DigiTrek

Department of Computer Science & Applications

SALESIAN COLLEGE
SILIGURI & SONADA

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS DECEMBER 2016

1 COMPUMATHIX 2016

Compumathix is an annual event jointly organized by the department of Computer Science & Applications and the department of Mathematics in Salesian College, Siliguri campus. This event is an extension program of the College where schools in and around Siliguri are invited to participate...

2 Workshop on Android Application Development

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3 EFFECT OF TECHNOLOGY IN OUR DAILY LIVES

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Congratulations

Perminder Singh & **Riha Maheshwari,** BCA, Batch of 2016,

for securing Second and Third position at the University Level.

We wish them greater achievements and accolades in future.

COMPUMATHIX 2016

Compumathix is an annual event jointly organized by the department of Computer Science & Applications and the department of Mathematics in Salesian College, Siliguri campus. This event is an extension program of the College where schools in and around Siliguri are invited to participate in a one day program of healthy competition and fun-filled interaction among their peers as well as the seniors in the College. All events are conducted by the College students under the supervision of faculties.

Like last year, this year also the event was scheduled on the first day of the three day annual festival of college, "Innovision". This year, there was the final of inter-college Basketball tournament, the "Taverna trophy" also scheduled on the same day. Fr. (Dr.) Mathew Pulingathil, Rector, Salesian College, Siliguri and Fr. (Dr.) C. J. George, Vice Principal, Salesian College, Siliguri Campus opened the event with lighting of the lamp. This was followed by the introduction of both events to all participants by Mr. Peter Lepcha, campus coordinator (day session) of the college. Soon after followed the oath taking ceremony by all participants for the Basketball tournament.

Following schools participated

1. *Air Force School, Bagdorga*
2. *Army Public School, Bengdubi*
3. *BSF Senior Secondary Residential School, Kadamtala*
4. *Don Bosco School, Oodlabari*
5. *Don Bosco School, Siliguri*
6. *Doon Heritage School*
7. *G. D. Goenka Public School*
8. *Mahbert High School, Dagapur*
9. *Sri Hanuman Mandir Dharamshala, Jaigaon*
10. *Siliguri Model High School*
11. *St. Anthony's Convent School*
12. *St. Xavier's School*
13. *Techno India Group Public School, Siliguri*

Army Public School, Bengdubi, overall champioans

Following events were scheduled for schools:

Srl. #	Name	Description
1.	CodeChef	Coding / debugging of C/C++, Java programs
2.	CrossViews	Debate. Topic – "The use of BitCoin"
3.	GameXplosion	Computer game – Counter Strike, maps: dima2, dust2
4.	MathWiz	Mathematics wizard – quiz
5.	PosterKraft	Poster / Collage making
6.	SciScape	Science modelling
7.	TechImpress	Power point presentation
8.	WebMaster	Web programming

Workshop on
ANDROID APPLICATION DEVELOPMENT
05 - 09 September 2016

Salesian College, Sonada campus.

The workshop began at 9 am with prayer led by Fr. Principal, Dr. George Thadathil. Fr. Principal explained the reasons for conducting the training event involving the senior students from the Department of Computer Science and Applications from both the campuses, and the expectations of the College from the people undergoing such a professional training which also happens to be the first of its kind organised by the College. This was followed by the introduction of the trainer, Mr. Amrit Chettri from Rosefinch Consultancy Services, Pvt. Ltd, a Siliguri based company, by Mr. Dhirodatta Subba, Head, CSA Department, Siliguri Campus. Fr. James Chacko, Rector, Sonada campus, then blessed everyone and wished success for the program.

The training / workshop followed the outline as per Android ATC as follows:

Day	Morning	Afternoon
1 5/Sep	Lesson 1: Android Framework	Lesson 2: Android SDK Tools and Activity Class
2 6/Sep	Lesson 3: ListActivity and ListView	Lesson 4: Intents and Intent filters
3 7/Sep	Lesson 5: Custom Views	Lesson 6: Dialogs and Toasts
4 8/Sep	Lesson 7: More UI - Options Menu, Context Menu, and WebView	Lesson 8: Android Storage: Network, File I/O, and Shared Preferences
5 9/Sep	Lesson 9: Android Storage: SQLite and Content Providers	Lesson 10: Android Notifications
6 10/Sep	Certificate distribution	

During the workshop attendees were distributed into five groups for the purpose of applying the knowhow to software projects. Each group was given a project to study and prepare a Software Requirements Specifications document. Details as follows:

Team / Group Name	Project Title
A	Indian Recipies
B	Network Port Analyzer
C	Financial Planner
D	Student Registration
E	Big Data Security Analysis
F	Twitter Analytics

Programming principles were demonstrated using Android Studio and Eclipse IDEs (Integrated Development Environments). Sample programs were tested using both Virtual devices and our own mobile phones. Database connectivity and sample operations were tested with SQLite, MySQL and Microsoft SQL Server databases. On the last workshop day, a quick 30 minute test was also taken to evaluate our learning.

