Swatantra 2014

Fifth Annual Free Software Conference, Kerala

Proceedings

International Centre for Free and Open Source Software (ICFOSS)
VII Floor, Thejaswini, Technopark, Trivandrum-695 581

ICFOSS

Contents

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The Conference Programme Schedule
and Presentations are available at
`http://icfoss.org/fs2014/program_details.html`

`www.icfoss.in`

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Foreword

After India's first-ever Free Software event, *Freedom First!* that was convened in Trivandrum in 2001, Kerala had organized international Free Software conferences in 2005, 2008, and 2011. These conferences were an occasion to highlight Kerala's achievements in the domain of Free Software, as well as to bring together the community to discuss priorities and action items.

Taking the tradition forward, ICFOSS conducted the fifth international Free Software conference of Kerala, *Swatantra 2014*, during 18-20 December 2014 at Thiruvananthapuram. Themed "Free Software for a Free World", the conference reflects emerging concerns that citizens and communities face *vis-á-vis* privacy, online rights & freedoms, and security at the global level, in addition to examining developments in the mainstream Free Software areas.

ICFOSS was fortunate to be able to bring together a number of prominent institutions and individuals for the organization of the conference as well as at the conference itself. ICFOSS thanks all the supporting institutions, *viz.,* FSF-India, Centre for Internet and Society - Bangalore, SFLC.IN - Delhi, Swathanthra Malayalam Computing, FOSSEE - IIT Bombay, SPACE - Thiruvananthapuram, Department of Computational Biology and Bioinformatics - Kerala University, Spoken Tutorials - IIT Bombay, and IEEE Kerala Section.

ICFOSS places on record its appreciation for Speakers and Presenters from different parts of the country and the world for their efforts, and the Chairs of the 12 parallel Tracks, who helped with the organization and conduct of the event.

It is the Free Software community and practitioners from within Kerala and from different parts of the country, who obliged us with their presence at Swatantra 2014, elevating Swatantra 2014 to a truly community event. ICFOSS thanks the Free Software community and practitioners who participated and supported the conference.

Finally, this report has been made possible through the efforts of rapporteurs, Mr. Vijay Paul, Ms. Sreela Srinivasan and Ms. Vani K.R., as well as Dr. Ahana Lakshmi who patiently transcribed the plenary talks and put together the document. ICFOSS places on record its gratitude for their work.

Satish Babu
Director, ICFOSS

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DAY 1: 18 Dec 2014

2.1 CONFERENCE KEYNOTE: "Free Software and Beyond", Dr. Richard Stallman, President, Free Software Foundation

Mr Satish Babu, the Director of the International Centre for Free and Open Source Software welcomed the gathering and briefly outlined the programme for the evening. The formal inauguration was slated for the next day with the lighting of the lamp by Dr Richard Stallman. He said that Kerala was at the forefront of the free software in the country and would like to claim in the world as well. It had been the efforts of a large number of community members in the free software community with some amount of support from the government and civil society. The Fifth Edition of the International Conference on Free Software in Kerala had been made an exclusive conference focusing on free software and its implications on different aspects on the world today which is why it has the theme of Free Software for a Free World. In particular, the sessions over the next two days would be covering a large number of topics ranging from the technological side of things to the social and cultural side of things. A very eminent set of speakers coming from different parts of the world and different parts of the country would be talking. The key-note address titled "Free Software and Beyond" was to be given by Dr Richard Stallman followed by a question-answer session.

Dr Stallman started by pointing out that companies like Facebook and Instagram are monstrous surveillance engines as they did surveillance on its 'useds', because the company was 'using' them, the users. He said the beginning of freedom in computing activity is to make sure your software is all free, in terms of freedom, not price. The crucial ethical point is once you've got the software, does it respect your freedom? So, free software means freedom respecting software. We could call it 'mukth' or 'muktho' or 'swatantra' software. We do not mean 'mufth'. When a programme is not free, we call it 'non-free proprietary user subjugating software', because every non-free programme generates unjust power. It gives the owner of the programme power over the users of the programme which is an injustice. Free software is software that the users control. Proprietary software is software that controls the users.

The term free software is appropriate because in order for the users to have control over the programme, they need the four essential freedoms which are the criteria for free software. Freedom Zero is the freedom to run a programme as you wish, for whatever purpose. Freedom One is the freedom to study the programme's source code and change it to make the programme do the computing the way you wish. With these two freedoms, each user has separate control over the programme. Freedom Two is the freedom to make exact copies, and then give or sell them to others when you wish

and Freedom Three is to make copies of modified versions to give or sell them to others when you wish.

The distinction between free and proprietary software, is an ethical, social and political. To develop a free programme is a contribution to society. Developing a proprietary programme does not contribute anything because it is a power grab and an attempt to subjugate people, which is harm to society. In social terms, the non-free programme is a trap. There are other issues with proprietary software such as malware, back doors, malicious functionality and censorship. For example, Microsoft Windows spies on the user, has digital handcuffs, i.e. digital restrictions management (DRM). Parts of Android are free software while other parts are proprietary. One proprietary part is called Google Play. That's the programme for accessing Google's App store. And it has a universal back door, also known as auto upgrade. Any time a programme has auto upgrade, and the user can't turn it off, that is a universal backdoor. Portable phones were an example of tracking devices which could not be controlled by the user and cannot be really switched off.

While some proprietary programmes are malware, others are not and it is not possible to check because the source code cannot be checked. In the case of free software, people are constantly checking the source code trying to improve it or fix bugs and in the process, they have a chance to find anything malicious. Free software doesn't give one person power over another and that's why it is freedom respecting and that is what it means to be freedom respecting.

The goal of the free software movement, started in 1983, is the liberation of cyberspace and all of its users. At that time all the operating systems were proprietary; hence by developing an operating system and making it legally free could liberate the users. An operating system consists of hundreds of thousands of programmes and every programme in it has to be free. In order for a collection of pieces to respect your freedom, each piece separately must respect this freedom. If there is one piece that tramples your freedom, the collection as a whole tramples your freedom through that one piece. As a practical decision, a Unix-like operating system was created and the name given was GNU, a recursive acronym which stands for GNU's not Unix. By 1992, almost the entire initial version of

Figure 2.1: Dr. Richard Stallman delivering the Conference Keynote

the GNU system was ready but one major component, the kernel, was missing. In February 1992, Mr Torvalds who had written a proprietary kernel code, Linux, freed it. And once Linux became free software, it was possible to fit Linux into this gap in the GNU system making a complete free operating system which was basically GNU but also contained Linux. In other words, it was the GNU plus Linux system or GNU/Linux system, which is how it should be referred to. Also open source and free software are not the same. Rather than FOSS, it should be ‘Free/Libre and Open Source Software’ or FLOSS.

New dangers today are web pages containing programmes which are often non-free, they get installed into computers silently by the browser and then they run in your computer without your knowledge and some of them are malware. LibreJS is an add-on for firefox which analyses all the programmes in the web pages that try to install themselves into your browser, to determine if they are either trivial or free. If a programme is non-trivial and non-free, LibreJS warns you on the screen and also helps send a complaint to the webmasters. The other danger is the secrecy in specs of many hardware components which can be found out mainly by reverse engineering. Some hardware even block running of free software such as cellphone modem chips.

The talk ended with a lively discussion session.

