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**DOI: <https://doi.org/10.30546/09090.2025.01.2018>**

## INTERACTION TECHNOLOGIES AND APPLICATIONS (INTERACTION TECHNOLOGY IS EASILY UNDERSTOOD BY PEOPLE)

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ARTICLE INFO	ABSTRACT
<i>Article history:</i> Received: 2025-02-12 Received in revised form:2025-02-12 Accepted: 2025-04-04 Available online <hr/> <i>Keywords:</i> Interactive technology, Interactive applications, The Internet of Things (IoT), Computer hardware, Gestural technology, Physical interfaces, High Dynamic Range (HDR), RFID, CAVE	The thesis discusses interactive technologies for creating easy-to-understand programs by minimizing latency. What interactive technology is and where it is used have been investigated. Which technologies can be interactive, how can we create interactive programs with basic elements, the design of interactive applications, its negative and positive aspects, and such issues are analyzed. Its primary benefit in the management field is explained, and its applications to increase efficacy in various sectors are also discussed. In this thesis, we can see the importance of the interactive approach and its positive impact on other areas. At the same time, we will witness that future life will be mostly interactive, and people will reach their goals more easily thanks to applications. It is emphasized that the main starting point for the interaction of developed technologies is good design, and what are the necessary conditions for this design.

### Introduction

Humans use more sophisticated interfaces to communicate with technology, progressing from standard keyboards to touchscreens, voice commands, and beyond. Even these engagement patterns are being replaced by fresh, easier, and more organic ways to communicate. Images and video streams, for instance, may be utilized to track assets, confirm personal identities, and comprehend the context of surrounding locations. Enhanced speech capabilities enable natural, nuanced discussions with complicated systems. Additionally, AI-based systems may respond to nonverbal user orders by interpreting human gestures, head movements, and gazes. Modern human-centered design methodologies are combined with cutting-edge technology like computer vision, conversational speech, audio analytics, and enhanced augmented reality and virtual reality to create intelligent interfaces. Together, these methods and tools are revolutionizing how we interact with technology, information, and one another.

## What is interactive technology and app?

Here is a simple explanation of how Interactive Technology works as letters and individual words. They serve as the foundation for the tale you want to tell and the feelings you want to elicit.

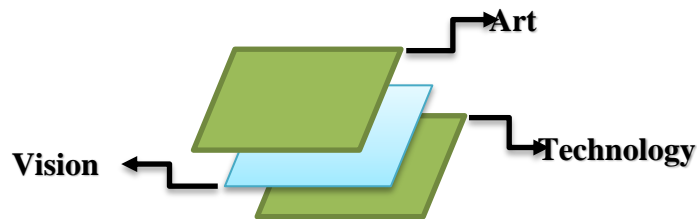
There are several ways to characterize interactive technology. For my purposes, I'll define it as follows: Technology designed and built for real-time applications, with an emphasis on human/user input and environmental sensing. Interactive technology enables a two-way flow of information between the user and the technology via an interface; the user typically sends a request for data or action to the technology, with the technology returning the requested data or the outcome of the action to the user.<sup>[1][10]</sup>

An interactive application is one in which you enter information and receive instant results. As a result, the program interacts with you and what you enter. The program should reply to your input promptly.

### What makes a great interactive application

Interactive applications are essentially any application where you input information and you gain immediate output. Thus, the application interacts with you and what you input. The application should respond to your input immediately.

#### 1. Art



An interactive app's major component is art. Because a projection is just how we perceive and experience something, how we feel it. The artist who discovers the perfect pattern that fits the people's ideas becomes renowned. Let's look at a real-world case. When we meet new individuals, we are drawn to their outward looks. Next, we take a look inside. This is frequently the case. As a result, art assists people in seeing the consequences in the most attractive way possible.<sup>[1]</sup>

#### 2. Vision

We all see the world through the lenses of our senses. We hear, feel, and do a variety of other things. Vision is perhaps the most crucial mode of perception for humans. Vision connects our brain to the outside world, making it much simpler to engage with it. Blind individuals see the world through their other senses, which are significantly more sophisticated.

#### 3. Technology

We now have a variety of tools to assist us to comprehend each other and the world around us through its projection. We have books, radio, television, computers, and smartphones. We all adore cell phones. We can carry the entire world's information in our pockets.

We began with a grayscale flat snake game and have moved to 3D colorful games with HDR and a wealth of other inventive applications with projection details. We can now see a courier driving a vehicle on a 3D map and accurately anticipate the delivery time. The primary

issue, here is 3D. Even on a flat screen, humans may perceive things that are remarkably close to their original forms and proportions. Remember the growth of Google Maps? Initially, we see flat maps of certain towns, then countries, then the entire planet, and ultimately, satellite photos materialize in front of us. We are seeing more and more 3D on flat maps. But why did they decide to add 3D when we already have satellite images? The solution is straightforward: we require a better representation of the real environment. Images are not interactive; they cannot be rotated and always display the same projection. With 3D maps, you can view anything from many perspectives, giving you a comprehensive grasp of many real-life elements.<sup>[1]</sup>

### **Use of interactive technology**

The applications of interactive technology are numerous and diverse. They are used in a variety of settings, including education, training, marketing, and data collection. Smartphones are the best example. The smartphone is a powerhouse of interactive technologies, and it is so widely used that people of all ages, nationalities, world views, and so on have used one. Regardless of brand or model, many of them use the same fundamental technologies. They have touch screens with gesture controls. These are excellent examples of interactive technologies in use in our daily lives.

