Althobaiti, J Comput Eng Inf Technol 2020, 9:5
DOI: 10.37532/jceit.2020.9(5).238

Journal of Computer Engineering & Information Technology

Review Article

A SCITECHNOL JOURNAL

Research on Human Computer Interaction

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Abstract

Human-Computer Interactions (HCI) were established in the early 1980s with a strong computer science specialization. The relationship between human-computer engineering and cognitive science encompassed human factors. In the last thirty years, human-computer experiences have been expanding rapidly and swiftly, drawing practitioners from other fields and allowing them to integrate their different methods and concepts. More than 80% of human computing experiences are anticipated by speech recognition during the next five years. In the last two centuries, computer use has increased exponentially in all the social fields easing operations and enhancing human life. The most critical elements of HCI are usability and functionality, which enhances the interactions.

Keywords

Cloud Computing; Cloud Broker; Green ICT; Higher Educations; Framework; Emerging Technologyenergy-efficient

Introduction

HCI Components

Human-computer interaction refers to developing and implementing computing platforms that interact with users through embedment. The HCI field aims at studying the mutual communication links between the computers and their users. The area comprises the equipment and tools that enhance the user interface (UI), software, and hardware. The HCI's main components are the user, computing tool, computing interface, and the computing task. The most profound UI element is the interface's friendliness, which is the best implemented in the Windows operating system. The rise of the technology era has also brought along the HCI elements in the website platforms, which are prominent modern-day communication elements[**1**]. Besides, mobile applications have arisen with the advent of new technological advancements in software and hardware. The essential feature of the applications and tools used in computing is attractiveness and ease of use during interactions.

Essential Features of the HCI

Since the basic features of the HCI are to improve the interactions, the fundamental elements aim at achieving ease of use and businesses of the computing devices ranging from mobile to super frame computing nodes with regards to humans. The use of buttons, icons, and menus are among the prime features that have made computing friendly since they are based on the graphical user interface (GUI) friendliness. There are several ways in which the HCI elements are utilized to ensure that the interactions between humans and computing devices and platforms serve their purpose better. The design used in HCI enhancement is user-centered approaches to meet social expectations through programming and then implement in visual hardware elements [**2-4**]. The WIMP features of the windows-based OS improve the computing interactions with the consumers, as shown below.

Window: It separates programs from each other so that users can switch between applications running.

Icon: It serves as a shortcut for a computer node's behaviour, such as running a program or a mission.

Menus: It is a method for choosing and executing programs or tasks based on text or icons.

Pointer: It is an on-screen symbol that indicates a physical device's movement and is operated by the user to pick data or icons.

These strategies include the user interface, job organization, program functions, and so forth. These techniques are designed to assess different factors, such as adequacy, data management, interface failure, etc. The technology has created opportunities to increase software quality, ease of use, success rate, cost efficiency, etc. The critical task is software transparency for potential improvements. These HCI interfaces refer to community activities, and these techniques are checked for this aspect [**5**]. Designing new interfaces and technical interactions: new interfaces to be built in the future have several roles, such as data management and filtering, input devices and sensors, ability to learn, user satisfaction, etc. The new design is Virtual Reality (AR). This design is focused on the design of virtual reality [**6**].

The primary goal of this research study was to investigate and analyze the ICTs usage by using a case study of organization BHU with green factors consideration and selecting a most appropriate technology based products and services that can ensure energy efficient usage of ICTs and enhance the organization's ICT usage one step towards green or energy efficient products and services [**7,8**]. As a final research contribution, the study designed and developed Green Cloud Adoption Decision Support Matrix Framework for Green ICTs that is assumed to be a most suitable for educational institution like BHU and will give a new knowledge-based decision support base line for the organization having similar types of structures and operations in developing or under developed countries. After discourse analysis of investigated facts, observations and case-based simulation of different conceptual and technical artifacts and frameworks; Green Cloud Adoption Decision Support Matrix Framework for Green ICTs has been produced for advising energy efficient or greener ICT products or services with assurance.

Conclusion

In this study newly introduced energy directory will be able to provide information about the CO_2 emission rate, the power source

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Received: October 14, 2020 **Accepted:** November 16, 2020 **Published:** November 23, 2020

doi: 10.37532/jceit.2020.9(5).238

used by cloud service providers along with other green offers announced by cloud service providers to the users or decision makers. The designed framework is just a road map for the adoption of cloud computing for energy efficient usage of ICTs. Thus, the Energy Efficient Cloud Service Broker integrated with third party outsourced Green Information Directory can be a significant middle tier decision support system to help users, organizations and decision makers.

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