Figure 2.2: Interactions during the session

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DAY 2: 19 Dec 2014

3.1 INAUGURAL SESSION

The Director of ICFOSS, Mr Satish Babu, welcomed the gathering and gave an overview of Swatantra 2014. This was followed by the Presidential Address by Mr. S. Ramakrishnan, Former DG, CDAC, Delhi. Next was the traditional lighting of the lamp which was done by Dr Richard Stallman, President of the Free Software Foundation. Dr Rahul Dé, IIM Bangalore and Ms Nina Paley, Filmmaker and Free Culture advocate offered felicitations. Dr. V. Sasikumar of the Free Software Foundation of India, proposed the vote of thanks.

Apart from Plenary Talks, there were twelve tracks, some of them being conducted as parallel sessions. The sessions included individual presentations as well as group discussions. A brief report of each track follows.

Figure 3.1: Interactions during the session

3.2 PLENARY TALK: Free Software in State Government Departments: Some Preliminary Findings: Prof. Rahul Dé, IIM Bangalore

Prof Rahul Dé based his presentation on a study that he and his team are carrying out. The idea of free software in government, he said, really follows from two aspects. In 2009, he had carried out a study on free software use across India, in many verticals. His focus was really on the economic impact. That led to a subsequent question: what is the role of free software in electronic government, usually known as e-government.

The study, supported also by ICFOSS focused on two departments: education and police because these are present in all the States and Union Territories (UT). The question was "What is the impact of free software when adopted by government departments? The question prior to this was: Do government departments adopt free software? The sub questions were: Are there both tangible and intangible benefits/losses if governments adopt free software.

First, they carried out considerable desk research and came up with a number of published papers on the subject. Next, they filed RTI (Right to Information) applications. They also carried out field visits and finally, they analysed all the information.

The desk research showed up that free software is being adopted by many countries, developing and developed, around the world. The reasons could be tangible, as in the conservation of foreign exchange for import substitutes of proprietary licences. The other reasons are that free software enables easier access as it is easier to download, to access, to use, to experiment, to implement and do all those things show up in e-government capacity, expansion and access; and because of the standards involved, it is possible for departments to cooperate. Free software tends to break the lock in with vendors of proprietary software. Another major reason is national security. In terms of intangible reasons, a primary one was of restoring IT competencies which were being drained by the vendor driven systems. Apart from building skills and capacity within departments in the use of free software, it promotes socio-technical values of sharing and collaboration. When they looked at whether governments should promote free software, they found that that responses in their study fell into all three categories of 'yes', 'no' and 'maybe'. No — because public subsidies kill innovation and competition may not lower prices; yes — because it will promote production of public goods as well as competition and maybe — certain informing and mandating policies would help but not the ones that provide subsidies. Internationally, the number of departments as well as countries developing policies for free software has gone up considerably since 2006.

The team used the RTI route to get information from Education Departments of 13 states and UTs. Of all those contacted, only 3 gave them cursory details, including one state where the RTI application was redirected to the Government Colleges and 32 responses were received and the team found letters from college principals asking if they wanted to know about their IT budget. An unstructured research process was followed with field visits to seven states

The findings were as follows: In the field of education, FS has helped create a culture of sharing and collaboration in the chain of education. Most of the Indian states other than Kerala have opted for proprietary software, the main reason being the push by the vendors in order to maximize their personal gains.

For police, the major study was held in CCTNS — Crime & Criminal Tracking Network and Systems. Though the "in-effect" goal was the same, the technology implementation varied across the states as the states could choose between free software and proprietary software. For e.g. in Kerala the core implementation was based on Java/Solaris while in Karnataka it was .NET stack and a core of .NET with Mozilla and Ubuntu as clients in Maharashtra. The choice was independent of economic consideration as the central government was funding the activity.

Dr De emphasized that free software promoted a do-it-yourself culture. This was seen in Kerala's education department where teachers and students want to explore, experiment and participate and

expand their scope of activities beyond the curriculum requirements. In one police department in Jharkhand, one of the officers had used the free software stack and they started experimenting. Free Software adoption hasn't been without hurdles. The Central Policy is open and encourages FS adoption. However, many respondents, especially senior officers, felt that they had no say in technology choice. Six years ago, people did not know much about free software, but now the awareness is much higher today, especially among junior officers, who, unfortunately may not be in decision making capacities. Concluding his talk, Prof De said that it was clear that there were tangible results, even if the information at the moment was preliminary, in terms of cost savings at various levels, apart from significant intangible benefits. The lecture was followed by a question-answer session.

3.3 PLENARY TALK: Email & Privacy. Smári McCarthy, Mailpile, Iceland/Ireland

The second of the plenary talks was given by Icelandic/Irish innovator and information activist Smari McCarthy. He began with email's legacy dating back to what is a 50 year old technology and how emails have 5.32 times larger networking reach as compared to even Facebook. Talking about this "major identity infrastructure" on the internet, he moved on to explaining the whats and whys of his product — Mailpile. "Free email has been in pretty bad shape. Round cube is state of the art, Zimbra is not everyone's cup of tea and Thunderbird is being retired. Mailpile, is an email client with a web based UI and API. It has a powerful search engine and is developed using Python, HTML5 and Javascript", said Mr. McCarthy in his introductory lines about Mailpile.

"The present day spam filters censor. But they do not allow the answers to questions like why it is being censored or marked as spam", he added. Mr. McCarthy highlighted the 5 things they wanted to convey with developing Mailpile:

1. Make FOSS folks enjoy hacking
2. Make software people want to use
3. Make email encryption understandable
4. Make decentralization easy
5. Find better business models for email without spying and data mining

As for the current status of Mailpile, the latest version is ready with its v1.0 release and boasts of an elegant HTML5 based UI, which is easy to setup and run on Linux, MacOS & Windows and supports PGP encryption and signatures. With additional features like Bayesian spam filtering and IMAP support, translations in progress in over 30 languages. He also explained in detail the overall architecture, the search function, the way spam filtering is carried out and the encryption method.

3.4 TRACK 1: INDIAN LANGUAGE COMPUTING

Chair: Mr. Venkitesh Hariharan, Alchemy Business Solutions LLP, Mumbai

Session Summary: The session on Indian language computing covered a national road map for Indian language computing, sustaining community initiatives in language computing, an analysis of the current status, standardization, and some reflections on the past. The presenters felt that there is a need to work on a mission mode to take Indian language computing to millions and millions of Indians.

Industry, academia and the government need to come together, to make Indic computing mainstream in the next few years. The contributions of the Free and Open Source Software community to Indic Computing was acknowledged, along with the recognition that these communities are underresourced. If these communities are adequately resourced, their contributions can be much higher.

It was also recognized that the government has a huge role to play, especially in areas like linguistic resources which require significant input of time and resources.

3.4.1 A National Roadmap for Indic Computing. Mr. Venkitesh Hariharan

Starting off the event with one of the most talked about topics in the Indian Free Software community, Mr. Hariharan shared his thoughts on how and why Indic computing should be brought to the mainstream and the dire need of crossing the chasm between early adopters and early majority. In his words, this gap can be filled by using IT in Indian languages which should be made as easy as using English.

The path forward for Indic computing looks promising with the E-bhasha project moving into mission mode. Major mobile phone manufacturers like Micromax and Samsung were mow focusing on Indian language user interfaces. This was supported by the favourable factors of increasing internet penetration in the country and the price drop of computing devices.