#### **1. Education and training**

Interactive technology in classrooms is a type of educational technology (EdTech) that allows students to not only view information but also interact with the content in their lesson. With new educational technology tools being developed on a daily basis, it is becoming easier than ever to create interactive classrooms. It could be a while before we see interactive whiteboards in every classroom or individual tablets on every student's desk. However, an increasing number of schools, universities, and colleges are utilizing interactive technology to transform the way their students learn.

#### **2. Marketing**

Over traditional methods of gathering consumer data, interactive technology has two distinct advantages. For starters, it allows information to be gathered in real-time, allowing for faster responses to customers than traditional media. The more orders a consumer places on Amazon.com, for example, the more information about that consumer's reading preferences is gathered. There are numerous benefits to employing interactive marketing, especially given that customers expect businesses to surpass their expectations. Organizations that use interactive marketing have a better chance of addressing the needs of their customers because they have already expressed an interest in the product and marketers can respond to their actions. Because it is based on customer behaviors and wishes, interactive marketing decreases risk and boosts sales. Personalization in interactive marketing leads to increased conversions and higher income. Ultimately, interactive marketing can increase sales, improve consumer satisfaction, reduce marketing expenses, and pave the way for automated marketing

#### **3. Information gathering**

Traditional approaches benefit from interactive documents. Surveys that try to evaluate satisfaction with new product expectations and answers can be more effective when conducted using interactive multimedia. In the above scenario, Amazon.com would have more trustworthy information about a consumer's choices than any paper survey it could ask the public to

complete. These surveys may collect more information since they are more fascinating than their paper counterparts.

### **Interactive design of technologies**

Designing interactive products to support the way people communicate and interact in their every day and working lives. Interaction design relies on an understanding of the capabilities and desires of people and on the kinds of technology available to interaction designers, as well as the knowledge of how to identify the requirements and evolve them into a suitable design.

Designing visible interactive products requires considering who is going to be using them, how they are going to be used, and where they are going to be used. Another key concern is understanding the kind of activities people are doing when interacting with the products. The appropriateness of different kinds of interfaces and arrangements of input and output devices depends on what kinds of activities need to be supported. A key question for interaction design is: how do you optimize the users' interactions with a system, environment, or product so that they support and extend that users' activities in effective, useful, and usable ways? One could use institutions and hope for the best. Alternatively, one can be more principled in deciding which choice to make by basing them on an understanding of their users.<sup>[6]</sup> This involves:

- Taking into account what people are good and bad at.
- Considering what might help people with the way they currently do things.
- Thinking through what might provide quality user experiences.
- Listening to what people want and getting them involved in the design.
- Using 'tired and tested' user-based techniques during the design process.<sup>[6]</sup>

### **The Rise and Impact of Interactive Technologies**

#### **1. Enhanced Communication:**

Interactive technologies have drastically transformed communication, making it more instantaneous and immersive. Social media platforms, video conferencing tools, and messaging apps have connected people across the globe, transcending physical boundaries. The ability to share information, images, and videos in real-time has facilitated the exchange of ideas, fostered collaboration, and enriched personal connections. Moreover, interactive technologies have given rise to virtual communities, enabling individuals with shared interests to connect and interact, regardless of their geographic location.

#### **2. Revolutionizing Entertainment:**

The entertainment industry has been profoundly impacted by interactive technologies. Video games, for instance, have evolved from simple pixelated graphics to immersive virtual worlds, powered by advanced graphics, motion sensors, and haptic feedback. Players can actively engage with the virtual environment, controlling characters and influencing narratives, creating a more personalized and immersive experience.

#### **3. Transforming Education:**

Interactive technologies have revolutionized education, enhancing the learning experience and expanding access to knowledge. Interactive whiteboards, digital textbooks, and online

learning platforms have made education more engaging and interactive. Students can now participate actively in their learning process, accessing multimedia resources, simulations, and interactive exercises. Virtual reality and augmented reality have taken this transformation even further, enabling students to explore historical sites, conduct virtual experiments, and experience immersive simulations, making learning more memorable and impactful.<sup>[9]</sup>

#### **4. Reshaping Business:**

Interactive technologies have disrupted traditional business models, opening up new opportunities for innovation and growth. E-commerce platforms have revolutionized the way people shop, providing personalized recommendations, immersive product experiences, and convenient payment options. Augmented reality applications have allowed customers to try on virtual clothes, visualize furniture in their homes, and preview products before making purchasing decisions.

