ATME

College of Engineering

Tech Glimpse

CSE Department Magazine

Volume 5, 2019

Vision of the Institute

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

Mission of the Institute

1. To keep pace with advancements in knowledge and make the students competitive and capable at the global level.

2. To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torchbearers of tomorrow's society.

3. To strive to attain ever-higher benchmarks of educational excellence.

Vision of the Department

To develop highly talented individuals in Computer Science and Engineering to deal with real world challenges in industry, education, research and society.

Mission of the Department

1. To inculcate professional behavior, Strong ethical values, innovative research capabilities and leadership abilities in the young minds & to provide a teaching environment that emphasizes depth, originality and critical thinking.

2. Motivate students to put their thoughts and ideas adoptable by industry or to pursue higher studies leading to research.

Program Educational Objctives (PEO's)

1. Empower students with a strong basis in the mathematical, scientific and engineering fundamentals to solve computational problems and to prepare them for employment, higher learning and R&D.

2. Gain technical knowledge, skills and awareness of current technologies of computer science engineering and to develop an ability to design and provide novel engineering solutions for software/hardware problems through entrepreneurial skills.

3. Exposure to emerging technologies and work in teams on interdisciplinary projects with effective communication skills and leadership qualities.

4. Ability to function ethically and responsibly in a rapidly changing environment by applying innovative ideas in the latest technology, to become effective professionals in Computer Science to bear a life-long career in related areas.

Program Specific Outcome (PSO's)

1. Ability to apply skills in the field of algorithms, database design, web design, cloud computing and data analytics.

2. Apply knowledge In the field of computer networks for building network and internet based applications.

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Editorial Committee

Chairman
Dr L Basavaraj, Principal

Chief Editor
Dr Manjunath S S, HOD, CS

Student Coordinators
Varsha R
Eshwar Prasad B

Dear Readers,

We are delighted to bring out our department magazine "Tech Glimpse". This magazine will showcase the activities and credentials of CS & E department staff and students.

I wish to express my gratitude for the invaluable encouragement and support by our beloved Principal and staff.

Your valuable comments and suggestions are appreciated. We wish all the readers an enjoyable reading.

Dr Manjunath S S
Chief Editor

Department of Computer Science and Engineering

The Department of Computer Science & Engineering started in the year 2010. It is a evolving academic centre for higher education, research and novel in the key areas of Computer Science. It has been imparting quality education to meet the technological advancements and industrial requirements. The strength of students are progressively increasing every year and this is possible due to qualified and experienced faculties with excellent academic delivery process imparted. The first initiative taken by the department is "Computer Society of India - Student Branch", which is a professional body at National Level, in the year 2012, all the students have got enrolled as a members to this branch. The department has obtained CSI institutional membership and maximum teaching faculties have become CSI life members and platform is provided for the students to enhance their technical skills by participating in various events conducted under this professional body.

MOU has signed between Geekslab Techologies Pvt.Ltd., Department has Centre of Excellence in networking -CISCO, by providing CCNA Certification to students in networking and all final and pre final year semester students have done internship under this programme. The Department has got library, which believes in sharing of knowledge in the form of books, the most novel way of building the young mind by technical and ethical knowledge for students. Department also conducts various workshops, technical talks, and CSI events to students to up skill their skills. Technical training and Aptitude training is delivered to students to improve in their placement activities. Students have published various papers on project and have been awarded the best paper presentation. Students actively involved in hackathons, sports, cultural and many intercollege events and have bagged prizes.

The art of teaching is the art of assisting discovery	**Better than a thousand days of diligent study, is one day with a great teacher**	**I cannot teach anybody anything. I can only make them think. - Socrates**

Industrial Visit to "Infosys Limited"

A One day Industrial Visit was organized by the Department of Computer Science and Engineering, ATME College of Engineering, Mysuru for 7th semester students to "Infosys Limited", Mysuru Campus on 15th September 2018.

There were 70 students and accompanied by three faculties, Mrs. Sowmya Shree P, Mr. Shrinivasa G and Mr. Ranganath K, Assistant Professors, ATME College of Engineering, Mysuru.