Compared to an earlier scenario when Government used to push information to the public, they are focusing more on communicating in regional languages. In the 12th Five year plan, 400 Crores was allotted to Technology Development in Indian Languages. The challenge lies in identifying how the outcome is evaluated and benefits the public.

The risks include the fact that Government spending is not outcome based, the Private Sector is not well-funded and the resources are scattered. The community is vastly under resourced given the scale of the problem and the technologies that need to be built. But to bring all these ideologies into action, Industry, Academia and Government need to work together for a common goal, which is always challenging in India.

According to Mr. Hariharan, the way forward was to create (or liberate) linguistic resources and make them available in open source. The IT Industry has created value for global corporations and now it's high time they create value for India. But most importantly, the focus should be on user research as Indic needs are far more complex compared to Latin languages.

3.4.2 Building Blocks of Indic Language Computing: an Analysis of current status, Mr. Santosh Thottingal

"Majority of the work in FOSS was initially in infrastructure", said Mr. Santosh Thottingal as he opened his talk on the Building Blocks of Indic Language Computing. Explaining about locales, collation and rendering, he added that for English, the infrastructure already existed but not for Indic languages. What we mostly see is that either the fonts in the Indic System are missing, or not up-to-date. There is a long technology gap between calligraphers who design fonts and it actually being converted to system fonts.

Updates in rendering standards are increasing. Indic languages, unlike English fonts, need updates. Assumptions associated with English fonts cannot be taken for granted here. Talking about Input Methods, he said that configuring Indic language input methods are not trivial. It is one of the key areas to be focused upon.

As with the case of dictionaries and search in Indic languages, they face another hurdle. The present machine translation lacks a dictionary infrastructure to go forth. This is what has to be thought about first before thinking about language machinery. When search is considered, various parallel factors like language sensitive search, cross language search and approximate search have to be considered. Present search engines do not index content in Indic languages, especially Dravidian languages. An example stated was the Aadhar translation method which did not turn out to be successful.

Closely attributed to search, spellcheck faces similar issues. The major difficulty was in analyzing different forms of words: adverb, verb etc., and classifying them properly. Hyphenation was an integral part of the OS and was not usually available as a product. This affected the alignment of the Indic fonts. But since 2008, the issue had been solved.

Lastly, moving on to the final building block, Web Standards, Mr. Thottingal said that we need to define clearly where breaking of words, wrapping of words in a box etc. take place, because only then can we have the Indic language fonts perfect for web use. Thus, a proper Web Standard needs to be put in place for this.

3.4.3 Desi Content, Standardization and its Strategy. Mr. Rajesh Ranjan

Mr. Rajesh Ranjan's session emphasized how the acceptance and standardization of Desi Content, is purely market dependent. "Google formed an alliance for Hindi Voice Search and is now into launching Hindi advertising on Google. In many ways these conflict with the actual statistics. Even though Malayala Manorama is one of the most widely circulated regional language newspapers in the country, Hindi was chosen as the primary Indic language to try out with. This shows how all these facts are market driven and not based on statistical facts", he said.

The race was for the share of Desi content. Though in mobiles, people use Indic languages, the adaptation was still not seen in desktops. He concluded his talk with a mention of the FUEL Project (Frequently Used Entries in Localization), which works to create linguistic and technical resources like standardized terminology resources, computer translation style and convention guides, and assessment methodologies. The same is used by Government of Maharashtra as an eGovernance standard and has been cited by C-DAC in its localization guidelines.

3.4.4 Indic Computing: Some Reflections, Mr. Sayamindu Das Gupta

Mr. Das Gupta filled his session with comparisons and details of O-Bangla Project. The inspiration behind the project was the focus on one of the most integrative human need- the need to express; expression of communication in one's own language.

The whole initiative was about creating an ecosystem to support Indic Content and increased access. Translating into Indic languages would bring in wider access to technology, especially with increased access to mobile devices as the days go forward. He said that with devices being available in Indic languages, the penetration of technology into the community would increase, hence resulting in enhanced outreach and put out new and further opportunities of innovation.

3.4.5 Sustaining Community Initiatives, the SMC Experience, Mr. Anivar Aravind

SMC, an initiative originally started in 2001 was restarted in 2006 on the side-lines of the GPLv3 conference. Localization was setup as its first step of contribution to the community, which now has 14+ project administrators, 15 mentors and 9 Google SOC in the past two years alone. The focus of the community was 100% on upstream contribution, being one of the pioneers in acceptance to new technologies.

2006-08 saw the focus on desktop, 2009 on web and 2012 on mobiles. In a matter of 10 months, 16 languages and 36 input methods were devised by the community. The speaker said that an organizational effort was needed to bring together development and integration of all Indic languages, which was being done by SMC. The Indic project was launched recently and focuses on adapting projects to fit needs of entire Indic languages, including documentation, algorithms and frameworks.

Mr Arvind concluded that through localization, people will study philosophy and togetherness, and hence grow. This was the case of Diaspora where Malayalam was one of the first languages to adapt to it.

3.5 TRACK 2. WIKIMEDIA AND ACCESS TO KNOWLEDGE IN INDIA

Chair: T. Vishnu Vardhan, Programme Director, CIS, Bangalore

Session Summary: Digitization of Indian cultural heritage, available in Galleries, Libraries, Museums and Archives (GLAM) and making it seamlessly accessible to the next generation continues to be a challenge. The problem is even more severe when it comes to heritage in print in Indian languages. This track stressed the great urgency to protect our cultural and knowledge diversity and to make it accessible to the entire world in the digital medium. The prime questions here included: how can FOSS help? And how can movements like FOSS and Wikimedia communities contribute to making Indian literary heritage accessible? The presentations by the Wikimedia volunteers addressed these questions, by showcasing the various projects they have taken up on Indian Language Wikipedias and Wikisource. Wikimedians from Kannada and Telugu demonstrated how they have used Wikimedia projects to make literary heritage accessible (e.g. the DLI Telugu books catalogue project has made thousands of Telugu books visible on the Internet). A session showed how FOSS played a catalytic role in conserving rich Kannada linguistic heritage of Vachanas. The Medical GLAM project being done at Department of Pathology, Calicut Medical College showed how high quality pathology specimen images are made freely available on Wikimedia Commons, which gave a unique perspective of imagining the possibilities of working with GLAM in India. Last but not least, the use of FOSS in creating the Wiki-track App that would be beneficial to seasoned Wikimedians globally was presented.

3.5.1 Med-GLAM: K.P. Aravindan, Head, Department of Pathology, Calicut Medical College and Netha Hussain, Wikipedian in Residence, Calicut Medical College

Dr Netha Hussain talked about Med-GLAM and its importance in pathology. The Department of Pathology, GMC-K runs UG, PG and paramedical courses and hence had an abundance of clinical material. Images were uploaded from department's collection. Pathology acts like a bridge between basic sciences and clinical sciences. It was the foundation and cement of medical science and practice. There was a very strong need for good quality images in pathology because classical methods are description oriented and good quality images were expensive and without proper annotations. Med-Glam was important because it made available free, annotated images for teaching medical students, facilitated interaction between pathologists and medical students, created a repository of free images for use for research and textbooks, facilitated reverse image search using categories, keywords and tags and initiated discussions about rare case scenarios

3.5.2 Wikitrack: Mr. Hari Prasad Nadig, Director, Saaranga

Mr Nadig developed the app called "wikitrack" which tracks the status of on-going projects in wikimedia. The app was being developed for both iOS and Android. It helps editors keep track of their favourite projects on the go, covers all projects of Wikimedia, covers all languages the projects are available in and has a 'remember projects' feature so that the user's frequently projects are remembered.