#### **5. Advancements in Healthcare:**

Interactive technologies have played a crucial role in healthcare, improving diagnostics, treatment, and patient care. Virtual reality and augmented reality have been employed to simulate surgeries, train medical professionals, and assist in rehabilitation. Telemedicine has become increasingly popular, allowing patients to consult with doctors remotely, reducing barriers to accessing healthcare services. Wearable devices and mobile apps have empowered individuals to monitor their health and receive personalized feedback, promoting preventive care and well-being.

### **The Rise and Impact of Interactive Apps**

Interactive apps have experienced a significant rise in popularity, transforming the way we engage with technology and consume digital content. These apps provide dynamic and engaging experiences, allowing users to actively participate and manipulate the content, creating a more personalized and immersive environment. This essay explores the rise and impact of interactive apps across various industries, including education, entertainment, productivity, and social networking.

#### **1. Education:**

Interactive apps have revolutionized the education sector, making learning more accessible and engaging. These apps offer interactive content, simulations, quizzes, and puzzles that cater to different learning styles and encourage active participation. Students can access educational material anytime, anywhere, and at their own pace. Gamification elements, such as badges and rewards, motivate learners and enhance their learning experience. Interactive apps have also enabled distance learning and remote education, providing access to quality education beyond traditional classrooms.<sup>[4]</sup>

#### **2. Entertainment:**

Interactive apps have had a profound impact on the entertainment industry, transforming the way we consume and interact with media. Gaming apps, in particular, have seen tremendous growth, offering immersive and interactive experiences across various genres.

#### **3. Productivity:**

Interactive apps have significantly impacted productivity by providing tools and features that enhance efficiency and organization. Productivity apps, such as task managers, note-taking

apps, and project management tools, offer interactive interfaces that allow users to easily manage and prioritize tasks. These apps often provide collaboration features, enabling teams to work together seamlessly.

#### **4. Health and Well-being:**

Interactive apps have made a significant impact on health and well-being by promoting active lifestyles, mental wellness, and personalized health management. Fitness apps offer interactive workout routines, tracking progress, and providing real-time feedback. Meditation and mindfulness apps offer interactive features that guide users through relaxation techniques and stress management exercises.

#### **Disadvantages of Interactivity**

While interactive technologies have brought numerous benefits and advancements, it is essential to recognize that there can be negative sides to their use. Here are some potential drawbacks and concerns associated with interactive technologies:

##### **1. Social Isolation:**

As people spend more time engaging with interactive technologies, there is a risk of increased social isolation. Excessive use of interactive apps and devices may lead to decreased face-to-face interactions, causing individuals to feel disconnected from real-life relationships. This isolation can have detrimental effects on mental health and interpersonal skills.

##### **2. Physical Health Issues:**

Extended use of interactive technologies, particularly gaming apps and virtual reality systems, can contribute to sedentary behavior and a lack of physical activity. Prolonged screen time and poor posture can lead to musculoskeletal problems, obesity, and other health issues. Additionally, excessive exposure to screen-based interactive apps may disrupt sleep patterns and contribute to sleep disorders.

##### **3. Privacy and Security Concerns:**

Interactive apps often require access to personal information and data. There is a risk of this data being misused or falling into the wrong hands, leading to privacy breaches, identity theft, and other security concerns. Additionally, the collection and storage of personal data by interactive apps raise ethical questions regarding consent, transparency, and the use of personal information for targeted advertising.

##### **4. Inequality and Access:**

Not everyone has equal access to interactive technologies due to factors such as economic disparities and limited digital infrastructure. This can create a digital divide, exacerbating existing inequalities. Those without access to interactive apps may face disadvantages in terms of education, employment opportunities, and social inclusion.<sup>[9]</sup>

#### **Conclusion**

Interactive technologies have become an integral part of our lives, revolutionizing communication, entertainment, education, business, and healthcare. These technologies have

enhanced our ability to connect, learn, and engage with the world around us, opening up new possibilities and transforming traditional practices. As interactive technologies continue to advance, it is crucial to ensure their responsible and ethical use, addressing concerns related to privacy, security, and social impact. By harnessing the potential of interactive technologies wisely, we can unlock a future that is more connected, immersive, and enriching for individuals and societies worldwide.

Interactive apps have experienced a remarkable rise in popularity, transforming various industries and impacting our daily lives. From education and entertainment to productivity and social networking, these apps have revolutionized the way we engage with technology and consume digital content. With their dynamic and immersive experiences, interactive apps have enhanced learning, entertainment, productivity, and well-being. As technology continues to advance, interactive apps will continue to shape the future of digital experiences, providing innovative and engaging solutions for users around the world.

Finally, interactive apps engage and capture the audience, give the proper message to consumers, and extend the life of the product. We can conclude that interactive technology manages to be at the center of our lives in a variety of ways, including education, marketing, and, most notably, cell phones, and has had a significant positive impact on my life. It is dependent on how we employ it.

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