



**We Aid,  
Aspire. Inspire. Desire.**

## Message from H.O.D.



An organization, as the name suggests, is organized! It is an organized collection of ideas, team work, courage, perseverance and sometimes a little bit of luck. The Information Technology Students' Association or ITSA is an organization by every meaning of the word. It was founded by bright and diligent students of the IT department itself. ITSA not only helps students to improve their technical skills but also helps them in improving their interpersonal skills and harvesting good leadership capabilities in them. I am proud to say that this organization has come a long way over the past year. I am also proud to see that the students have put in efforts for creating this newsletter. I can say this with my head held high that even with the advent of technology, the members of the IT department have not lost touch of their literary roots.

I look forward to see the juniors take over the reigns of the newsletter next year and keep this tradition alive.

Dr. Ashish Jadhav  
(HOD, IT)

## About ITSA

Information Technology Students' Association or ITSA is the home committee for the IT department. It was founded in the year 2011 by students of the IT department under the support of our HOD, Mrs. Dipti Jadhav. It aims to amalgamate students interested in IT, promote knowledge & awareness about technology trends and encourage involvement, leadership and services to the department, profession and community.

ITSA organizes two technical fests in a year, one in each semester. The techfest serves as a basis for the overall development of the students by providing exposure to various domains of expertise like creativity, publicity, marketing and sponsorship. Students obtain a platform to hone their skills and hands-on training.

The innovative theme for Odd Semester fest being Virtual Reality and Gaming. Students implemented their innovative ideas for the floor décor and various competitions. In a nutshell, the competitions were general technical competitions with a tint of fun and adventure.

The Odd Semester fest, Aspire'15 enrolled over 600 participants from colleges all over Mumbai and Navi Mumbai as well and was a huge success.

As for the Even Semester fest, Techware'16 got a response huge enough to be covered by NMTV. With the rise in the awareness of integration of multiple information and communication technology solutions to manage a city's assets the committee of ITSA established the techfest on a theme none other than 'Smart City'.

ITSA not only organizes techfests but also workshops. Last year, multiple workshops were organized which got amazing responses. The workshops are a great initiative for brainstorming, interactive learning and problem solving.

### Upcoming Events:

- Workshop on AngularJS
- Workshop on Artificial Intelligence
- Aspire 2016
- National Level Technical Paper Presentation

ITSA is proud to present its very own website developed by a student of IT department, Pavankumar Mahadik. The website is developed using bootstrap, Javascript and jQuery. It runs smoothly on both desktop as well as mobile devices. It provides basic information about the committee along with the details about the techfests, newsletter and workshops. Updates regarding upcoming events are added frequently.

To obtain further information you can visit the site: [www.itsarait.in](http://www.itsarait.in)

## From Editor's Desk



I am delighted to introduce the new edition of the annual newsletter of ITSA, the goal of which is to provide a concise picture of all the news generated by our department. It has been a pleasure to see the amount of innovation,

enthusiasm and dedication the members of the department, students and teachers alike have for their field. I think now is a good opportunity to point out that producing Kyros is a team effort, and there are a lot of people behind the scenes who help in the process. I would like to take this opportunity to thank them. I appreciate the readers who are taking the time to read our newsletter and look forward to meeting you at the next committee event.

Sincerely yours,  
Sonali Koli





# Secured Encryption and Transmission



A student member of Information Technology Department, Sammit Rane presented a paper in an International Conference on Emerging Research trends in Applied Engineering and Technology (I.C.E.R.A.T) on April 2 '16. He developed an algorithm called Secured Encryption and Transmission Algorithm (S.E.T.A) which is a key generation algorithm.

The algorithm makes use of morse codes to generate the key. Each word in a sentence is encrypted with a different key which is generated depending on the words and its positions. It can also be used to encrypt the generated key. The key generated in such a manner that being a symmetric key algorithm, the security of key provided by the algorithm is not compromised due to third party interceptions. He was guided by Assistant Professor Mrs. Anita Patil in his development.

This algorithm can be used to store credentials in some systems. Since password and username are not longer in length this algorithm can also be used in military applications where we can send small radio messages by encrypting them without the risk of them being exposed since the key transferred along with it is also encrypted.