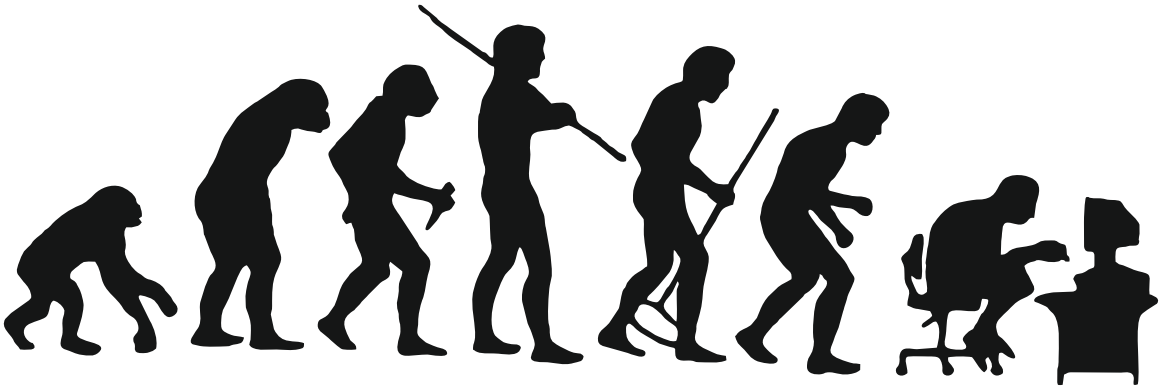
On the whole, it was technically challenging and very interesting, though difficult for junior students. The encouraging and surprising element was that our senior students showed the ability to grasp the concepts and agility to learn the difficult elements of advanced Java programming.

Finally, on the 10th the program was concluded by the Certificate distribution by the Vice Principal of Sonada Campus, Fr. Noby George. Another surprise was the visit by some fathers from Don Bosco institutions around Kolkata area. We had a wonderful opportunity of learning. Now we have the responsibility of making it work for our College. We are grateful to the management for all the support. In all, there were 13 attendees from Siliguri campus (including two faculties) and 12 attendees from Sonada campus (including 2 faculties).

On our way back, we visited Chatakpur Village in the misty hill tops of Sonada!

EFFECT OF TECHNOLOGY IN OUR DAILY LIVES

- Nandini Prasad, BCA 1st Semester



The evolution of technology has dramatically changed society. People all over the world use and take advantage from modern technology, and all the opportunities it provide play a significant role in our daily lives. Technology provides facility to simplify necessary tools needed in education, industry, medicine, communication, transportation, and so on. However use of technology has its drawbacks as well. Nowadays as the technology speeds up tasks, many people do not know the negativity of technology that is it affects the society negatively and its considerable development has complicated life in a number of different ways.

Using technology, the relations among the family members are also badly affected. Busy with diverse devices, family members do not get much time to interact among themselves as they used to do in the past. Before the invention of these technologies, family members would sit together like playing and gossip. Nowadays instead of watching TV together or eating a family meal, everyone in the family are in a separate room, either playing videogames, watching football or just typing message. Though it has some usefulness too, like parents communicate with their children and know their locations. People are so mesmerized by their smart phones or laptops that they are blind to other around them. Technology has both positive and negative effect in the era of education.

Excessive usage of electronic gadgets is affecting people's memory. Development of technology has its positive effects on education as classes have become more dynamic between teachers and students with rise in technology. Smart classes have been introduced in almost all the schools and colleges nowadays with the developing technologies. Internet is helping the students communicate with their teachers easily and gather all the essential information. Today's students are also better at remembering where to look for information rather than remembering the information itself.

