

APPLICATION OF COMPUTERS IN MILITARY: HISTORY AND MODERN TRENDS

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Анотація

Публікація досліджує історичне значення та еволюцію військових комп'ютерів, зокрема їхній глибокий вплив на загальну сферу розвитку комп'ютерів. Висвітлено проблеми, з якими стикнулися розробники перших військових комп'ютерів та тенденції, які вони заклали для подальшого розвитку індустрії в цілому.

Ключові слова: комп'ютер, кодувати, військовий, машина, розрахунки, Colossus, ENIAC, пристрій, система.

Abstract

The publication explores the historical significance and evolution of military computers and their profound influence on the general field of computer development. The problems faced by the developers of the first military computers and the trends they set for the further development of the industry as a whole are highlighted.

Keywords: computer, encode, military, machine, calculations, Colossus, ENIAC, device, system.

Introduction

In recent decades, computers have become very widespread in the everyday lives of people worldwide. Computers are truly indispensable nowadays. Therefore, it is quite logical that in the human imagination, a computer perceived as something ordinary, helpful and safe. However, the reality is that the first computers ever were not produced for civilian purposes but for military applications.

During the early years of the computer era, everyday use was not even a consideration, leading to the emergence of military computers as a distinct branch in the field of computer development, distinguished by their unique capabilities.

The purpose of the work is to describe the historical significance and evolution of military computers, emphasizing their profound influence on the entire industry of computer development in purpose to illustrate the pivotal role that military computers have played in shaping the landscape of modern computing.

Research results

The British Colossus [1] is considered the first computer ever created for military purposes. Its history began in WWII when radio communication between Hitler and the headquarters of the ten main army groups was carried out using an incredibly powerful Lorenz cipher, which employed a new code for each message. Consequently, the British army needed to devise a new method for decoding enemy information. In 1943, Max Newman and Thomas Flowers designed a special computer – Colossus. It proved to be a successful device, as Colossus could encrypt messages within a few hours, a task that would have taken weeks through manual efforts.

However, the machine faced a significant issue. The developers consistently warned against turning off the machine altogether, as hundreds of lamps inside often burned out upon turning on or off. As a result, all Colossus computers remained operational throughout the war, rendering the device exceptionally reliable.

Another example of military computer is an American Electronic Numerical Integrator and Computer (ENIAC) [2]. It was a completely secret device. The US army felt the need for such machine in 1943 when it landed in North Africa. In that case American servicemen needed lots of new artillery tables which required huge calculations. ENIAC was 1,000 times faster than anything else in existence at the time, capable of performing 5,000 additions per second. ENIAC later became the base of nuclear weapons developing.

These machines became the basis for further developments in this area. So the next step of developing military computers was anti-air defense systems. Fighter jets and rockets became faster and faster every year. Obviously, the human reaction was insufficient to intercept any of these objects. That's why computers had to perform immediately in incredibly fast way. This conception led to automatic mode of anti-air systems which is provided by computers. This technology proved its effectiveness in intercepting even hypersonic missiles. Modern air defense systems are completely dependent on computers, making them indispensable in this field.

Active Protection Systems (APS) represent cutting-edge technology designed to enhance the survivability of military vehicles, particularly tanks, against incoming threats such as anti-tank missiles and rockets. These systems operate by utilizing radars positioned outside the vehicle to detect incoming projectiles aimed at the tank. Once detected, the information is rapidly processed by on-board computers, which then coordinate the activation of interceptors to neutralize the threat. This system is very expensive and modern, so only a few types of tanks are equipped with it nowadays. Obviously, military computers play a key role in this technology as well.

Conclusion

The military computers have played a crucial role in shaping modern computing. From the earliest models like Colossus or ENIAC to today's advanced systems like APS, they have revolutionized military operations and influenced computer development as a whole.

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