## Footloose

FOOTLOOSE DANCE CREW is RAIT's official dance crew formed in the year 1991. It is an integral part of RAIT KALARAAG. Footloose has proved its mettle by winning accolades in multiple inter-college dance competitions in the past years. Eight members of Footloose are Active Members of ITSA as well which portrays versatility in the department of Information Technology which include head of Footloose - Nihal Kedar, Namratha Bharath, Ashwini Shukla, Minal Patil, Sanjana Kale, Prachi Ghadge, Mithil Moon and Jaideep Singh Mann.

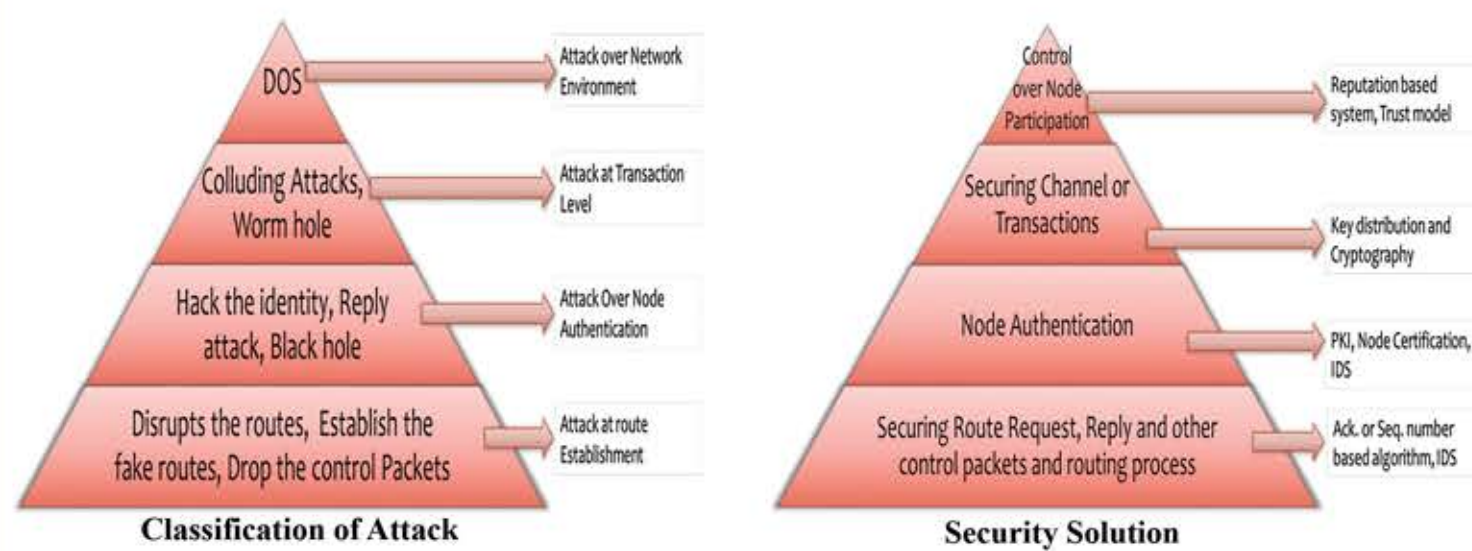
# Mitigation of network layer attacks using collaborative approach

Asstt Prof. Nilesh Marathe

In recent years considerable efforts have been made to design secure and robust routing protocol, and many security schemes have been proposed to tackle these security issues. Nilesh R. Marathe (Research Scholar), professor at Department of Information Technology, RAIT has performed a research for mitigation of network layer attacks. The existing solutions work on the platform of Intrusion detection system (IDS), Public key cryptography mechanism, trust or reputation based mechanism and modification route discovery process. Application of a consolidated approach, for creating the robust secured environment, by proposing some modification in these platforms is the objective of the research.

The proposed framework consist of :

1. Develop robust solution for IDS with the support of authentication of nodes to train it for detecting both inside and outside attack. Propose some modification in existing algorithm for making the route discovery process more robust.
2. It requires proposing a method of deploying public key infrastructure for key distribution and management.
3. The trust rating calculated by trust or reputation based methods have to be validated for reliability.