Health issues caused by modern technology have specially affected the teenagers fully. Teenagers are so much dependent on social networks, computer games and TV, especially when it comes to sleep. With food, clothes and house, internet has become the fourth essential of present day generations. This dependence seems to be the cause of several various health problems such as sleep deprivation, vision problems and so on. Addiction to technology has also made a person lazy; that is, they pay less attention to walking and more to sitting, listening and playing games.

Technology has both positive and negative impact on the environment, too. On the positive side, technology improves the environment in terms of intense methods of agriculture, building better houses, and so on. On the negative side, excessive land exploitation can decrease its fertility.

Cars, factories, and power plants also pollute the air by emitting huge amounts of carbon dioxide, which can, eventually, trigger an ozone hole in stratospheric layer.

To sum up, people can see numerous positive effects of technology on different aspects of human life such as education, agriculture, personal safety, and the environment; however, not everyone thinks about its downsides. Though modern technology indeed facilitates people's tasks and duties, it may weaken human bodies, ruin nature, and destroy good values regarding social communication.

Internet of Things (IoT)

- Abhijit Dey, Faculty.

[A car's microchip tells the engine how to operate under various conditions so that the car can achieve the best fuel economy. Computers link production plants together to monitor and maximize production.

For years, the machines used to make our life easier have been getting smarter as their internal computer processors and software tell them what to do based on the parameters, we provide.

Three very common technologies -- wireless sensors, the Internet and personal computers -- are coming together to create machine-to-machine communications, or M2M. The concept holds great promise in promoting telemetry's use by business, government and private individuals.]

We cannot imagine our life without Internet. If we just look around ourselves, we will easily realize how this technology has become an integral part of our lifestyle. From phones to PCs, gaming consoles to television set-top-boxes, Internet is present in almost every aspect of modern living.

Using internet, actually, we want to automate and control everything. We want to view more data in real time as well as make things faster.

The Internet of Things - An Introduction

The increasing use of internet in everyday devices at home and at work has led to the development of the term, "Internet of Things". The term was first coined in 1999 by Kevin Ashton, a British entrepreneur, while he was working at Auto-ID Labs; though the term became popular only after it was mentioned in an article in RFID Journal in 2009.

The term refers to the ability of devices to connect with the Internet and even with each other. The devices can include anything from cell phones to washing machines and coffee makers to laptops and even wearable devices. These devices and gadgets can be fitted with sensors and connectivity technology to make them work together and even automatically to make our lives easier.

This kind of connectivity is very much beneficial for mankind. For example, we cannot park cars any more if the parking sensor indicates such situation.

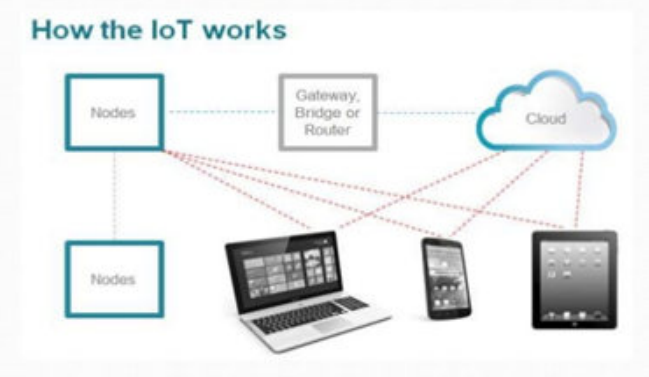
In more technical terms, the Internet of Things (IoT) refers to those devices that are equipped to sense the various aspects of the real world and are capable of not only collecting and reporting the data about these aspects but also acting on the information thus acquired. The real world aspects that these devices can judge include temperatures,

light, motion and even the presence and absence of people and objects.

How does it work?

Sensors play a vital role in collecting data from the environment in analog form. Then the data need to be converted into digital form by the sensors and processed by some local processors and stored in some local storages. The stored data is then further transferred to the cloud through internet and after cloud processing the data is stored is the cloud storage.

The local processors have some ability to take some decisions while processing the data locally. The cloud processors have much more processing capabilities than the local processors.



The processing of data - collected by sensors - by the local processors is required for removing irrelevant data for the cloud server. For example, motion sensors placed in a room are collecting data every second and sending to the cloud. Each sensor collects 3600 points per hour; 3600 X 24 X 7 points per week. This is huge. Mostly there is motion during the day and no motion during the night. So, cloud is collecting a huge amount of data which is not relevant. The ideal idea of Internet of Things would be, the motion sensor collects the data, sends it to some local processing device, and if there is something which is not normal then the data is sent to the cloud and cloud server takes appropriate decision.