"Latest Trends and Technologies, New Age Talents"

Department of Computer Science and Engineering of ATME College of Engineering, Mysuru organized a technical talk on "Latest Trends and Technologies, New Age Talents "for III, V and VI semester students of CSE on 6th October 2018 under the Computer Society of India Student Branch.

- The resource person was Raghavendra Udupa, Delivery Manager, Infosys, Mysuru.
- It was coordinated by Sneha N P and Shruthi P, Assistant Professors.

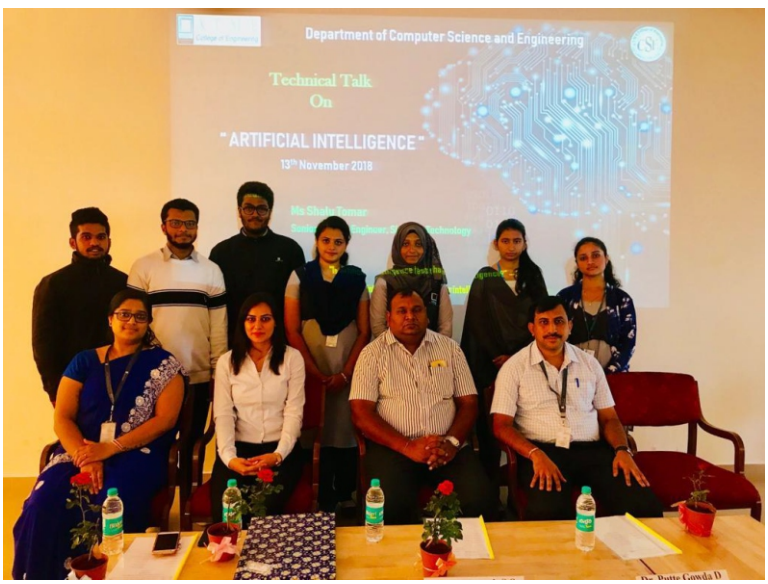
"Cyber Security and Block Chain Technology"

Department of Computer Science and Engineering of ATME College of Engineering, Mysuru organized a technical talk on "Cyber Security and block chain technology".

The resource person was Karthik Ganapathi, Managing Director, VSG Software solutions, Mysuru, on 23rd October 2018 for 5th and 7th sem students.

"Artificial Intelligence"

Department of Computer Science and Engineering of ATME College of Engineering, Mysuru organized a technical talk on "Artificial Intelligence" by Shalu Tomar, Senior System Engineer, Siemens, Bangalore, on 12th Nov 2018. For 3rd and 5th Semester under Alumni Association.



"RELEASE OF CSI NEWSLETTER"

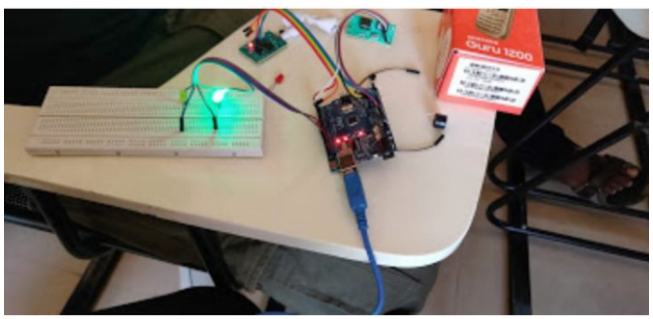
Department of Computer Science and Engineering of ATME College of Engineering, Released CSI Newslet-ter "Tech Bits", Volume 3, Issue 1 and Organized Intra College "Quiz Competitipon" Under CSI. Coordinated by Mrs Sneha N P, and Ms Shruthi P, Assistant Professor, CSE ,ATMECE, Mysuru on 17th Nov 2018.



