

Role of Electronic Components in Computing

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Abstract: Electronics and computer engineering is a scientific and technical field in which electronic and computer systems are studied and their use. They are related to the technical professions within which electronic devices, systems, and computer programs are realized. The past half-century has been greatly marked by the development of electronics, computing, and their application in communications, medicine, and industry. This field has become the fundamental technical infrastructure of modern society. Today, there is almost no electronic device that does not use an electronic computer, and there is also not a single computer that is almost exclusively made of electronic components. This article explores the need for electronic components in digital computing.

Keywords: Future Internet, Electronic Components, Computer Engineering, Information Technology, Digital Computing

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1. Introduction

The computations are performed in the industrial domains using various software [1]. The combined hardware and software solutions are better than software that runs on the microprocessor. The digital system applies discrete values represented by on and off states in computing [2]. The advanced information services and infrastructures are developed using the latest digital technologies.

2. Electronic Components

One of the digital communication mediums is an optical fiber with data rates of 100 Gbps. In wireless area networks (WAN), an optical switch and multiplexing schemes are allowed to speed up the limits. Examples of optical sources include injection laser diode (ILD), and light-emitting diode (LED). The optical fiber cable is used for data and voice communication. The internet world runs using the components like modems, telephone lines, and dial-up services [3,4]. The future internet requires millions of digital machines, devices, robots, sensors, digitized, smart objects, and the Internet of Things (IoT). The working environments require a set of electronics that includes actuators, processors, controllers, displays, projectors, digital cameras, systems, communicators, gateways, smartphones, and high-definition displays. Information technology involves the latest innovations in different fields such as soft and hard computing, microprocessors, microelectronics, cloud computing, telecommunications, optoelectronics, fiber optics, and semi-conductors. These findings enable the storage and processing power of a large amount of information over the wireless and wired network channels.

3. Conclusions

Electronics deals with the study and control of the flow of electrons and electronic circuits consisting of passive and active electronic elements. Passive electronic elements are resistors, capacitors, coils, active electronic tubes, transistors, diodes integrated analog and digital circuits, rectifiers, and amplifiers. Hence it is necessary to know the fundamentals of electronic system components to solve the real-world applications [5-8].

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