

Haptic Technology Market Report by Component (Actuators, Drivers and Controllers, Software, and Others), Feedback (Tactile, Force), Technology (Captive, Resistive, and Others), Application (Automotive and Transportation, Consumer Electronics, Education and Research, Gaming, Healthcare, Engineering, and Others), and Region 2024-2032

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# **Abstracts**

The global haptic technology market size reached US\$ 10.2 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 25.4 Billion by 2032, exhibiting a growth rate (CAGR) of 10.5% during 2024-2032. The rising use of smartphones and wearable devices, the emergence of virtual and augmented reality in various sectors, and numerous advancements in automotive user interfaces are some of the major factors propelling the market.

Haptic technology refers to the use of touch feedback to recreate the sense of touch in digital interactions. It provides tactile sensations through forces, vibrations, or motions to the user, enriching the user experience in various applications such as smartphones, gaming controllers, and virtual reality systems. The technology is particularly beneficial for creating more immersive experiences in digital platforms, allowing users to "feel" virtual objects or get tactile feedback when performing digital tasks. By simulating the sense of touch, haptic technology offers a more natural, intuitive way to interact with electronic devices, thereby enhancing user engagement and satisfaction. At present, haptic technology finds extensive applications in consumer electronics, medical training, automotive controls, and remote operations across the globe.



The escalating demand for improved user experiences through haptic feedback due to the widespread adoption of smartphones, tablets, and wearable devices that relies on touch interfaces, will stimulate the growth of the haptic technology market during the forecast period. Moreover, numerous advancements in virtual and augmented reality technologies across sectors like gaming, healthcare, and education necessitate more immersive tactile experiences, thereby fueling the need for sophisticated haptic systems. Apart from this, the shifting preferences of automotive industry toward more advanced and safer user interfaces, incorporating tactile feedback for functions like navigation and control, is another major growth-inducing factor. Furthermore, the heightened focus on remote operations and telepresence, especially in medical procedures and industrial applications has accelerated the adoption of haptic technology for more precise and tactile feedback, contributing to market growth.

Haptic Technology Market Trends/Drivers: Rising use of smartphones and wearable devices

The exponential growth in the use of smartphones and wearable devices like smartwatches has been a major driving force in the haptic technology market. These touch-enabled devices are integral to our daily lives, and haptic feedback enhances the user experience by making interactions more intuitive and engaging. For instance, the tactile feedback provided when a user taps a virtual button or receives a notification adds a dimension of realism and responsiveness. This enhanced user experience elevates the device's appeal and encourages consumer loyalty. Manufacturers are investing heavily in incorporating advanced haptic technologies to differentiate their products in a competitive market. As the demand for sophisticated user interfaces continues to grow, especially with newer applications like foldable phones and wearable medical devices, haptic technology will increasingly become a standard feature, thereby fueling its market growth.

Rapid advancements in virtual and augmented reality

The rapid development of virtual and augmented reality technologies is propelling the market forward due to the rising need for an immersive experience in applications such as gaming, entertainment, professional training and healthcare. Haptic technology provides tactile feedback that enhances the realism and interactivity of virtual environments which has accelerated its adoption rate. For example, in surgical training simulations, haptic feedback can mimic the feel of tissue and provide real-time responses, significantly improving the training experience. Companies specializing in



VR and AR are also collaborating with haptic technology providers to create more realistic and engaging experiences, thus fostering innovation and market growth.

Increasing automation of automotive industry

The automotive industry is increasingly integrating haptic technology into vehicle interfaces for safer and more intuitive user experiences. From touch-screen infotainment systems to steering wheel controls, haptic feedback helps reduce driver distraction by providing tactile cues. For instance, a driver could receive a haptic alert through the steering wheel for lane departure warnings. As cars evolve with more advanced features like autonomous driving, the role of haptic feedback in ensuring safety and comfort becomes even more critical. Automakers are collaborating with technology providers to incorporate haptic systems in luxury models and in massmarket vehicles. This widespread adoption in the automotive sector significantly contributes to the growth of the haptic technology market.