3.5.3 Making DLI Accessible: Mr. Pavan Santosh, Mr. Rahimanuddin Shaik

The duo made the DLI (Digital Library of India) accessible in Telugu language. They said that Knowledge sharing is the fuel for human civilization from the stone age to the digital age.

3.5.4 Weaving Wikipedia, Ms. Pavithra H

A Kannada wikimedian, she shared her experience on the technical side of uploading data to the wikimedia projects. She said that adding content to Wikipedia could be due to interests, passion or as a hobby. The content could be text, pictures, videos etc. Manuals are available to explain how to do this.

3.5.5 Conserving Linguistic Heritage: the FOSS way: Mr. Omshivaprakash

He made a presentation on his experience helping reuse/conserve the linguistic heritage of Kannada literature the FOSS way. In the middle of 2013 there was a lot of discussion on public forums on vachana sahitya built on vachana movement in the 11th -12th century. It was found that people were finding it difficult to provide data on the literary works. That is when they started work on the vachana sanchaya, a linguistic tool built around the same literary work. This was a detailed process and the portal was developed.

Figure 3.2: Session on FOSS in Computation Sciences

3.6 TRACK 3: COMPUTATIONAL BIOLOGY & SCIENCES

Chair: Dr. Achuthsankar S Nair, DCBB, Kerala University

Session Summary: The Session on Open Biology and Science addressed philosophical, ethical and technical issues in emergence of open science and deliberated the future course. All the discussions accepted the notion that knowledge generated by science is public good. By and large the deliberations pointed to a critical mass of awareness and activity in the area, in terms of publications, data bases and citizen-led science. There was consensus that public money should not be spent on subscription of journals, but in supporting open access publications. The session also highlighted the need to accelerate adoption of technical computing software like Scilab and Julia in Higher education. The call for creating state level open access initiatives was made.

3.6.1 Open Science. Prof. Subbiah Arunachalam, M. S. Swaminathan Research Foundation, Chennai

He started the session with examples of martyrs like Aaron Schwartz, Elinor Ostrom and Jack Andraka. Prof. Arunachalam quoted during the session that - “Only through free and unhindered access and sharing, can we ensure democratisation of knowledge”. He went on to argue that modern science should have less amount of data reduction. The panel discussion that followed showed him commenting that science was a collective activity and that knowledge should no longer be a commodity.

3.6.2 Open Access Publications in Science: Dr. B. Ekbal, Former Vice Chancellor, University of Kerala

He said that the print derived model was increasingly put under strong scrutiny and that open access meant that “Everyone has access and all use is fair use”. He argued that Indian articles have very poor access to international journals and that by using open access publication, publishing becomes a service.

3.6.3 Scilab: A alternative to MATLAB: Dr. Achuthsankar S. Nair, DCBB, Univ. of Kerala

SCILAB, is basically a free software alternative of MATLAB, which, as Dr. Achuthshankar described, is ethically, economically, potentially and technologically superior to MATLAB. He said that modern science was all about theory, computation and experiment. He also stated that maths could be made fun to students through SCILAB.

3.7 TRACK 4: PANEL DISCUSSION: Free Culture

Chairs: Ms. Nina Paley & Mr. CS Venkiteswaran

Panellists:

1. Ms Nina Paley, Independent Film maker
2. Mr. CS Venkiteswaran, Film Critic and Media Activist
3. Mr. C Gouridasan Nair, Journalist & Mediaperson
4. Mr. Smári McCarthy, Mailpile
5. Ms Shagun Belwal, Counsel, SFLC.in

Track 4 consisted of a panel discussion on Free Culture and its nuances in the present day world. The discussions started off with Mr. McCarthy sharing his viewpoints on how all content in Social media is supposedly regulated based on Culture Limitations and how different technologies allow flexibility for different types of innovations.

"Culture is free and natural. Mechanical and technological limitations are artificial", opined Ms Nina Paley, while adding to her views on the statement that right is a political term, which, though is supposed to be a 'freedom' is in fact made to feel like it is a 'granted freedom'. Mr. Venkiteshwaran shared his thoughts about the evolution and status of copyright. "Copyright is by no means a recent and modern concept. It exists from the medieval periods when books were copied and resold", he said. Copyright laws have over time changed from being regulatory about the people rather than being about the copies of art/content. Piracy, on the other hand, has actually created a wider market for art which would otherwise never have been possible on a paid model.

Ms Shagun Belwal spoke in detail about copyright, starting off with her opening statement — "No one can do to Disney what Disney did to Grimm", pointing to the fact that though Disney copied most of their works from existing works of Grimm, they have put copyright limitations on their works so as not to allow reproduction. "India actually doesn't need to have a copyright law in digital domain especially when it hasn't signed the major global internet treaties." She said that artists, by themselves, prefer an ecosystem where the art work can be enjoyed, shared, distributed and copies to be distributed which increases the scope of reach of the work of art. She also enumerated the various Acts in the Indian Penal Code associated with the Copyright law, the different types of copyright licensing and certain global statistics with reference to Creative Commons licenses.

Mr. Gouridasan Nair opined that self-censorship is becoming the main strategy of various major organizations. A lot of grey areas exist when it comes to copyright and proprietary control. Monopoly, even if taken up as the right of an artist for copyright of his work, is never for the benefit of humanity. "In many places royalty is a misnomer which has never been of any benefit to the author." "Free is a dangerous word. In many scenarios it doesn't define the limitation, which, based on the individual can have different outcomes dependent on their personal bias", he said.

3.8 TRACK 5: PANEL DISCUSSION Freedom on the Cloud

Chair: Mr. Arun M, FSF India

Panelists

1. Mr. Arun M, FSF India
2. Mr. Prasanth Sugathan, SFLC.IN
3. Mr. Praveen A, Debian Project

Session Summary: This session involved a group discussion. The objective of the session was to build a collective awareness on privacy and surveillance. The topics included safety of encryption of emails, susceptibility to surveillance, wide usage of gmail, Mailpile as a solution, etc. A demonstration on how a mail could be encrypted and then decrypted was given by Mr. Prasanth Sugathan. Lack of awareness amongst people was cited as a major issue during the discussion. Convenience over privacy was seen as the leading factor to this and the prominent way out of it was provision of more choices in the market. Encryption of the mail was put forward as a possible method of stopping unauthorized reading of mails, Snowden being the example. On a different note, privacy was recognized as being relative and not absolute. One of the major questions which surfaced could be quoted as- "Why pay for privacy, when Gmail comes free?". One of the speakers were quoted as saying- "There is no cloud, only other people's computers" and also that Telegram had shown a strong political position on privacy. The discussion ended with the panel citing a few Free Software options such as Diaspora.

3.9 TRACK 6: FREE MOBILE PLATFORMS

Chair: Dr. Nagarjuna, FSF-India, Mumbai

Session Summary: The panel started with opening remarks by the Chair Dr. Nagarjuna G. He spoke about the embarrassment of fthe ree software community by pointing out how free software is abused by Google by developing Android platform that became a dominant market for attacking the user's freedom in the digital space, instead of granting freedom to users. Considering the wide reach of mobile devices, it is an important task of the free software developers to take this challenge as an opportunity and fill this gap.

