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Green IT and Computing: Tool for Sustainable Eco Systems- A Message for Healthy Sports Informatics Practice

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ABSTRACT

Green Information Technology and Green Computing are mainly responsible for the sustainable environment and ecological atmosphere creation with computing and similar technologies such as Database, Multimedia, Networking and Communication Technology and so on. Electronic product and gadgets are very much important for their valuable role in our common life and business activities. But electronic product and gadgets are responsible for so many bad affects and causes for us or society. Harmful chemical and products and heavy carbon emission are mainly responsible for such aspects against environment. As like other fields, Green Computing is also helpful for the modern and intelligent Sports world with eco-friendliness. Though there are so many challenges and opportunities to practice Green Computing and Technology. This paper is focuses on such aspects including their main challenges and issues in very brief manner.

Keywords: Green computing, green information technology, information technology, IT, information systems, challenges, issues, cloud computing, information science

Green Computing is actually using Computing and IT resources efficiently and in simple manner, Green Computing is nothing but the application of Green Technology and mechanism towards Green and Eco Friendly information system and technology building with several tools

and procedure[12,19]. However, main burden towards Green Information Technology is flowing strict principle for design Green supporting algorithm, system, product and devices, keep product log out and switch off mode when not needed, use only effective product, system and so on. Hence the challenges and issues are need to point out and essential required treatment accordingly. Country like India, once was computing literate but gradually computing and IT become part of our life; directly and indirectly and thus it is tough to maintain so many principle of Green Information Technology for developing country like India[21,29].

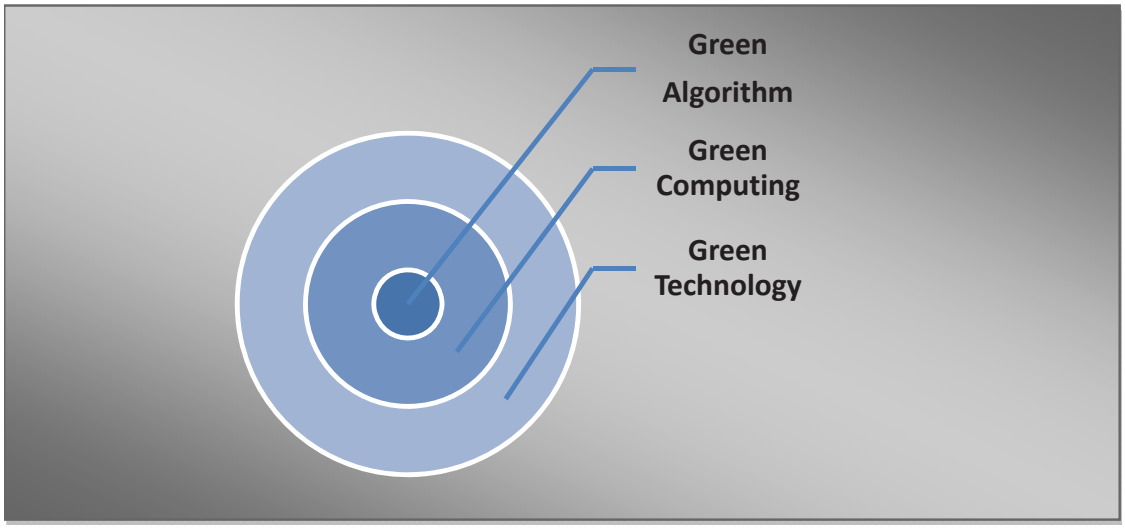

Fig. 1: Showing Green Technology and its background

Objective

The main aim and objective of this paper is includes and not limited to as follows:

- To know basic about Green Information Technology and Green Computing including its basic feature and characteristics;
- To learn about the Green Computing and IT for the Green Information System building;
- To know about the issue and challenges towards implementation of Green Computing and IT practices;
- To find out possible recommendation and suggestion towards Green and Environmental IT application;
- To learn about future potential towards Green Information Technology and systems.