Haptic Technology Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global haptic technology market report, along with forecasts at the global, regional and country levels from 2024-2032. Our report has categorized the market based on component, feedback, technology and application.

Breakup by Component:
Actuators
Drivers and Controllers
Software
Others

Actuators represent the most popular component

The report has provided a detailed breakup and analysis of the market based on the component. This includes actuators, drivers and controllers, software, and others. According to the report, actuators represented the largest segment.

Actuators are fundamental components in haptic technology, responsible for generating tactile sensations and vibrations that users can feel. They are mechanical devices or systems that convert electrical signals or energy into physical motion. Actuators play a pivotal role in enabling precise and realistic tactile feedback in a variety of applications. Whether it's the subtle vibrations in a smartphone's touch screen, the force feedback in



a gaming controller, or the lifelike sensations in virtual reality environments, actuators are at the core of delivering these experiences. Recent innovations in actuators include compact and energy-efficient designs that can be seamlessly integrated into various devices, making haptic feedback more accessible and immersive. As the demand for more engaging and interactive digital experiences continues to grow across sectors like gaming, automotive, healthcare, and beyond, the development of advanced actuators remains a key driver in advancing haptic technology and expanding its market reach.

Breakup by Feedback:

**Tactile** 

**Force** 

Tactile holds the largest share in the market

A detailed breakup and analysis of the market based on the feedback has also been provided in the report. This includes tactile and force. According to the report, tactile accounted for the largest market share.

Tactile feedback is a crucial component of haptic technology, allowing users to feel physical sensations and textures in their interactions with digital devices and virtual environments. It aids in enhancing user experiences across a wide range of applications. Tactile feedback adds a new dimension of realism and engagement, whether it's through the gentle vibrations of a smartphone screen, the convincing resistance of a gaming controller, or the detailed textures felt in virtual simulations. As consumers and industries demand more immersive and interactive digital encounters, the development of sophisticated tactile feedback mechanisms becomes paramount. Furthermore, numerous Innovations in tactile actuators and materials, capable of replicating the sense of touch with precision, are propelling haptic technology into new territories, including medical training, remote surgery, and augmented reality. This expanding scope for tactile feedback drives market growth by offering enhanced user interfaces and accelerating the adoption of haptic technology in diverse sectors.

Breakup by Technology:

Captive Resistive Others



The report has provided a detailed breakup and analysis of the market based on the technology. This includes captive, resistive and others.

Captive touchscreens are known for their responsiveness and multi-touch capabilities, making them ideal for smartphones and tablets that rely on haptic feedback for user interaction. Their ability to precisely detect touch gestures enhances the user experience, driving the demand for haptic technology in consumer electronics. Resistive touchscreens, on the other hand, are highly durable and are often used in rugged environments like industrial control panels and medical devices.

Furthermore, the integration of haptic feedback in resistive touchscreens improves the tactile experience for users in specialized applications. Both captive and resistive touchscreens are contributing to the expansion of the haptic technology market by catering to a wide range of devices and industries, from mobile devices to automotive controls and beyond, as they seek to provide more engaging and intuitive interactions with digital interfaces.

Breakup by Application:

Automotive and Transportation
Consumer Electronics
Education and Research
Gaming
Healthcare
Engineering
Others

Consumer electronics represents the leading application segment

A detailed breakup and analysis of the market based on the application has also been provided in the report. This includes automotive and transportation, consumer electronics, education and research, gaming, healthcare, engineering, and others. According to the report, consumer electronics accounted for the largest market share.

Consumer electronics encompass a wide range of electronic devices designed for personal and everyday use, such as smartphones, tablets, gaming consoles, smartwatches, and virtual reality headsets. These devices are integral to modern life and have become increasingly reliant on haptic technology to enhance user experiences. Haptic feedback in consumer electronics, such as the tactile vibrations in



smartphones or the realistic force feedback in gaming controllers, adds a crucial dimension of interactivity and realism. As consumers demand more immersive and engaging digital interactions, haptic technology plays a pivotal role in meeting these expectations. Manufacturers are continually investing in innovative haptic solutions to differentiate their products in a competitive market. As a result, the widespread adoption of consumer electronics, coupled with the integration of haptic technology, is a significant driving force behind the growth of the haptic technology market, influencing user satisfaction and shaping the future of digital interfaces.

