Technical Education. Circular Issued to all Polytechnic Colleges in Tamil Nadu. *See <http://tndte.com/spoken%20tutorial.pdf>*, Seen on 9 Oct. 2013.
- [5] Awstats. Analytics provided by awstats on spoken-tutorial.org. *See <http://spoken-tutorial.org/awstats/awstats.pl?config=www.spoken-tutorial.org>*, Seen on 9 Oct. 2013.
- [6] K. M. Moudgalya. Spoken Tutorial: A Collaborative and Scalable Education Technology. *CSI Communications*, 35(6):10–12, September 2011. Available at <http://spoken-tutorial.org/CSI.pdf>.