Mr. Nagarjuna, Chair, from FSF India said that free software in mobile computing should mainly help the developers rather than the companies or end users.

3.9.1 Firefox OS: Mr. Pravin Sridhar

He developed the Indic keyboard pattern for Firefox OS model. He introduced the OS and underlined its design principles: any developer who knew how to create a responsive HTML5 App can create applications for Firefox OS. He demonstrated how easy it is to become a developer for the OS and invited the audience to take a plunge.

3.9.2 Cyanogenmod & AOSP: Mr. Jishnu, SMC

He clarified at the outset that Cyanogenmod is now a company and its development is not driven entirely by the community. He made comparisons of its features and discussed the pros and cons of Cyanogenmod and Android for mobile computing.

3.9.3 The Replicant Project: Mr. Paul Kocialkowski

He spoke through a pre-recorded video about the Replicant Project, and noted the important challenges on free software for mobile devices very effectively. The detailed presentation also spoke about the need for freedom in the mobile platform and how Android devices can be hacked towards this direction. The presentation was rigorous and had the necessary information about the project with tips to the developers. There are very few devices that have replicant images, pointing to the opportunity for developers to contribute.

3.9.4 Indic keyboard, Firefox Indic IME & Silpa Android SDK: Mr. Hrishikesh

He described the innovative input methods developed for Indian languages for the Android and Firefox OS mobile platform, specifically about the Indic keyboards developed for the mobile devices and different algorithms used in systems using free software.

4

DAY 3: 20 Dec 2014

4.1 PLENARY TALK: Beyond Licenses : Evolution of a Free Culture Practice. Ms Nina Paley, Film-Maker & Activist, USA

Ms Paley started off her plenary with the trailers of her movies *Sita sings the blues* & *This Land is Mine* and then went on to explain that it was her adventures or misadventures in that process that led her to `questioncopyright.org` which is a non-profit devoted to questioning copyright. When it was time to release *Sita Sings the Blues*, she chose the Creative Commons ShareAlike licence because it was the most like the GNU-GPL she could find: strong copyleft and it permits and encourages any use, anything you want to do with the commercial or non-commercial change. Despite expecting the market to be flooded with the movie merchandise, they were able to make money by selling associated merchandise and not having a lot of competition because it turns out that people want to support artistes directly.

She explained that non-commercial was not copyleft. Copyright is a commercial anomaly. Using a creative commons licence with a non-commercial restriction is not changing copyright, it is reinforcing copyright. The book Free Culture by Lawrence Lessig, after whom the free culture movement is named, is not free culture. The Free Software Foundation itself does not practice free culture as cultural works from the free software foundation are released under another kind of restrictive licence, the no-derivatives licence. Software has users and culture has recipients. But though free software has no restrictions, free culture does. People should understand that "copying art is an act of love." "Culture is a human right- a human necessity. In order for culture to be alive, it should be open and permeable. Due to copyright, all content goes in but due to the restrictions not all come out. This shuts down expression and curtails creativity", she said.

She also switched the ShareAlike licence to CC-0 as an attempt to dedicate it to the public domain. She felt that the human rights approach could be more important than the licence approach. Because culture is a human right and culture is a human necessity. Culture doesn't know where it came from, and each different work doesn't know what licences it has. Cultural works go into the world according to their nature and nature of their environment; they really don't know, people don't know and works of art don't know that they are copyrighted or licenced or anything. The less information flows, the more it stagnates. Proprietary arts are the most aggressively marketed ones. What beats the whole point is when non-free artworks are made using free tools. Freedom and ethics aren't two things in conflict. They go hand in hand. She concluded saying that she no longer favoured or rejected works based on their copyright status because ideas aren't good or bad because of licences people

slap on them. She just related to the ideas themselves now, not the laws surrounding them and tried to express herself the same way.

Figure 4.1: Nina Paley delivering her Keynote

4.2 LIGHTNING PRESENTATION: GNU Khata: Mr. Krishnakant Mane, DEF, Mumbai

In his 5 minute speed presentation, Mr. Krishnakant explained about GNU Khata, a FOSS Accounting Software, which is lightweight, scalable, fast and robust and can be enabled for both profit and not-for-profit organizations. It also happens to be the only accounting software that can compare two ledgers at a time.

4.3 TRACK 7: EDUCATION AND SPOKEN TUTORIALS

Chair: Prof. Kannan Moudgalya, IIT Bombay

4.3.1 Additional Skill Acquisition Programme (ASAP): Mr. Anilkumar TV, Head, Training Division, ASAP, Govt. of Kerala

Mr. Anilkumar started his talk with an outline of the professional skilled labour scenario of Kerala. “There is immense shortage in moulding of skilled professionals in the state of Kerala. While 42 lakh unemployed roam the streets of Kerala, 25 lakh have come to the state in search of employment”, he said.

ASAP (Advanced Skill Acquisition Programme) was started with the mission of enhancing employability of students of Government and Aided higher secondary schools and UG Arts and Science colleges by providing additional skill training in collaboration with industry partners. The strategy consists of foundation module (100 hrs of communicative English and 80 hrs of basic IT education)

of communication and IT on Free and Open Source platform in accordance with NSDC standards. It aims at building a supportive learning ecosystem across all universities, institutions and colleges that help them achieve excellence in education management.

He said that the arts and science colleges were highly undervalued in comparison to engineering colleges. He concluded saying that we should utilize the fact that Kerala has the highest median age in India, which is still younger than China/USA.

4.3.2 Learning Beyond Boundaries: The philosophy of FOSS: Dr M S Rajasree, Director, IITMK

Starting off with the history of IITMK and how FOSS plays an important role in academics and research at the institution, Dr MS Rajasree shared details of how the institute consciously uses a host of FOSS and allied tools in its Academic Courses, Training Programs, Research and Development Projects and Consultancy Services.

The programmes on Computational Design include AUTODOCK, GAMESS, MOLDEN and NWChem. Their facility on Agri-informatics includes a Crop Surveillance Information System for the Government of Kerala, built using Apache, Eclipse, GRASS, Java, Linux, Mapserver, MySQL and QGIS. They have also built a multimedia video portal which supports videos in various formats and has been enabled with remote satellite classes.

4.3.3 Spreading FOSS through Spoken Tutorials and FOSSEE: Dr Kannan Moudgalya, IIT Bombay

Dr Moudgalya's explained the features of spoken-tutorial.org and the journey so far for them. He showed in detail how the sorting of the tutorials was done in the website. The script of the videos are made available differently and prepared before the video. The time script has visual cue replaced by time and visual script has visual cue plus corresponding script. Side-by-side method is made applicable here to learn the tutorials practically, where the tutorial video is opened in one window and the software is opened in the other.

At present their affiliation lies with over 60 universities. The videos can be downloaded not just individually, but as a package, complete with set of subtitles in required language. Towards the end, Dr Moudgalya also showcased the prototype of their netbook, Vidyut, which is planned for full release in the Indian market at a price of close to INR 5000/- and would provide better accessibility to technology for a larger number of people.