Breakup by Region:

North America

**United States** 

Canada

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

Asia Pacific exhibits a clear dominance in the market

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific



(China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia Pacific accounted for the largest market share.

Asia Pacific held the biggest share in the market since the region boasts a burgeoning consumer electronics industry, with countries like China, South Korea, and Japan being major manufacturing hubs for smartphones, gaming devices, and wearables. Moreover, the integration of haptic feedback in these devices to enhance user experiences is a pivotal factor propelling the market expansion. Apart from this, Asia-Pacific is a hub for innovation, with numerous research and development centers focused on advancing haptic technology. Along with this, the rapid adoption of virtual reality (VR) and augmented reality (AR) technologies in the Asia-Pacific region, especially in gaming and entertainment, is creating a strong demand for haptic feedback solutions to provide more immersive experiences. Furthermore, the region's large and tech-savvy population is driving consumer demand for innovative and interactive digital interfaces, which, in turn, is fueling the growth of haptic technology in various applications, positioning Asia Pacific as the leading region in the market.

# Competitive Landscape:

The market is experiencing steady growth as key players are continually innovating to enhance user experiences and expand their market presence. They are focusing on innovations such as ultra-thin haptic actuators that can be integrated into various devices, providing precise and realistic tactile feedback. Companies are also exploring advanced materials and algorithms to create more lifelike sensations, allowing users to feel textures, vibrations, and even temperature changes in virtual environments. Additionally, there is a growing focus on haptic wearables, like gloves and suits, designed for applications in virtual reality, medical training, and remote operations. Furthermore, some key players are delving into 4D haptic technology, which adds the dimension of time to haptic feedback, enabling dynamic and interactive experiences. These innovations reflect a commitment to advancing haptic technology's capabilities and applications across a wide range of industries.

The market research report has provided a comprehensive analysis of the competitive landscape in the market. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

3d Systems Corporation Haption



Immersion Corporation
Johnson Electric Holdings Limited
Microchip Technology Inc.
ON Semiconductor Corporation
Precision Microdrives Ltd.
Senseg Oy (O-film Global HK Trading Limited)
SMK Corporation
Synaptics Incorporated
Tactus Technology Inc.
Texas Instruments Incorporated
Ultraleap Holdings Ltd.

# Recent Developments:

In September 2020, Johnson Electric Holdings Limited introduced a noteworthy addition to their range of professional hair dryer motor solutions, the ECI-050 brushless motor. This motor is designed to enhance the performance of hair dryers while remaining cost-effective. The ECI-050 brushless motor is a single-phase solution that brings improved efficiency and reliability to hair dryer technology. Its innovative design ensures that it operates smoothly and quietly, providing a seamless experience for users. Moreover, the motor's brushless nature contributes to its durability, making it a long-lasting choice for hair dryer manufacturers.

In June 2022, Microchip Technology Inc., introduced maXTouch Knob-on-Display (KODY) automotive-grade touchscreen controller. This innovative controller is designed to enhance the functionality of touch panels in vehicles by enabling the detection and reporting of capacitive rotary encoders and mechanical switches. It empowers touchscreens to recognize and respond to capacitive rotary encoders and mechanical switches, expanding the range of input options for drivers and passengers. This advancement enhances user interaction with in-vehicle displays, contributing to improved control and convenience.

In November 2022, Texas Instruments Incorporated launched cutting-edge Matter-enabled software development kits tailored for their Wi-Fi and Thread SimpleLink wireless microcontrollers, specifically the CC3235SF and CC2652R7 models. This announcement marks a pivotal step toward simplifying the integration of the Matter protocol into IoT applications. The newly introduced software development kits represent a remarkable leap in the world of IoT innovation. By tailoring these kits to their CC3235SF and CC2652R7 microcontrollers, Texas Instruments Incorporated is enabling IoT device manufacturers to create products that seamlessly communicate using the Matter protocol.



