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Green Computing

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ABSTRACT: Green computing is an effective approach towards designing, manufacturing, using and disposing of computers and its resources with minimal or no impact on environment. The goals of Green computing is to manage the power and energy efficiency, choice of eco friendly hardware and software, and recycling the material to increase the product's life. The term Green computing came into existence with the launch of Energy Star program in 1992 by U.S environmental protection agency. It aims towards electricity saving and less amount of heat generated by the computers. Widespread use of computers and related IT products has a very bad effect on the environment. Personal Computers are bad for environment because they are not biodegradable and the parts and pieces will be around forever and are rarely recyclable. Environment pollution could be because of the defects in manufacturing echniques, disposal techniques for computers and components. There are toxic chemicals used in the manufacturing of computers and when we use informal disposing they put harmful impacts on our environment. So to save our environment and to reduce the harmful impacts of computers we have to aware about it. Green computing can
also develop solutions that offer benefits by aligning all IT processes and practices with the core principles of sustainability, which are to reduce, reuse, and recycle. The concept of Green computing has begun to spread in the past few years, gaining increasing popularity. This research paper describes that today computer is an essential part of our life, No one can not to do any work without computer, but we have to be aware about the harmful effects of computer on our environment. We discuss about the various efforts to improve the green computing.

I. INTRODUCTION

Green computing is an effective study in which disposing, recycling and manufacturing of computers and electronic devices is taken into consideration. The goal of green computing is to lower down the use of hazardous materials, maximize energy Green computing is working for saving the environment. Green technology concentrates on reducing the ecological impact of industrial processes and inventive advancements caused by the Earth's growing population. It has taken upon itself the objective of gives society's requirements in ways that don't harm the natural resources. That means making completely recyclable products, diminishing pollution, proposing alternative technologies in different fields, and creating a centre of economic activity around technologies thatadvantage the environment. Green computing is the ecologically mindful utilization of the computers and related resources. Such practice incorporates the implementation of energy efficient central processing units (CPU), servers and associated devices and additionally decreased resource utilization and proper disposal of electronics waste one of the earliest initiative toward greencomputing in the United States was the voluntary labelling program knows as energy star. The Green Electronics Council offers the Electronic Products Environmental Assessment tool (EPEAT) help in the purchase of "Green" computing systems. The Council assesses computing equipment on 28criteria that measure of a product proficiency and sustainability attributes. Interestingly, organizations in each industry, from nonprofits to consumer goods, are paying much close attention to their energy bill, as the amount spent on data centre energy has doubled in the past six years. The uplifting news is that computer companies are talking about greenness and are touching green program these days. At present the ICT industry is responsible for 3% of the world's energy consumption. With the rate of consumption expanding by 20% a year, 2030 will be the year when the world's energy consumption will double because of the ICT industry. Organizations utilize the Green Computing Lifecycle when designing and implementing green computing technologies. The steps in the Lifecycle incorporate Strategy, Design, Execution, Operations and Continual Improvements. The five main green computing technologies advocated by GCI are Green Data Center, Virtualization, Cloud Computing,Power Optimization and Grid Computing.

II. WHAT IS THE GREEN COMPUTING?

Green computing is an application of environmental science which offers economically possible solutions that conserve natural environment and its resources. Green computing is designing, manufacturing, using and disposing of computers and its resources efficiently with minimal or no impact on environment. The goals of Green computing is to manage the power and energy efficiency, choice of ecofriendly hardwareand

software, and recycling the material to increase the product's life. Go for Green computer reduced your electricity bill and give a full rest to your mind. Now in these days, we use the star management strategies and technologies that reduce energy consumption waste.

III. HISTORY OF GREEN COMPUTING

Green computing is started in the 90's when US environment protection energy launched the Energy Star Program. Energy star is a program of label awarded to computers and other electronic devices. It is basically used to minimize the use of the energy and maximize the efficiency of the product/device. This labeling program is basically designed to promote and recognize the energy efficiency in monitors, climate control equipment and other technologies. This technique basically increases the adoption of "sleep mode" among consumer's electronics. According to Wikipedia "The low magnetic and electrical emission program was first launched by the Swedish organization TCO. It issues the certification from cathode ray tube (CRT) based computer displays. This program was later extends to include criteria on energy consumption and use of hazardous material in construction."

IV. WHY GREEN COMPUTING

The E-waste minimized by Green computing and with the help of Green computing people save the power. Understanding the ways in which power consumption affects the greenness of any technology, and particularly computing technology, is an essential part toward diminishing this consumption and teaching others. This segment describes the various specific techniques that can be used to diminish power consumption. waste, and money of how to utilize innovation, which positively affects the nature, and our expenses.