Green Computing: Basic and Need

Green Information Technology is the study as well as practice of efficient and eco-friendly computing resources are very much important not only for the organizations which are works for environmental and ecological atmosphere[12,15]. Information Technology and computers are deals with so many bad and harmful chemical and products such as lead and mercury and so many toxic materials and environmentally they are very much bad. Hence, during some last year Scientist as well as Engineers are working towards design and development of IT and Computing products which are prepared with less harmful product and subsequently less factors or facets which are affect environment. Green Information Technology is also a kind of principle towards better and healthy technological practice towards better and healthy technology practice in organization and even homes or personal life[17,19]. In generally for preparation and manufacturing of computer are mainly by the lead, cadmium, mercury and so many toxics and according to computer and information scientist computer can contain 4-8 pound of lead alone and thus the use of computer is also increasing and so, we need to prepare computer and system according to Green principle and system[22].

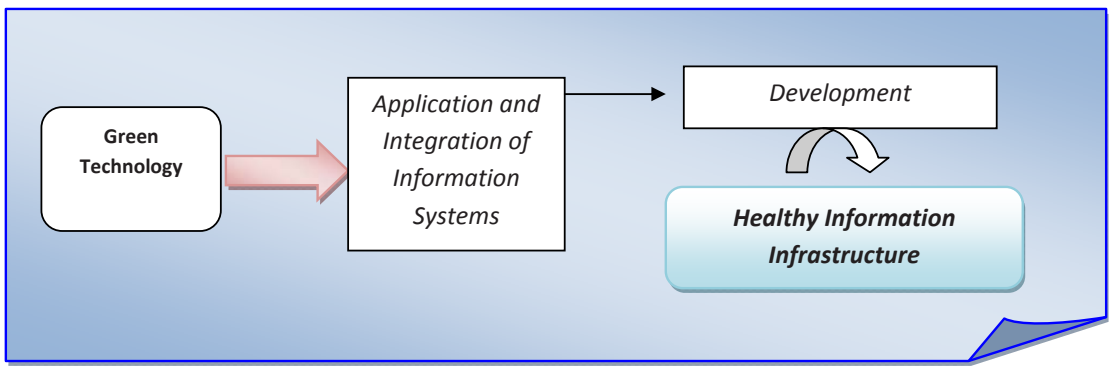

Fig. 2: Showing Green Computing and its ultimate role for development

Issues and Challenges

In Computing world, a small organization as well as large organization uses so many computers and IT products and deals with in-house hardware, software, tools and utilities and such as cost effective and against Green Information Technology principles. As we have cloud and virtualization possibilities with minimum computer in In-house and external support from the data centre and computing unit[23,26]. Such Data Centre are also able to provide IT services in many organization and institutions at a time with remote services. But main problem and issues are in this regard are:

- Less awareness towards introduction of Cloud Services in general organization.

- Initial funding and planning are very much essential.
- Cloud Service needs healthy and sophisticated internet and bandwidth services but still 4 G and other advance internet services far away than western countries or its actual requirement.
- Faith is another important requirement for the IT and Computer practice and cloud service are mainly comes from the third party. So healthy and trusted service providers are very much essential.
- Green Computing needs preparation of the computer which are build with less harmful material and products such as 'instead of toxic related material like-lead, cadium, mercury and so on. Use of solid state is better in this regard. But such need healthy efforts and arrangement by all the stakeholder of computer i.e. user, manufacturer and scientist[24,25].