4.3.4 FOSS promotion strategies in select engineering colleges: Dr Subbulakshmi, VIT Chennai

Enumerating the general purpose utilities catered to by Free Software, Dr Subbulakshmi emphasized the following points:

- Firefox, Iceweasel, Chrome and Thunderbird for internet and mail
- NS2 and NS3 for networks related theory and laboratory
- LaTeXfor document typesetting
- Open CV for image processing
- Scilab for mathematics and intelligence applications
- Dia and GIMP for Pamphlet, Poster, Flex and Certificate creation

With customized Linux Mint on about 80% of their screens, Linux Orientation Program for SCSE Faculty for all programming languages is being held, along with mastery session on Linux for all VIT Faculty. She said that for every lab and theory, equivalent spoken tutorial is being developed. For faculty development, free workshops through video based teaching methodology, FDP on FOSS and Moodle trainings are being given to accustom them to the Free Software platforms.

4.3.5 Spreading Freedom in College Labs: Mr. Vignesh Prabhu, FSMK

Mr. Vignesh spoke about the role of free software in development of labs across the country. He said that college labs should be taken in free software mode especially since it widens the scope and supports pedagogy. Currently no experiments per se happen in the lab. Solutions are either already shared or a fixed set of questions is asked. Ultimately, students do not learn anything. The various stakeholders of a college laboratory—students, lab assistants, teachers and management, everyone has their own objective on the working of a lab. As a result of this gap, they released the FMSK's Lab manual as a motivation to bring about the change in the system. The objectives were as follows:

- Reach out to a large number of colleges
- Prove that lab using free software is possible
- Build a community around free software amongst the colleges

The intention isn't about changing the way lab works but rather making it more efficient. A ripple effect is expected out of this where it becomes free for any college to adopt and is made available to a wider audience. It should provide a platform for faculties from different colleges to interact with each other. Mr. Vignesh concluded that free software labs are not turning out everywhere because adoption in colleges is slow, there is lack of a dedicated team pushing it forward the whole time, there is lack of a structural support for colleges and there is fear of external examiners.

4.4 TRACK 8: PANEL DISCUSSION: SURVEILLANCE, SECURITY AND PRIVACY & INTERNET GOVERNANCE

Chair: Mr. Prasanth Sugathan

Panelists

1. Dr. Andre Oboler, Online Hate Prevention Institute, Australia
2. Mr. Arjun Jayakumar, Counsel, SFLC.in
3. Mr.Arun Sukumar, Centre for Communication Governance at National Law University, Delhi.

The panel discussed issues of hate speech, surveillance and internet governance. Dr.Andre Obler spoke on issues related to hate speech on the Internet. Mr.Arjun Jayakumar spoke on the legal framework for surveillance in India and the present mechanisms for surveillance in India. Mr.Arun Sukumar spoke on the issue of surveillance and Internet Governance and threw light on India's proposals at the ITU Plenipotentiary held recently.

The session had good participation with the audience actively contributing to the discussion. The session stressed on the need to have greater transparency in relation to surveillance procedures and on the importance of having effective safeguards to protect privacy of citizens.

4.5 TRACK 9: MAPPING & OPENSTREETMAPS

Chair: Mr. Praveen A

Session Summary: A good interactive discussion on remote sensing/geographic information systems, open street map for village survey and Mozilla location services was had in this session. The importance of data being in our control and how corporates use initial free of cost traps to lock users into paying later was discussed. It was pointed out that Free Software GIS tools are feature-full and can

deliver solutions for any GIS related requirements. Village mapping initiatives like in Koorachindu village in Kerala need to be replicated everywhere. Mozilla Location services need more geographic coverage by inviting more contributors.

4.5.1 FOSS tools for Remote Sensing and Geoprocessing: Mr. Sajith VK

He dealt on topics such as the importance of mapping in today's world and also the applications of open street mapping. He said that Google maps have purposeful errors. Open Street Mapping can be improved by the user whereas Proprietary Mapping does not have such facilities and might also be chargeable.

4.5.2 Mapping efforts in an unsurveyed land - an Open Street Map experiment in Koorachundu Village Panchayat. Mr. Jaisen Nedumpala, Mr. Ark Arjun

This presentation was on a mapping experiment done on Koorachundu Village Panchayat, Kozhikode district. It was done in order to develop common guidelines for a Watershed Development Project. The base documents used were Integrated Watershed Management Program and the Kasthurirangan Report. Android Applications such as GP logger, Keypad mapper, OSM tracker, etc. were used were as the desk analysis was being done by using JOSM and MS Big Imager. Mr. Arjun also stated that the map also had a very high accuracy as compared to Google.

4.5.3 Mozilla Location Services: Ms. Soumya Deb, Mozilla

She argued that the Mozilla Location Services used neither mapping nor GPS, rather they used assisted reverse triangularization. This could be accomplished by the availability of either Wi-Fi or Cellular Network. The android application used for the same was Mozilla Stumbler. Ms. Deb also made it clear that anonymous contribution was possible, and that it was totally FOSS since the user developed it further.

4.6 TRACK 10: COMPUTING FOR THE DIFFERENTLY-ABLED

CHAIR: Mr. Sagun Baijal, CDAC Mumbai

Session Summary: The session on "Computing for the Differently-Abled" took stock of the current status of efforts being made in field of accessibility world-wide with special attention to Indian scenario. The talks and presentations during the session discussed about efforts of individuals, institutions and Government R& D organisations in developing FOSS-based assistive solutions catering to the needs of various categories of differently-abled people. Urgent need to address the requirements of Deaf-Blind people was highlighted during the session. There was a consensus on the requirement of high quality documentation of various accessibility related APIs, software and technologies etc. The discussions also highlighted that various types of assistive solutions developed by Indian companies, R& D organisations etc. should be available in FOSS domain too.

4.6.1 Overview of Current Status. Mr. Sagun Baijal, CDAC Mumbai

Mr. Sagun started off his talk with an overview of the present scenario, stating that over 2% of the Indian population and over 15% of the world population is disabled. As society increasingly becomes digital and daily activities and tasks involve considerable use of technology, similar adaptation is not

being seen for the use of the disabled, leaving a large section of the society out from information access.

Various issues and challenges to be faced range from lack of awareness, social and cultural mind-set, legal and policy bottlenecks and access barriers (language, literacy etc), to usability concerns and affordability issues. As for the road ahead, an ecosystem involving all stakeholders has to be built, cloud accessibility to be increased, responsive design to be adapted, vendor-platform-device neutrality and smart/accessible applications and services be developed. These would ensure better accessibility for the disabled.

4.6.2 Linux Intelligent Optical Character Recognition (LIOS): Mr. Sathyaseelan and Mr. Nalin Sathyan

The father-son duo spoke strongly about the accessibility issues faced by the disabled. Accessibility is not just a technological issue but a life giving process. With greater than 10% of the world disabled, needed focus has not been given to use of technology for the disabled.

Government of Kerala has been the first in the world to inculcate free software in curriculum. IBus Sharada, Braille for keyboard has truly revolutionized how the visually disabled interact with and use a keyboard. With the facility to add shortcuts for commonly used words, the total number of keys needed is reduced to 6 via this keyboard.

Talking about Tuxtype, they said that Tux Typing is an open and free source typing tutor created especially for children. It includes several different types of game play, at a variety of difficulty levels. It is written in C language and is available in the repositories of some Linux distributions such as Fedora. They concluded their talk with some information about LIOS (Linux Intelligent OCR Solution), a free and open source software for converting print into text, and highlighted the features of the program built on Google's Tesseract engine, written in python3 and released under GPL3 license.