"Three days Zonal Level Workshop on Internet of Things"

Three days Zonal Level Workshop on Internet of Things was conducted in the Department of Computer Science and Engineering at ATME College of Engineering, Mysuru on 17 Jan 2019 to 19 Jan 2019.The Work-shop was inaugurated by Dr. Basavaraj L, Principal, ATMECE with other dignitaries.The event was attended by 8th Semester students of the department and was conducted by Mr. Anshul Verma from GeeksLab Technologies in association with IIT Delhi.

The event was convened by Dr. Manjunath S S, Head Department of CSE and coordinated by Mrs. Nasreen Fathima and Mr. Shrinivasa G, Assistant Professors, CS&E, ATMECE.




Intra Collegiate coding competition “CODE RELAY”

The Computer Science and Engineering Department under Computer Society of India Division -1 and Computer Society of India Student Branch had organized a Intra Collegiate coding competition called “Code Relay” on 5th April 2019, where many of the students from pre-final year and second year showed much of their interest in the event for the year 2018-19.

Workshop on Network Security

A one day workshop on Network Security Hands on Session was conducted in the Department of Computer Science and Engineering at ATME College of Engineering, Mysuru on 24th April 2019. The event was attended by 6th Semester students of the department and was conducted by Mr. Karthik from VSG Software solutions, Mysuru. The event was convened by Dr. Manjunath S S, Head Department of CSE and coordinated by Mr. Mohanesh B M and Mr Shrinivasa G, Assistant Professor in the Department of CSE.

As a part of this event fundamental concept of Network Security Hands on Session, the aim of the workshop is to understand how various attacks on software, system, and network work, what their fundamental causes are, how to defend against them, and how various defense mechanisms work.

During the Workshop students learnt how to prevent attacks on software, system, and network, what their fundamental causes are, how to defend against them, and how various defense mechanisms work in the hands on sessions.

FACULTY PARTICIPATION

CONFERENCES

1. Dr Manjunath S S and Semanthini, "A Survey on techniques of Image enhancement of Historical Documents to Ensure Legibility", International conference on Computer Networks , Security and Computing, Aug 2018.
2. Dr. Puttegowda D and Dr.Padma M C, "A Video Mining Framework for Event Classification Using Semantic Vocabulary Learning", IEEE International Conference on New Trends in Engineering and Technology (ICNTET-2018), on 7th and 8th September 2018.
3. Impana Appaji and Dr. Raviraj P "Optimal traffic light control using Wireless Sensor Networks" IEEE International Conference on Innovations in Engineering, Technology and Sciences (IEEE-ICIETS-2018) was conducted at NIEIT college Mysuru on 20th and 21st September 2018.
4. M S Sunitha Patel "A Cooperative study on Image Processing Approaches for BSDS in Advanced Driver Assistance System." IEEE International Conference on Innovations in Engineering, Technology and Sciences (IEEE-ICIETS-2018) was conducted at NIEIT college Mysuru on 20th and 21st September 2018.
5. Dr Manjunath S S and Semanthini, "A Cognitive Semantic based Aprroach for Human Event Detec-tion in Videos", Third International Conference on Smart Trends for Computing and Communication 2019.
6. Dr Manjunath S S and Semanthini, "Video Synchronization and alignment using motion detection and contour filtering", Third International Confernce on Smart Trends for Computing Communication.
7. Kavyashree E D, Sowmya shree P, Anil Kumar C J, Kiran B, "An Epigrammatic Study on NLP - Tools, Challenges and it's Applications", in IJIRCCE, Vol. 7, Issue 1, pg -148- 152, January 2019

WORKSHOP/FACULTY DEVELOPMENT PROGRAMME

1. Impana Appaji, has participated two days workshop on "Internet of Things (IoT) and its Applications" held at VTU RO from 10th to 11th December 2018.
2. Mohanesh Bevoor Mahalingappa, has participated in five day faculty development programme on "Ma-chine Learning: Techniques and Tools" held at JSSATE, Bengaluru from 17th to 21st December 2018.
3. Rajiv P, has participated in One day workshop on "MOODLE, LMS", at K S School of Engineering, Bangalore on 15th March 2019.
4. Babu Kamrath K , has participated in One day workshop on "MOODLE, LMS", at K S School of Engineering, Bangalore on 15th March 2019.
5. Sunitha Patel M S, has attended 5 days workshop on "Applications of Data Mining and Deep Learning Techniques in Multidisciplinary Area", conducted by National Institute of Technology Karnataka, Surathkal Srinivasnagar, Mangalore from 24th to 28th June 2019.