By analyzing all aspects related to security in MANET, there is a scope for improvement in security for MANET routing to make it more reliable. The pyramid structure tries to explorer analysis of ways of attempting the attacks and their respective solutions in figure. Different solutions, based on IDS, trust model or acknowledgement, are proposed for this. But if these solutions work parallel they always leave gap for intruders to enter among them. So the report proposed a framework which can provide collaborative solution over different ways of attempting the network layer attacks. This may lead to additional overhead but if it is implemented based on required level security, overhead will be complemented with importance of security for very sensitive and important data or environment.

## Master Data Management

Asstt Prof. Nilima Dongre

In the era of information technology, the data explosion poses several challenges to the information system. Data management and governance has challenges with respect to the storage media, access mechanisms, information cycle, multiple version, data quality, data reliability, data integrity, data availability etc.

With so many challenges in every sphere of data management and the ever increasing size of data, the quest for single ultimate truth about the data is near to impossible.

Master Data is a core set of data which is critical to major business and its functions. The master data management is a combination of master data and its organizational structures, business process and associated technical tools responsible for providing reliable and correct data in a unified format and is available at right place and right time.

MDM has various architectures styles such as Hub, Repository and hybrid. Each architecture is suitable for specific organizational and technical environment. Choosing an architectural style that best fits the design of a particular organization is a complex process which can affect the business in many different ways.

All the MDM system components collectively are responsible for Master Data Management and handle their corresponding functions.

The benefits of the MDM paradigm increase as the number and diversity of organizational departments, worker roles and computing applications expand. For this reason, MDM is more likely to be of value to large or complex enterprises than to small, medium-sized or simple ones.



# Workshops

## Hadoop



Big data is a popular term used to describe the exponential growth of data. Organizations today possess massive data in terabytes and petabytes that needs to be effectively collected, stored and processed. This huge and complex data is very tedious to capture, store, process, retrieve and analyze. To make things easier in handling and working with big data Hadoop is introduced to the students. The technological world lives by it and so ITSA has made sure to play its part in inculcating knowledge about it.

It is a programming framework that supports

the processing of large data sets in a distributed computing environment. The workshop was scheduled for the students of BE, as the prerequisites including data warehousing and mining were met only by them. The workshop aimed to teach an affordable and efficient option that helps to manage big data. The speaker of the workshop was Mehul Chopra who was very effective in his delivery. Throughout the exercise, participants were asked to write summaries and clarifications of their discussions. It provided insights into business intelligence to derive real returns from big data systems. Discussions were initiated in order to reach better consensus and understanding.

## Full Stack Web Development



A Full Stack Developer is the need of the day. A developer who is capable of performing tasks at any level of the technical stack in which they reside. A full-fledged developer is respected everywhere and thus the workshop. To add more to the workshop, the speakers of the workshop were none other than the precious Alumni of RAIT - Arbaz Dossani topper of Mumbai University and his team. The workshop was properly divided into theory and hands on practical sessions. From basics to

complex, the workshop was structured in such a way that the students learned all the fundamentals about developing and also how to explore the further developments themselves. It allowed attendees to have hands on experience with developing and architecting a Page Application including the frontend, backend and database connectivity. The outcome of the workshop was to create a fully functioning Page Application with certain built in capabilities. The training was offered in a format to meet the convenience, availability and flexibility needs of the T.E. students so that they become certified professionals.

# INTER COLLEGIATE RESEARCH CONVENTION

## “AVISHKAR 2015-16”

The frontiers of education are changing day by day. We are moving from knowledge society to society of innovation and thus research is becoming to be one of the most important components of education. Keeping in view these challenges the Governor of Maharashtra and chancellor of universities in state of Maharashtra had initiated AVISHKAR: a state level research convention. Avishkar is designed with the intention to develop research culture and scientific temper among the students from undergraduate to doctorate level of different universities.