4.6.3 The Insight Project. Ms Nila Ethel, SPACE, Trivandrum

Ms Nila began with explaining about the need and activities of SPACE (Society for Promotion of Alternative Computing and Employment), which was setup in 2003 for supporting Government in FS arena, with pioneering projects like IT@School and Insight.

Insight for children with cognitive disability is with the help of interactive games based activities. She also mentioned about Thuval, the touch based Malayalam script learning tool and Insight Wiki which is being used for teaching from Malayalam alphabet to comprehension.

4.6.4 Assistive Technologies: Dr Arun Mehta - BAPSI, Delhi

According to Dr Mehta, information plumbing or information reaching out to us takes place in a lot of different ways. Access technologies are not geared towards the individual but rather to the Government and corporates. Establishing communication with people having disabilities is the need of the hour, he said. He said that more interest should be towards the development of platforms and not applications, as it widens the scope of innovation. Availability of cognitive technology needs to rise faster than the present rate. It is an appreciable fact that a number of international companies hire blind developers to make the software completely accessible. This is needed when selling to the US/European market.

4.6.5 CDAC's accessibility related activities: Mr. Sagun Baijal, CDAC Mumbai

The talk started off with explaining ALViC, Accessible Linux for Visually Challenged. It is a free and open source desktop environment providing a comprehensive accessible solution for visually challenged users. Various desktop applications like office, browser, text editor etc can be accessed by visually challenged users with the help of screen reader ORCA. Anumaan, on the other hand, is an open source predictive writing system intended mainly for people with motor disabilities and is based on the n-gram language modelling. Integrated with GNOME desktop, it can effectively be used with all Gtk+ editable text widgets. Mr Baijal also talked about GLCC — GNU/Linux Distribution for cognitively challenged (an accessible desktop environment catering to the requirements of cognitively challenged users), Enhancements to screen reader ORCA and Punarjani, a web based tool for doing assessment, evaluation and programming for a person with mental retardation.

4.6.6 GPS Driven Location based Services for Visually Challenged Using Open Source Tools. Mr. SP Kathikeyan, Mr. R Ramesh, Scientist E, NIC-OTG, Chennai

They mainly shared the information about Navipal, a GPS based service for the visually challenged to help them navigate around town. With voice directions, it is of utmost use to the visually challenged but was presently developed only for the Android platform. Mr. Karthikeyan listed the plans for development coming up which include Open Street map Integration, HTML5 release and Enhancement based on feedback.

4.6.7 ORCA Screen Reader for the Visually-impaired: Krishnakant Mane, Digital Empowerment Foundation, Mumbai

Mr Krishnakant, a visually impaired developer, said that implementing accessibility for visually impaired is more an awareness issue than a technological issue. It is not that there are no technological issues but the lack of awareness issues is more serious. People are surprised that accessibility can be easily implemented and in the process, forget to implement it. Implementing accessibility for blind people is not difficult. It is perhaps true that visually impaired people make better accessible software. In his project, he is the only visually impaired developer. The software is not particularly for visually impaired people. But the rest of his team, all of them with sight, are sensitized so they don't accept the code, no matter what the functionality, unless it is accessible to the visually impaired. Such sensitization has to be inculcated. ICFOSS has funded some part of the work on ORCA that he has done. He demonstrated how the interface actually works.

4.7 TRACK 11: FREE SOFTWARE IN E-GOVERNANCE

CHAIR: Mr. S. Ramakrishnan, Former DG, CDAC

Session summary: The session touched upon the history of Free Software or FOSS use in e-Governance with associated policy and philosophical forces that drove them over the years. The talk of speakers and the interventions from the audience brought out a positive picture of greater adoption of free software in India today and, at a time when a policy on FOSS was perhaps round the corner, the free software development community must organize itself to work with all stakeholders to live up to the demands and expectations of the country and build positive momentum in India for Free Software, leveraging the large and supportive opportunity offered by e-Governance in the country.

4.7.1 Opening Remarks

In his opening remarks, Mr Ramakrishnan spoke about the size, pace and scale of e-Governance initiatives that India has witnessed in the last twelve years. Under National e-Governance Program (NeGP), 27 Mission Mode Projects (MMPs), with 4 more added later were commenced and shared infrastructures (SDCs, SWANs, CSCs, NSDG/SSDGs, MSDG, India Portal) created in all the states in the last 8 years, since formal commencement of NeGP in 2006. Under these MMPs, applications and services have come up in a number of areas in Centre, States and Local level. Most of the first generation initiatives have come to fruition while some are still in 'work-in-progress' state. He also said that in parallel to the above, free and open source initiatives had also commenced in DeitY from 2002-2003 onwards, just as they had in Kerala as with Kerala including it in IT policy. There was an attempt to formulate a FOSS national adoption policy in 2004 itself but it was deferred, as it was considered that the time was not yet ripe. However, standards were an active area under NeGP and "Open Standards" policy was announced by DeitY in 2010-11 and well received in India and abroad.

In the meanwhile, DeitY had been contributing to creation of suitable ecosystem for FOSS in the country. National resource Centre for FOSS (NRC-FOSS) was set up in C-DAC in 2005 and AUKBC joined in as a partner for formal and non-formal education. An Indian distribution, Bharatiya Open Source Software (BOSS) based on Debian was released by C-DAC, with support to all Indian languages. It was received well and user base of the same in government, defence and education sector has grown. In a second phase of NRC-FOSS, IIT, Bombay, IIT, Madras and other centres of C-DAC had joined in with sections contributing to GCC, Tools for Disability and SOA based Kernel of Linux (MOOL), e-Learning and Software as a Service components. National Informatics Centre (NIC) also set up its Open Technology Centre (OTC) Project (funded & guided by DeitY) in Chennai to support Open Standards and Open Source Software initiatives in e-Governance projects. Meanwhile, many other national initiatives, projects and verticals have committed their support to FOSS, as in respect of UIDAI/'Aadhar', OSDD, Insurance, Stock exchanges, Defence, ISRO and many e-Governance projects at the centre, State and local levels. With respect to soft ware industry, student community and developer community as well as the progress in FOSS adoption and increase in competence levels (in size and range) progress has been very promising.

The current government has announced an ambitious 'Digital India' program which involves an extensive upscaling of e-Governance programs. Now, in respect of Open Source Policy as well, DeitY had initiated public comments some time ago and it is understood, a policy is likely to be announced. In view of the above, India has come a long way in the last twelve years since 2002, when the first Free Software Conference was held in Thiruvananthapuram.

4.7.2 FOSS initiatives and Open Standards in eGovernance: Dr.P. Balasubramanian, Scientist-G, NIC and Head, Open Technology Group (OTG), NIC, Chennai

His presentation and talked about opportunities, challenges and emerging technology aspects in e-Governance. Existing challenges included huge expenditure for ICT services, unreliable network, overuse of network bandwidth, multiple delivery channels, overuse of servers and poor use of clients. Other challenges include need for high skill sets, duplicative software, poor interoperability and silos of applications, difficulties in managing large-size data and complex data models. In his way forward, he said that Web-2 / Open Web Platform is the most suitable option for majority of e-Governance Systems in India to develop Unified Single Software with "Cross-Platform, Device-Agnostic, Screen-Size-Agnostic, Network-Agnostic & Open Standards" Approach and Big-Data (NoSQL / NonSQL) approach should be preferred (especially provisioning of e-Services at state / national level) which facilitates easy handling of large-size data with in-built-features like flexible-schema, replication, partitioning of

data. He concluded that Engaging Indian Industry support (through agencies like TCS, HCL, Wipro, Infosys) is also essential to complement the core support team from GoI.