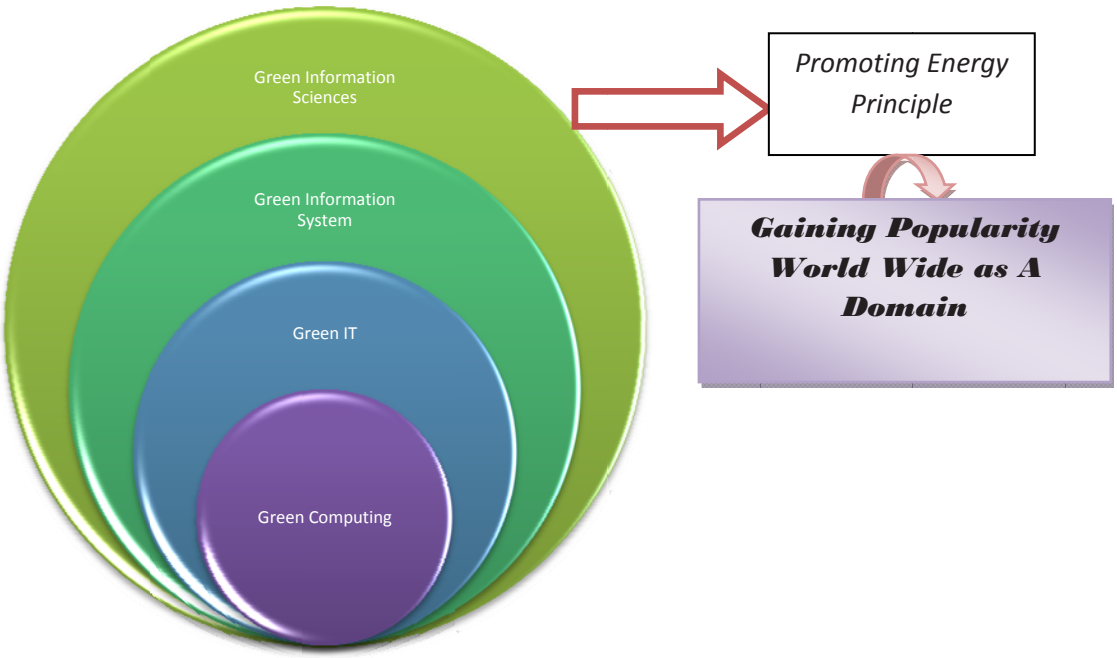

Fig. 3: Showing Green Computing and related field and its potentiality as academic field

- Use of principle for Green Information Technology and computing towards healthy IT atmosphere is also urgent. For practice this, we can use less computer and electronic products and only such devices which are less energy consumed. Keep machine 'log out' and buying product with 'Energy Star' logo will be best alternative in this regard[28, 29].
- Conventional computer and IT unit in the organization run with conventional energy

but we have a great alternative towards solar energy or word based or other Green Energy which are less consumed and eco-friendly. Hence selection of power system is an important alternative.

- Information Design and Information Architecture are very much important and valuable for building healthy information and electronic system of the organization and thus, we need to aware about this with according to Green Computing principles[31,32].
- R/D unit are actively engaged towards development of processor and chip which are much more energy efficient and Sun, Microsoft, Intel, AMD, are working great in this regard.
- According to some agencies it is very much important that, it is better to do computer related task during contiguous, intense blocks of time, learning hardware off at other time.
- Display unit is most energy seeking part of the computer and around 30 % total energy of a computer basically spent for the display system and hence it is an issue to use small display unit where large unit are not needed. Another important challenge is build LED and LCD unit instead of CRT monitor. For multimedia based information services and system we need to use projector instead of Joint Screen or similar devices.
- Use of eco-friendly and less power consumed algorithm development and its implementation is very much important and essential. It is better to use solid state drives instead of hard disk drives as it deals with moving parts. Similarly use of more powerful and speedy computer and processor with quantum power may bring an advance computer which will help better Green Computing practice[13, 22].

Suggestion and Future Research Direction

- Investigation of Green Computing is most important and valuable and hence, return is important factor. Immediate result is tough and thus we need to keep wait for final result.
- Display of all the electronic waste and products are very much essential and use of less harmful material and chemical are important;
- Use of Tin/ Copper/ Silver/Alloy are needed and better for reducing temperature.
- Lack of basic initiative and planning on Green Computing and IT is very much essential and needed for Green IT Implementation.
- Keep use of Information Design, Information System according to eco friendliness is very much important and essential.

CONCLUSION

Modern Information Science and Technology is deals with computers and so many electronic products such as router, switch, server, hub, mainframe machine and so on and all such

products are any how released harmful chemical and responsible for the global increasing temperature[16,19]. Recycling of material, minimizing use of non bio degradable components and important for the sustainable resources. Virtually Green IT and Computing practice is gaining popularity around the world. Governments, MNC, IT products developer are equally responsible for creation of products which support Green initiative many ways.

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