4.1) Turn off equipment when not being used

Shutting down equipment is the simplest, best and most clear approach to reduce computing power consumption. With the assistance of turn off equipment, power can easily save when not in use computer, printer, and its associated devices. Computers have become such a essential part of everyday life that numerous PCs are left power on around the clock, and are frequently done as convenience to the user. This convenience is costly since the easiest act of powering off a computing device will significantly reduce the power consumption, although it is important to note that many gadgets may still consume a small amount of power. Computer saves more power on standby mode, which is generally used for stopping working. In some time such as few minutes. In industry area can also save the power with the standby mode because anyone does not work on computer then it is automatically get standby mode.

Fig.1 Shut Down PC

4.2) Computer power saving modes

The computer has many features to reducing power consumption. Screen saver is one of the simplest and more family power saving methods of computers. The typical graphical screen savers initially design to minimize "burn in" of PC, actually add to power utilization. Rather than using a 3D graphics screen saver, and with screen burn in no longer a worry, the power utilization by intensive graphics is eliminated, prompting to the computer nodding off after a time of idling, therefore saving still more power. The system standby mode is likewise utilized for power saving. After a preset idling period, a PC will shut down most of its associates fundamentally diminishing power use. Volatile memory stays active so that whatever the client was working on

will still be there when the PC wakes up from standby mode. A desktop that uses more than 100 watts sitting out of gear can use as meagre as 5 watts when in standby mode, using 1/20 of the power it used when sitting out of gear. PC sleeping mode, allowing the monitor to nod off after idling for some time period is another effectively utilized system for enhancing nergy proficiency. At the point when a monitor nods off or nters a "stand by" mode, it enters a low power utilization tate. The PC screen will be blank, with no light emitting fromit.

4.3) Potential advantage

The ever rapid growth of technologies and advancements elivers numerous ways on how green computing will have a positive impaact along with incredibleadvantages . The advantage of green computing is large, not only from just the consumer or business, or nation's standpoint, but a worldwide advantage. Green computing helps reduce energy demands, fact of the technique for green computing can likewise advantage in simple ways, methods such as turning off your PCs during the night. Hibernate mode allows to shut everything down. But the difference from sleep/standby mode is how it is storing your information in the Random Access Memory (RAM); it will write all the information to the hard drive and close everything down. This permits client to shut down memory as in standby by client can't. But memory doesn't use much power. In this way, we prescribe this choice for only laptop users if it is running on battery then user can automate this idle after 30 minutes.

4.4) Cloud Computing

Use most recent technologies that avoid to setting up user own hardware/software infrastructure, with cloud computing user can do that. HaaS means hardware as a service allows user to use hardware from remote locations through visualization.

4.5)Recycling of old devices: - Manufacturing of new computer devices from the old ones by using techniques. Formal recycling technique is being used by many companies. It is being performmed in a special laboratory. By using these Recycling techniques we save our environment.

4.6)Set up your Power Plan for Pc: - You have to set up an effective power plan for your PC. It can save lot of electricity for you. If computer consume more electricity then it is more harmful for our environment.

4.7)Stop screensavers: - keep your screensaver off because it also use's electricity even when computer is not in use.

4.8) Buy energy star labeled products: - Energy star products are manufactured keeping in mind the term of green computing and its features. These products are manufactured on the idea of use less power consumption. These devices are programmed power down to low power state when they are not in use.

Advantages of Green Computing

1)) The major advantage of Green Compu uting is it reduces energy usage through green computing techniques that controls the carbon dioxide.
2)) Green Computing uses le ss energy for electronice products during there pro oduce, use and dispose.
3)) By using th his technique it saves energy and a money too .
4)) Green computing even includes environment policy to encourage recycling and lowering energy use by individ duals and business.
5)) It is a powerful approach to utilize resources such as computers, office space, heat, light, electrical power in an en nvironmental friendly way.

Disadvantages of Green Computing

1) The major disadvantages of Green computing could be actually quite costly .
2) Some computers that are green may be considered under powered.
3) Rapid technology change.

V. CONCLUSION

Thus Green computing aims to reduce the unwanted and harmful effects of computers on the environment by reducing air, water and soil pollution.Though the challenges are many but with the ever increasing research in the fields of science and technology, we can overcome the hindrances. Through the small steps that each one of us takes towards adopting green computing measures, we can make our environment congenial for healthy growth.

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