4.7.3 FOSS and eGovernance in Kerala: Mr. Joseph Mathew, ex-IT Adviser to CM, Kerala

He traced the history of free software movement in Kerala and shared a perspective of the philosophical roots of relationship between Free software and Freedom that form the underpinnings in making Free Software a natural ally of Kerala. He emphasized that the more recent happenings in Internet which threaten individual freedom and privacy by increased surveillance are serious matters and need to be taken note of.

4.7.4 Free Software in Kerala: Opportunities and Challenges for Implementation: Mr.K Mohammed Safirulla IAS, Director, KSITM

He talked of the role of Kerala IT mission in implementing IT projects in Kerala and espoused how they are addressing Free Software role and relevance in these projects.

There was a vibrant audience interaction following the presentations with members of the audience giving suggestions and questioning practices that do not support ease of FOSS players' participation in e-Gov projects of government. Some suggested that large Indian software enterprises have also migrated more to adopting FOSS in their projects and government adoption and support is in a healthy state. In response to some negative views on the response of government officials in support of free software in practical adoption issues, Prof. Kannan clarified that his own experience gave him the impression that we all need to engage with government and communicate effectively and most officials are open to being convinced of the merits of free software, if a business case for implementation is made out.

4.8 TRACK 12: OPEN HARDWARE & IOT

Chair: Mr. Srikant Patnaik

Session Summary: The open hardware and IoT session started with expEYES. With more than fifty science experiments, including use as CRO for low frequency analysis makes expEYES a true open hardware for learners. There were other learning tools showcased such as MicroHOPE, Anuduino and openPLC. MicroHope has a decent IDE to kickstart AVR programming using C, whereas, Anuduino is a sub hundred rupee hardware based on Arduino programming language. OpenPLC is yet another learner tool to practice ladder logic using AVR microcontrollers.

As a real world application biodiversity monitoring project creates map of the species in a given geographical region by recording sounds. The next two talks were about bots, the telepresence robot that can assist people, whereas fielDROID can be programmed to paint a soccer field. These openbots have shown the glimpse of the future. The session concluded with architecture and interfaces of internet of things.

4.8.1 expEYES and MicroHOPE: Mr. Akshai M, College of Engineering, Kalloopara.

expEYES was basically a function generator and CRO put together, is an open hardware which is both user friendly and available at low cost. A demonstration of the product with transient RC response experiment was also shown during the session. MicroHOPE on the other hand, Mr Akshai said, was often mistaken for an Arduino clone.

4.8.2 Biodiversity Monitoring: Mr. Reneez Ahmed, Livares Technologies

The speaker commented that biodiversity studies were becoming increasingly important with tremendous climate change taking place in today's world. A product, the Biodiversity Monitoring Project(BMP), was introduced so that researchers could collect and monitor biodiversity data remotely. The software components used for the same were a Rasbian OS in Raspberry Pi, Arduino Programming Language and JAVA for BMP implementation. The project was commissioned by ICFOSS.

4.8.3 TR-7: A Free Telepresence Robot Prototype: Mr. Rejin Narayanan, Ingen Robotics, Trivandrum

The robot was made as a rugged and robust prototype with locally available components at low cost, said Mr Narayanan. It consists of a tablet at the top with a USB port connected to the Arduino UNO board. Mr. Narayanan also made it clear that the prototype was to be developed further in future in terms of navigation, manipulation and mechanical design. The project was commissioned by ICFOSS.

4.8.4 Advance of Robotics in Open Source: Ms. Jaghvi Mehta, Carnegie Mellon University, US

Her project was an Autonomous Field Painting Robot particularly for the soccer industry. It used Beaglebone as the micro-controller and an RF mechanism from the system to an on board RF. They intended to improve its performance, use IMU integration, a wireless emergency stop and user interface in the days to come, she said.

4.8.5 Sub 100 Rupee Anuduino and more: Mr. Srikant Patnaik, IIT Bombay

The talk revolved around a new product put forward by him and his team, the Anuduino. An Anuduino is an Arduino at low cost and better productivity. The product could be used in various applications of which home automation being the most important. He commented that an Anuduino along with a PLC could be very cost effective and productive as well.

4.8.6 Building blocks for an opensource cloud IoT platform: Mr. Anand George, Software Developer at MachinePulse, Mumbai

Mr. Anand George discussed what analytical data is and also on how IoT can be made useful in different platforms. He explained topics such as IoT Gateway which used Linux boards such as Beaglebone, Raspberry Pi etc.

4.9 VALEDICTORY SESSION

Mr Satish Babu, Director, ICFOSS welcomed the gathering. Dr.P. Balasubramanian, Scientist-G, NIC, and Head, Open Technology Group (OTG), NIC, Chennai, launched "Code Free for India (CoFFI)", an initiative to leverage Free Software for public use. CoFFI invites programmers from the Free Software community to develop Desktop, Internet, Mobile, Cloud, Internet-of-Things tools and applications for general use by civil society & citizens, as well as by Governments & institutions. CoFFI will provide a broad umbrella for the FOSS community members and groups who would like to help address local issues and needs. It would also provide a platform for initiatives which succeed locally and could be scaled up to state or national levels.

Dr. Kannan Moudgalya, IIT Bombay, was the Guest of Honour at the function. Mr. R. Srinivasan on ICFOSS proposed a Vote of Thanks.

Figure 4.2: The Valedictory Session

5

Steering Committee

1. Dr. Achuthsankar S. Nair, Head, Dept. Computational Biology & Bioinformatics, University of Kerala
2. Mr. Amarnath Raja, IEEE Humanitarian Technologies Expert, IEEE, US
3. Mr. Anivar Aravind, Swathanthra Malayalam Computing
4. Mr. Anoop John, Zyxware Technologies, Trivandrum
5. Mr. Arun M, FSF India
6. Dr. P. Balasubramanyam, Head of Open source & Open Standards Group, NIC, Chennai
7. Dr. Kannan Moudgalya, IIT Bombay
8. Mr. Lepesh Parat, ZeastyBeanz, Technopark, Trivandrum
9. Mr. Mishi Choudhary, SFLC.IN, New York/Delhi
10. Dr. G. Nagarjuna, TIFR/FSF India, Mumbai.
11. Mr. Prasanth Sugathan, Software Freedom Law Centre (SFLC), Delhi
12. Dr. Rahul Dé, IIM Bangalore
13. Dr. MS Rajashree, Director, IIITMK, Thiruvananthapuram
14. Mr. S. Ramakrishnan, former DG, CDAC , Delhi
15. Dr. C. Rammanohar Reddy, Editor, EPW, Mumbai
16. Dr. K. Santhana Raman, SIO, NIC, Thiruvananthapuram
17. Dr. M. Sasi Kumar, CDAC, Mumbai
18. Dr. Sasi Kumar, Free Software Foundation of India
19. Mr. Sasi PM, Additional Director, CDAC, Thiruvananthapuram
20. Mr. U. Srikant Patnaik, IIT Bombay
21. Mr. Sunil Abraham, Centre for Internet and Society, Bangalore.
22. Prof. Sunil Mani, Centre for Development Studies, Thiruvananthapuram
23. Mr. C.S.Venkiteswaran, Media Activist, Thiruvananthapuram
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