# Key Questions Answered in This Report

- 1. What was the size of the global haptic technology market in 2023?
- 2. What is the expected growth rate of the global haptic technology market during 2024-2032?
- 3. What are the key factors driving the global haptic technology market?
- 4. What has been the impact of COVID-19 on the global haptic technology market?
- 5. What is the breakup of the global haptic technology market based on the component?
- 6. What is the breakup of the global haptic technology market based on the feedback?
- 7. What is the breakup of the global haptic technology market based on the application?
- 8. What are the key regions in the global haptic technology market?
- 9. Who are the key players/companies in the global haptic technology market?



# **Contents**

#### 1 PREFACE

#### 2 SCOPE AND METHODOLOGY

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
  - 2.3.1 Primary Sources
  - 2.3.2 Secondary Sources
- 2.4 Market Estimation
  - 2.4.1 Bottom-Up Approach
  - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

#### **3 EXECUTIVE SUMMARY**

### **4 INTRODUCTION**

- 4.1 Overview
- 4.2 Key Industry Trends

#### **5 GLOBAL HAPTIC TECHNOLOGY MARKET**

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Forecast

### **6 MARKET BREAKUP BY COMPONENT**

- 6.1 Actuators
  - 6.1.1 Market Trends
  - 6.1.2 Market Forecast
- 6.2 Drivers and Controllers
  - 6.2.1 Market Trends
  - 6.2.2 Market Forecast
- 6.3 Software



- 6.3.1 Market Trends
- 6.3.2 Market Forecast
- 6.4 Others
  - 6.4.1 Market Trends
  - 6.4.2 Market Forecast

### 7 MARKET BREAKUP BY FEEDBACK

- 7.1 Tactile
  - 7.1.1 Market Trends
  - 7.1.2 Market Forecast
- 7.2 Force
  - 7.2.1 Market Trends
  - 7.2.2 Market Forecast

### **8 MARKET BREAKUP BY TECHNOLOGY**

- 8.1 Captive
  - 8.1.1 Market Trends
  - 8.1.2 Market Forecast
- 8.2 Resistive
  - 8.2.1 Market Trends
  - 8.2.2 Market Forecast
- 8.3 Others
  - 8.3.1 Market Trends
  - 8.3.2 Market Forecast

#### 9 MARKET BREAKUP BY APPLICATION

- 9.1 Automotive and Transportation
  - 9.1.1 Market Trends
  - 9.1.2 Market Forecast
- 9.2 Consumer Electronics
  - 9.2.1 Market Trends
  - 9.2.2 Market Forecast
- 9.3 Education and Research
  - 9.3.1 Market Trends
  - 9.3.2 Market Forecast
- 9.4 Gaming



- 9.4.1 Market Trends
- 9.4.2 Market Forecast
- 9.5 Healthcare
  - 9.5.1 Market Trends
  - 9.5.2 Market Forecast
- 9.6 Engineering
  - 9.6.1 Market Trends
  - 9.6.2 Market Forecast
- 9.7 Others
  - 9.7.1 Market Trends
  - 9.7.2 Market Forecast

## 10 MARKET BREAKUP BY REGION

- 10.1 North America
  - 10.1.1 United States
    - 10.1.1.1 Market Trends
    - 10.1.1.2 Market Forecast
  - 10.1.2 Canada
    - 10.1.2.1 Market Trends
    - 10.1.2.2 Market Forecast
- 10.2 Asia Pacific
  - 10.2.1 China
    - 10.2.1.1 Market Trends
    - 10.2.1.2 Market Forecast
  - 10.2.2 Japan
    - 10.2.2.1 Market Trends
    - 10.2.2.2 Market Forecast
  - 10.2.3 India
    - 10.2.3.1 Market Trends
    - 10.2.3.2 Market Forecast
  - 10.2.4 South Korea
    - 10.2.4.1 Market Trends
    - 10.2.4.2 Market Forecast
  - 10.2.5 Australia
    - 10.2.5.1 Market Trends
    - 10.2.5.2 Market Forecast
  - 10.2.6 Indonesia
  - 10.2.6.1 Market Trends