The Impact of IoT in our Lives

The very concept of IoT is so interesting that it has often been referred to as the advanced way of living. In fact, IoT can be imagined as this huge network in which things are connected to each other and where things can refer to both people and devices. With this technology, a larger percentage of information would not only be produced by machines but even used by them with the single goal of improving the quality of our lives.

Some examples of IoT are Smart Watches, Google Nest, Smart Phones etc.

"Nest Labs" is a home automation producer of programmable, self-learning, sensor-driven, Wi-Fi enabled thermostats, smoke detectors and other security systems. It introduced the "Nest learning thermostat" in 2011 as its first product. The "Nest smoke and carbon monoxide detector" was then introduced in October 2013.

Internet of Things can be applied in many fields. In agriculture, transportation, health etc.

The doors of the trains are automatic in nature; when passengers finish crossing the door-line, it closes and when a new station arrives, it opens automatically.

In agriculture, we have smart devices that measure the humidity, quality of soil, can make several predictions like whether the day is good for agriculture or not etc.

IoT makes our life much easier. For example, using this technology, Refrigerator can keep track of the food stored inside it and alert us when we are running out of some things like milk or eggs etc. A smart medicine cabinet can alert the owners about when their medicines need to be purchased or even better ordering refills from a connected drugstore.

The possibilities of using IoT for enhancing our standard of living are endless, especially if we look at the broader picture of national and global interests. It is being perceived that this technology can help in setting up advanced connectivity between devices, systems, and services that goes beyond machine-to-machine communications.

IoT has become a real part of our lives. It is still being developed, tried and tested on a much smaller scale. There are various standalone applications and devices that implement the basic concept and philosophy of IoT. This technology is going to change the world, the concept of living and many more. However, before implementing this technology on a larger scale, the following issues need to be considered.

- The size of the network
- Considerations related to space
- Concerns about security
- Choice of appropriate architecture
- Ensuring proper connectivity

References:-

1. IoT Summer School lectures at "Politehnica" by Alexandru Radovici, PhD (IoT) University of Bucharest.
2. Internet of Things- From Research and Innovation to Market Deployment by Ovidiu Vermesan and Peter Friess.
3. Internet of Things - WhatIs.com.

Mind Reading Technology

- Julioush Das, BCA 1st Semester

Facebook is developing to let user communicate using only their thoughts. Mark Zuckerberg, Facebook's founder, has previously described telepathy as the "ultimate communication technology", but the social network's ambitions have been unclear. "It sounds impossible but it's closer than you think," said Ms Dugan, who joined Facebook from Google last year and previously led DARPA, the US government's advanced defence research division.

She said that allowing people to rapidly transcribe thoughts would allow them to privately send texts and emails in an instant, but said the project was only the beginning of Facebook's mind-reading efforts. Ms Dugan suggested that in the future, people may be able to share thoughts directly, removing the barriers of different languages. "You may be able to share your thoughts independent of language: English Spanish or Mandarin, they become the same," she said.

Brain as input device:

The technology will focus on finding a way to use light, like LEDs or lasers, to sense neural signals emanating from the cerebral cortex.

The method would work in a way that is related to how functional near infrared spectroscopy is currently used to measure brain activity.

The Emotiv Epoc is one way that users can give commands to devices using only thoughts

Emotiv Systems, an Australian electronics company, has demonstrated a headset that can be trained to recognize a user's thought patterns for different commands. Tan Le demonstrated the headset's ability to manipulate virtual objects on screen, and discussed various future applications for such brain-computer interface devices, from powering wheel chairs to replacing the mouse and keyboard.

Such a device-a headband or some sort of cap-could be useful to people so severely paralyzed that they can't communicate. Over time, though, brain interfaces could be a way to "think" a message rather than typing it, or send a text in the middle of a conversation, Facebook thinks.

They could also be a way to communicate with others in virtual or augmented reality, which are technologies that Facebook has been pushing heavily. A research said there are already some good demonstrations of brain

computer interfaces, like a recent study in which three people with paralysis were able to use their minds to select letters using an on-screen cursor, one of them typing at eight words per minute. In that study, a

brain implant recorded neural signals. Others have experimented with trying to interpret what sounds people are making or thinking about.