SEMINAR

1. Raghuram A S, has participated in one day seminar on "Free and Open Source Software Solutions for Educational Institution", held at VTU Region center, Bengaluru on 1st September 2018.

SEMINAR - STUDENTS PARTICIPATION

Sl. No	Date	Workshops, Training Programs, Conferences, Competitions	Count of the students/ Names
1.	March 2nd and 3rd 2019	Smart India Hackathon 2019 -Problem Statement: Golf Ball Tracking	6
2.	26th to 28th March 2019	Participated in Poster Presentation – Digital India, Quiz, and Essay writing competition conducted by KSTA in ATMECE, Mysuru on 26th to 28th March 2019	7
3.	March 2019	Published paper "A Survey on Internet of Things: Architecture and Enabling Technologies" in JETIR, Volume 6, Issue 2	Arpitha M D,Bindhya N, Reshma R, Impana Appaji
4.	23rd April 2019	Presented a paper on " Gesture Recognition Embedded" in 3rd National Conference on Engineering Innovations and Solutions (NCEIS –2019) organized by GSSSIETW, Mysuru.	Ms. Jayashree M, Ms. Madhushree B R, Ms. Meghana P, Ms. Meghana M
5.	23rd April 2019	Presented a paper on "Voice Assisted Web Designed by Means of Deep Learning", in third National Conference on Engineering Innovations and Solutions (NCEIS –2019) organized by GSSSIETW, Mysuru	Sanjay S, Thanushree M, Varshitha A, Zoha Afreen, Sunitha Patel M S
6.	23rd April 2019	Presented a paper on "ÏoT based Car Parking System", in 3rd National Conference on Engineering Innovations and Solutions (NCEIS –2019) organized by GSSSIETW, Mysuru.	Aishwaraya P, Ananya H S, Keerthana S, Niranjan M G, Sunitha Patel M S
7.	23rd April 2019	Presented a paper on "Frame based Image frames stegnography", attended Third national conference on Engineering Innovations and Solutions (NCEIS –2019) organized by GSSSIETW, Mysuru	Shilpa, Roopa Devi, Revathi K, Pooja H R, Sneha C R
8.	June 2019	Published paper on "Android Based Sign Language Recognition and Translation",in IJCERT	Nabeela Akram, Rajeshwari S, Rakshitha L, Trishul S, Sneha N P

STUDENTS PARTICIPATION

1. Ashish Prabhu Awarded "Best Googler" in TECHNO SPECTRUM Organized in GSSSIETW Mysuru, on 11th October 2018.

2. Pramod N Secured Prize in "Video Making", in TECHNO SPECTRUM Organized in GSSSIETW Mysuru, on 11th October 2018.

3. Vishnu Tej K and Preethi Barman Secured Prize in "SDLC Build Project" in TECHNO SPECTRUM Organized in GSSSIETW Mysuru, on 11th October 2018.

The formative years in school helps a child develop technical knowledge and become subject knowledge expertise. When the same student enrolls in a university, he/she looks forward to promising careers and a sharpened skill set. A student must research and apply in a college that not only offers the most sought-after courses but also equips them with career-oriented skills through in-house skill enhancement training programs.