- 10.2.6.2 Market Forecast
- 10.2.7 Others
  - 10.2.7.1 Market Trends
  - 10.2.7.2 Market Forecast
- 10.3 Europe
- 10.3.1 Germany
  - 10.3.1.1 Market Trends
  - 10.3.1.2 Market Forecast
- 10.3.2 France
  - 10.3.2.1 Market Trends
- 10.3.2.2 Market Forecast
- 10.3.3 United Kingdom
  - 10.3.3.1 Market Trends
  - 10.3.3.2 Market Forecast
- 10.3.4 Italy
  - 10.3.4.1 Market Trends
  - 10.3.4.2 Market Forecast
- 10.3.5 Spain
  - 10.3.5.1 Market Trends
  - 10.3.5.2 Market Forecast
- 10.3.6 Russia
  - 10.3.6.1 Market Trends
  - 10.3.6.2 Market Forecast
- 10.3.7 Others
  - 10.3.7.1 Market Trends
  - 10.3.7.2 Market Forecast
- 10.4 Latin America
  - 10.4.1 Brazil
    - 10.4.1.1 Market Trends
    - 10.4.1.2 Market Forecast
  - 10.4.2 Mexico
    - 10.4.2.1 Market Trends
    - 10.4.2.2 Market Forecast
  - 10.4.3 Others
    - 10.4.3.1 Market Trends
    - 10.4.3.2 Market Forecast
- 10.5 Middle East and Africa
  - 10.5.1 Market Trends
- 10.5.2 Market Breakup by Country



### 10.5.3 Market Forecast

### 11 SWOT ANALYSIS

- 11.1 Overview
- 11.2 Strengths
- 11.3 Weaknesses
- 11.4 Opportunities
- 11.5 Threats

### 12 VALUE CHAIN ANALYSIS

## 13 PORTERS FIVE FORCES ANALYSIS

- 13.1 Overview
- 13.2 Bargaining Power of Buyers
- 13.3 Bargaining Power of Suppliers
- 13.4 Degree of Competition
- 13.5 Threat of New Entrants
- 13.6 Threat of Substitutes

#### 14 PRICE ANALYSIS

## 15 COMPETITIVE LANDSCAPE

- 15.1 Market Structure
- 15.2 Key Players
- 15.3 Profiles of Key Players
  - 15.3.1 3d Systems Corporation
    - 15.3.1.1 Company Overview
    - 15.3.1.2 Product Portfolio
    - 15.3.1.3 Financials
    - 15.3.1.4 SWOT Analysis
  - 15.3.2 Haption
    - 15.3.2.1 Company Overview
    - 15.3.2.2 Product Portfolio
    - 15.3.2.3 Financials
  - 15.3.3 Immersion Corporation
    - 15.3.3.1 Company Overview



- 15.3.3.2 Product Portfolio
- 15.3.3.3 Financials
- 15.3.4 Johnson Electric Holdings Limited
  - 15.3.4.1 Company Overview
  - 15.3.4.2 Product Portfolio
  - 15.3.4.3 Financials
  - 15.3.4.4 SWOT Analysis
- 15.3.5 Microchip Technology Inc.
  - 15.3.5.1 Company Overview
  - 15.3.5.2 Product Portfolio
  - 15.3.5.3 Financials
- 15.3.5.4 SWOT Analysis
- 15.3.6 ON Semiconductor Corporation
  - 15.3.6.1 Company Overview
  - 15.3.6.2 Product Portfolio
  - 15.3.6.3 Financials
  - 15.3.6.4 SWOT Analysis
- 15.3.7 Precision Microdrives Ltd.
  - 15.3.7.1 Company Overview
  - 15.3.7.2 Product Portfolio
  - 15.3.7.3 Financials
- 15.3.8 Senseg Oy (O-film Global HK Trading Limited)
  - 15.3.8.1 Company Overview
  - 15.3.8.2 Product Portfolio
- 15.3.9 SMK Corporation
  - 15.3.9.1 Company Overview
  - 15.3.9.2 Product Portfolio
  - 15.3.9.3 Financials
- 15.3.10 Synaptics Incorporated
  - 15.3.10.1 Company Overview
  - 15.3.10.2 Product Portfolio
  - 15.3.10.3 Financials
- 15.3.11 Tactus Technology Inc.
  - 15.3.11.1 Company Overview
  - 15.3.11.2 Product Portfolio
- 15.3.12 Texas Instruments Incorporated
  - 15.3.12.1 Company Overview
  - 15.3.12.2 Product Portfolio
  - 15.3.12.3 Financials