Like every year students from RAIT IT department also participated in avishkar with their extraordinary research project and came out with flying colors. Augmented Reality seemed to be a trending topic in the competition. The winning position was obtained by Pratik Parashar, Probuddho Chakroborthy, Mayuresh Raul and Rahul Dudam who created a project named Virtual touch screen. It was built using augmented reality under the guidance of H.O.D. Dipti Jadhav. Project named POKETRIX (augmented reality trading card game) was created by Kalpesh Bhangale, Sachin Gade, Sreejith Nair and Mihir Bhende under the guidance of Asstt Prof. Reshma Gulwani. It was also an appreciated project. With the changing frontiers the students are adapting to new ways quite effectively.

# Library Management System

The professors at RAIT always motivate the students to boost their skills and technical knowledge. The students thus are always engaged in learning skills practically.

Under the guidance of Asstt Prof. Anita Senathi and Asstt Prof. Sumedha Bhagwat TE students from IT department Nilesh Prajapati and Aman Banka created a project on Library Management System. With their diligence and passion they managed to complete the project in a span of one month. Library Management System or LMS can be considered as the electronic way of managing a library and its resources.

It ditches the pen and paper approach and handles everything online. It works using a client server architecture. The server can be any server grade machine installed at a certain place and the client can be any device that has a web browser. The whole system runs on PHP and uses WAMP server coupled with MySQL. The librarian can login using his/her account and perform various actions like issuing or returning a book, adding, modifying or deleting any book, student or faculty records and can even generate library reports. This project has successfully helped in providing the following benefits:

- Eliminate the use of pen and paper.
- Faster than the conventional approach of library management.
- Data is stored safely in the database on the server which can be searched or sorted through anytime.
- Operable on any device, be it a PC, laptop or even a smart phone.

**“A candle loses nothing by lighting another candle”**

ITSA is a completely technical committee, but this does not stop it from providing services to society. We have been actively collaborating with other committees. Recently, ITSA had collaborated with Social Wing. Our volunteers participated in their most anticipated event of Social Wing, Udaan 2016.

Udaan 2016 is a marathon for young and old alike. It is organized every year by Social Wing to raise awareness and funds for underprivileged students. The money raised was donated for their education. The marathon was a huge success and ITSA is happy to be a part of it and looks further for such collaborations.



# Toppers

## BE 2015-16



Poonam Chauhan  
9.29



Jayesh Bhilkar  
9.14



Niharika Kargudri  
9.09

## TE 2015-16



Ikshita Mishra  
9.69



Neeta Dhavade  
9.39



Pradnya Patil  
9.39

## SE 2015-16



Aslesha Gaikar  
9.59



Abhishek Venkatesh  
9.47



Dharmendra Singh  
9.36

# Internet of Things

With the advent of technology the trend of IoT is increasing. The internet of things (IoT) is the internetworking of physical devices, vehicles, buildings and other items—embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data. A workshop based on IoT had been organized for our faculty members. It was a 5 day workshop conducted by multiple speakers who were experienced professionals.

On the first day, the basic concept of IoT was explained. IoT is the concept of basically connecting any device with an on and off switch to the Internet (and/or to each other). This includes everything from cellphones, coffee makers, washing machines, headphones, lamps, wearable devices and almost anything else you can think of. This also applies to components of machines, for example a jet engine of an airplane or the drill of an oil rig. As I mentioned, if it has an on and off switch then chances are it can be a part of the IoT. On the second day, an introduction was given to Arduino. The next two days were a continuation on Arduino along with MQTT protocol via eclipse.org server and IR sensor in integration with the Arduino and MQTT. It was a completely interactive session that proved to be very productive.

On the final day, the workshop concluded with a speech and giving of feedback. This workshop was a success and was proved to be very useful to the faculty members.



## Faculty Achievements and Awards

Name of the faculty	Award Details
Mrs.Dipti Jadhav	Excellence in R&D
Mrs.Nilima Dongre	Appreciation Award (Techmitra) Appreciation Award (Digital India Program Initiative) Excellence in R&D
Mrs.Anitha Senathi	Excellence in R&D



## Information Technology Students' Association

Designer: Abhishek Mathur  
Editor In Chief: Sonali Koli  
Co-Editor: Sayali Ranshur  
Niyati Chopra

Faculty Co-ordinators:  
Mr. Swapnil Shinde  
Mrs. Anitha Senathi