No of students placed in Companies : 66

No of students admitted to HigherStudies : 03

Average Package : 3.20 LPA

Achievers List

The details of the students who achieved in various sports

SL.NO.	NAME	EVENT	YEAR	PHOTO
1	Yathin Machiaya	Hockey	2018-2019	
2	Meghana Reddy	Softball	2017-2018	
3	Sachin	Softball	2017-2018	
4	Hemanth Kumar	Cricket	2017-2018	

Student Toppers

4th Semester - A Section		
USN	**STUDENT NAME**	**SGPA**
4AD16CS044	MONIKA K M	8.14
4AD15CS086	THEJA K	7.93
4AD16CS035	MANASA M R	7.79

4th Semester - B Section		
USN	**STUDENT NAME**	**SGPA**
4AD16CS072	SHAZIA BAIG	8.14
4AD16CS086	SWATHI A	7.64
4AD16CS058	PREETHI BARMAN	7.36

6th Semester - A Section		
USN	**STUDENT NAME**	**SGPA**
4AD15CS019	DEEPTHI R	8.41
4AD15CS047	MEGHANA P	8.33
4AD15CS034	KEERTHANA S	8.15

6th Semester - B Section		
USN	**STUDENT NAME**	**SGPA**
4AD15CS079	SUPRITHA L	8.26
4AD15CS071	SAHANA S	8.04
4AD15CS085	THANUSHREE M	7.74

8th Semester - A Section		
USN	**STUDENT NAME**	**SGPA**
4AD14CS013	AVITA PINTO	84.27%
4AD14CS020	CHITHRA A G	84.13%
4AD14CS023	DEEPA LAKSHMI D R	81.33%

8th Semester - B Section		
USN	**STUDENT NAME**	**SGPA**
4AD14CS035	MADNI AFROZE	81.07%
4AD14CS052	ROHINI N A	80.67%
4AD14CS056	SANJANA H	79.47%

SMART INDIA HACKATHON 2018

Smart India Hackathon is a 36-hour non-stop digital programming competition and a unique initiative to identify new and disruptive digital technology innovations for solving the challenges faced by our country. One of the division in SIH is software edition, 36-hour software product development competition. Where problems are posed to technology students for innovative solutions and it builds funnel for 'start up India' campaign.

Being a part of this event is an immense pleasure. We faced many hurdles and confusions in the beginning and cleared easily by the help of our mentor and seniors. Our problem statement was to develop an app to spot tribal youth in talent in sports and for the sport authorities to interact with them. This app acts as an interface between the tribal people and sport authorities. Our team submitted the solution to the SIH on tribal affairs ministry, which includes the complete process and detailed description of this app development. Our team was in waiting list in the beginning but after the announcement of part 3 short listed team we were so happy to know that our team got selected for the grand finale. Due to inadequacy of time, we had come up with the partial app and participated in the finale and built the complete app there. Unfortunately, due to some interface problems we did not come in the top 5 but we received affirmative response and appreciation from the judges. We are grateful to our college for being supportive and providing all the facilities that were required.

Faculty Name (Mentor)	Student Name	Award
Mr Kiran B Assistant Professor Department of CSE, ATMECE, Mysuru.	ANUSHA M	Participated and Represented ATMECE.
	DEEPTHI R	
	LATHA S	
	MANJUMALLIKA N	
	SWAROOP S	
	TEJAS H R	

Top programming languages for Machine Learning

List of popular programming languages used for machine learning. While Python continues to hold top position in the list, there are more languages that are bringing efficiency in building machine learning algorithm than just Python.

Here are top machine learning languages, according to GitHub:

1. Python

The language is highly recommended for machine learning due to the availability of repositories. It is the most common language used among machine learning repositories.

sci-kit learn: The library is popularly used for data mining, and data analysis. A wide range of machine learning algo-rithms are built using sci-kit library.

Machine learning from scratch: Python helps in the implementation of machine learning models and algorithms as it focuses on accessibility. The language aims to cover everything from data mining to deep learning.

Chatterbot: ChatterBot is a machine learning, conversational dialog engine for creating chat bots.

2. C

The language is used for machine learning algorithms due to its fast speed to execute the code. The effective implemen-tation of C++ can help in using this language for building machine learning algorithms.

Tensorflow: Google's open source machine learning framework Tensorflow is known for its rich APIs and wide variety of language support.

Turi Create: Turi Create simplifies the development of custom machine learning models.

LightGBM: A fast, distributed, high performance gradient framework is based on decision tree algorithms, used for ranking, classification and many other machine learning tasks.

3. JavaScript

Machine learning with JavaScript is much easier to learn than with Python. The language is immensely popular as an al-ternative to Python. Machine learning with JavaScript is much easier to understand than with Python.

Flappy Learning: A program that learns how to play the infamous Flappy Bird game.

AI-Blocks: A powerful and intuitive WYSIWYG interface that allows anyone to create Machine Learning models

ml-5 library: It aims to make machine learning usable by artists and non-technically minded students by offering access to machine learning algorithms and models in the browser.

4. Java

Java is the most widely used programming language in the world, making it an easier choice for machine learning.

Smile: It is a comprehensive system for carrying out machine learning, NLP, linear algebra, and visualization system in Java and Scala.

H20: It is an open source fast and scalable machine learning platform for smarter applications (Deep Learning, Gradient Boosting, Random Forest, Generalized Linear Modeling, Logistic Regression, Elastic Net).

EasyML: Easy Machine Learning is a general-purpose dataflow-based system for easing the process of applying ma-chine learning algorithms to real world tasks.

5. C#

Data science and machine learning go hand-in-hand. If you are from .NET and C# background, you would love to use C# for machine learning.

ML Agents: This is an open-source plugin for the Unity game engine that enables games and simulations to serve as environments for training intelligent agents.

ML .NET: This is an open source and cross-platform machine learning framework for .NET.

Accord.NET: This framework provides various methods for processing machine learning, AI, computer vision and im-age processing.

By Department of CS & E Faculties

DIGITAL IMAGE PROCESSING APPLICATIONS IN AGRICULTURE

Image processing technique has been proved as effective machine vision system for agriculture sector. Imag-ing techniques with different spectrum such as infrared, hyper spectral imaging, remote sensing were useful in determining the crop management, identification of nutrient deficiencies, land mapping etc.

1. CROP MANAGEMENT

Image processing technique can be used in management of crop. Piyush Chaudhary et al proposed an al-gorithm for disease spot segmentation using image processing techniques in plant leaf. Median filters is used for image smoothing. Finally threshold can be calculated by applying otsu method on colour component to detect the disease spot.

2. IDENTIFICATION OF NUTRIENT DEFICIENCIES

The "Nitrate app" has been developed to find out the nutrient deficiencies in plants. They proposed algorithm to determine chlorophyll content, which non linearly maps the normalized value of G(Green co-lour), with respect to R(Red colour) and B(Blue colour), using a logarithmic sigmoid transfer functions as follows: CHOL = logsig[[G-(R/3)-(B/3)]/255], where CHOL is the chlorophyll estimation by opt leaf.

Nikitha S
4th "B"
4AD17CS057

SMARTHOME SECURITY AND AUTOMATION

Home security has been an area of great interest among technology companies for several decades. But in the past five to seven years, new technology has taken this industry to unprecedented new heights totally revolutionizing the gadgets, systems, and devices that protect home owners from external threats. The latest and greatest in this industry is smart-home security that automates an array of tasks and processes that previously could be handled only manually and in person.

Four Trends to Keep an Eye On

- Millions of households have come to depend home security technology over the years to improve safety and the residents' peace of mind. According to InMyArea.com, more than 90 percent of burglars say they would target a different home if they saw signs of a security system in place.
- The data also shows that homes without a security system are three times more likely to be burglarized. In recognition of the huge demand for home security solutions, many tech firms have poured their smart-home R&D efforts into automated security solutions that are intuitive to use and cost-effective to main-tain.
- ”Traditional home security alarm systems had a sole purpose make loud noise so that the people in the vi-cinity are alerted of an intruder. As the technology advanced, new systems were built that would send out a signal or a code to a central monitoring station informing them of the location of the alarm so that the police could be dispatched," Command One Security explains.
- Unfortunately, traditional home security systems haven't been as effective or reliable as they ought to be. But new innovations in the smart home space have paved the way for exciting trends that are more effective and reliable than in the past.

The home security industry is nowhere near to achieving its full potential, but it has made significant strides over the past few years. As smart-home technology continues to respond to the home security niche, you can expect to see new innovations that are powerful, effective, and safer than ever before.

By Poornashree D
4AD16CS055
6th “B”

Why Cyber security Is More Important Than Ever

Cyber security is important now more than ever. It is more apparent than ever that technology is gradually taking over every facet of our lives. Whether we are at home or travelling technology has some sort of in-volvement in our daily routine. It would not a stretch to say that we are becoming increasingly dependent on technology for better or worse. There is not a person in the world that doesn't interact with it in some way. In that vein, we are seeing a proliferation of internet access that rivals the spread of the automobile and vaccines.

Technology Everywhere You Look

It is, in no uncertain terms, the lifeblood of modern business and a major area of study for today's youth. As a matter of hope, we can only watch and wait to see how the generations will integrate technology into their lives but, we know that it is a crucial part of all lives. In fact, it has become critical which is why we most se-cure it to the best of our abilities. Just think about your own exposure to the internet daily.

Most employed people depend on the internet to work every day. Most unemployed depend on the internet to find work or jobs in their preferred arena. Every business owner must use the internet to stay competitive and function at all. The productivity gained by using technology cannot be ignored and if this is the case then our exposure will only grow. We go online over a billion times a day and that data at any time can be stolen and used against us for nefarious endeavors.

As the access enabled devices continue to spread and access grows the problem worsens due to the age of the technology or the practices used by individual users. There is nothing more dangerous, in the modern era, than having your data stolen. It is akin to being turned upside down as you struggle to regain your gravity.

Strong passwords can defend against brute force attacks and spoofing, contextually of course, as the effort required to break them is often incredible and beyond the scope of most hackers. To be clear, a strong password uses mixed cases and a combination of numbers and letters along with special characters. They should never be shorter than 8 characters and should always be kept in secret with either a password protector or physical safe storage location.

Conclusion

Another great strategy to defend yourself with is the use of proxies. Now proxies can do a lot of good, but, are also widely used by hackers, so in effect, you are fighting fire with fire. Proxy services, such as VPNBook, use private network filtering to protect your identity and location while you browse the internet. These can be great against hackers and those who want to steal your data for marketing or political purposes. It is highly recommended to use a proxy at home and, if one is not already implemented, make sure that your company uses a proxy as well so that business records are not compromised either.Ultimately cybersecurity is important today because the internet is now a channel into your private life that almost anyone can access. This fact, mixed with broad proliferation of internet-based technology, leads us to importance of cybersecurity. As long as you are willing to implement strong password and use a proxy service then you can defend yourself against one of the greatest threats we face as a unified people.

Ranjitha S
6th "B"
4AD16CS062

NETWORK SECURITY

Network security is a complicated subject, historically only tackled by well –trained & experienced experts. Network Security is the process of taking physical and software preventative measures to protect the underly-ing networking infrastructure from unauthorized access, misuse, malfunction, modification, destruction, or improper disclosure, thereby creating a secure platform for computers & users to perform functions within a secure environment.

In 1994 the Internet Architecture Board (IAB) issued a report entitled "security in the internet architecture". The report states that the internet needs more & better security & it identified key areas for security mechanism. As conformation consider the trends reported by the Computer Emergency Response Team(CERT) coordination centre (CERT/CC) the trend in internet-related vulnerabilities reported to CERT over 10 years periods. These include security weakness in the operating systems attached com-puters as well as vulnerabilities in internet routers & other network devices this gives number of security re-lated incidents reported to CERT . These include denial of services attacks IP spoiling in which intruders create packets with false IP address & exploit application that use authentication based on IP & various forms eaves –dropping & packet sniffing .In which attackers read transmitted information including login informa-tion & data base contents.

Over the time the attacks on the internet & internet-attached system have grown more sophisticated while the amount of skill & knowledge required to mount an attack has declined. Attacks have become more automated & can cause greater amount of damage. Network security ensures the integrity, available & performance of an organizations network, by protecting IT asserts from threads like spam, spyware &denial-of-service attacks. An essential component of network optimization, network security helps to prevent costly services interruptions & increases business productivity by keeping network functioning properly. Network security includes both hardware & software. This is effectively manages access to network, it targets variety of threats &stops them for entering current network. Network security consists of policies and practices adopted to prevent & monitor unauthorized access, misuse, modification, or denial of a computer network & network accessible re-sources.

Security policy is a collection of rules that help the users to behave in certain way to identify what is legal & illegal to protected computer system in their organization. Even with the appropriate network security tools & policies in place however, many companies still find difficult to effectively protect their networks. Skilled hackers are capable of bypassing perimeter defenses, & no singly security solution can sufficiently shield a network form every type of attack. Moreover, recent technology trends such as BYOD, cloud network innovation, etc… have made network security complicated for IT shops & expensive for businesses. Confronting large, highly interconnected networks, complex computing environments, & an unpredictable threat land-scape, IT departments struggle to secure the expertise & resources necessary to safeguard their networks.

KAVANA S SHETTY
6th SEM
4AD16CS027

Traffic Congestion Reduction in Smart Cities using Artificial Intelligence Enabled IoT

The world has now entered in a new era of Computing, blessed with many prominent technologies including Artificial Intelligence (AI) and Internet of Things (IoT). In an IoT world, sensor enabled objects (things) are connected together via the Internet to participate in performing a particular task mainly by sending and receiving data from one to other. Artificial intelligence empowers agents (machines or devices) to perceive the surrounding environments leading to take calculative decisions, followed by performing efficient actions in order to maximizing the chances of successfully accomplishing a desired task or goal. We combine both IoT and AI to reduce traffic congestions in a smart city environment.

Since last couple of decades, technology has grown vastly around the world in terms of hardware and software paradigm. Especially, the number of hardware is ever growing to meet multifaceted requirements; the capacity of these hardware is continuously expanding whereas the size is invariably becoming smaller day by day. IoT brings all these small objects, more commonly referred as things, together at one place through its sensor based communication and making use of the Internet. Thus IoT systems provide cheaper and wider communication channels to perform various tasks in any smart city or industry environment which is a vital precondition for Industry 4.0.

Over the last century, with the advances in technology, many states in the world have experienced massive migration of individuals from rural areas to the main cities. As a result, these cities have become highly populated and thus caused many civic problems, including traffic congestions. Furthermore, declining prices of vehicles and the increased demand by a large number of consumers, highly contributed to increased traffic congestions.

In fact, traffic congestion problem is more apparent in third world countries due to lack of proper infrastructures. Traffic congestions cause high consumptions of fuel which not only increases expenditure for communication but also pollutes the environment. Due to traffic congestions, a considerable amount of working hours are wasted and production costs are increased. Furthermore, it also causes problems for law-enforcement bodies, fire fighters and medical and/or paramedical teams leading to increased number of crimes as well as life losses. With the advent of smart cities that make use of advances in technology, it has become possible to combat this problem using satellite and computer technology to re-route vehicles from highly congested roads to less congested ones. Moreover, technology is on its way towards a smart world where driver-less autonomous vehicles could be used on a large scale. These vehicles are usually supplied with intelligent devices to collect required data regarding the traffic density in various roads which allows these vehicles to intelligently decide the best routes to follow to reach the destination.

The human population is drastically growing all over the world, especially in urban regions compared to the rural areas. Migration trend to urban areas is one of the major contributor in this regard. As per the world population report 2016 4.1 billion out of the 7.4 billion of the entire world population are living in cities. Based on the predictions it is calculated that the city population will become 6 billion out of a total 9 billion in the coming future. The drastic growth in the population leads to the increase in demand for transportation and hence the number of vehicles is ever rising. As a result, traffic management is becoming one of the major problems in big city infrastructure all over the world. Some of these concerns are traffic congestion and accidents that usually cause a significant waste of time, property damage, environmental pollution and even deaths.

Any type of congestion on roads ultimately leads to financial losses. Therefore, there is an urgent need to improve traffic management. To enhance the mobility in cities it is essential to have a planned technology-enabled development in infrastructure too. Thus, the benefits of adopting the Internet of Things (IoT) will provide a new prospect for intelligent traffic development.

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