15.3.13 Ultraleap Holdings Ltd.

15.3.13.1 Company Overview

15.3.13.2 Product Portfolio



# **List Of Tables**

#### LIST OF TABLES

Table 1: Global: Haptic Technology Market: Key Industry Highlights, 2023 and 2032

Table 2: Global: Haptic Technology Market Forecast: Breakup by Component (in Million

US\$), 2024-2032

Table 3: Global: Haptic Technology Market Forecast: Breakup by Feedback (in Million

US\$), 2024-2032

Table 4: Global: Haptic Technology Market Forecast: Breakup by Technology (in Million

US\$), 2024-2032

Table 5: Global: Haptic Technology Market Forecast: Breakup by Application (in Million

US\$), 2024-2032

Table 6: Global: Haptic Technology Market Forecast: Breakup by Region (in Million

US\$), 2024-2032

Table 7: Global: Haptic Technology Market Structure

Table 8: Global: Haptic Technology Market: Key Players



# **List Of Figures**

#### LIST OF FIGURES

Figure 1: Global: Haptic Technology Market: Major Drivers and Challenges

Figure 2: Global: Haptic Technology Market: Sales Value (in Billion US\$), 2018-2023

Figure 3: Global: Haptic Technology Market: Breakup by Component (in %), 2023

Figure 4: Global: Haptic Technology Market: Breakup by Feedback (in %), 2023

Figure 5: Global: Haptic Technology Market: Breakup by Technology (in %), 2023

Figure 6: Global: Haptic Technology Market: Breakup by Application (in %), 2023

Figure 7: Global: Haptic Technology Market: Breakup by Region (in %), 2023

Figure 8: Global: Haptic Technology Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 9: Global: Haptic Technology (Actuators) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 10: Global: Haptic Technology (Actuators) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 11: Global: Haptic Technology (Drivers and Controllers) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 12: Global: Haptic Technology (Drivers and Controllers) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 13: Global: Haptic Technology (Software) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 14: Global: Haptic Technology (Software) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 15: Global: Haptic Technology (Other Components) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 16: Global: Haptic Technology (Other Components) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 17: Global: Haptic Technology (Tactile) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 18: Global: Haptic Technology (Tactile) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 19: Global: Haptic Technology (Force) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 20: Global: Haptic Technology (Force) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 21: Global: Haptic Technology (Captive) Market: Sales Value (in Million US\$), 2018 & 2023



Figure 22: Global: Haptic Technology (Captive) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 23: Global: Haptic Technology (Resistive) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 24: Global: Haptic Technology (Resistive) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 25: Global: Haptic Technology (Other Technologies) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 26: Global: Haptic Technology (Other Technologies) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 27: Global: Haptic Technology (Automotive and Transportation) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 28: Global: Haptic Technology (Automotive and Transportation) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 29: Global: Haptic Technology (Consumer Electronics) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 30: Global: Haptic Technology (Consumer Electronics) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 31: Global: Haptic Technology (Education and Research) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 32: Global: Haptic Technology (Education and Research) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 33: Global: Haptic Technology (Gaming) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 34: Global: Haptic Technology (Gaming) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 35: Global: Haptic Technology (Healthcare) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 36: Global: Haptic Technology (Healthcare) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 37: Global: Haptic Technology (Engineering) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 38: Global: Haptic Technology (Engineering) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 39: Global: Haptic Technology (Other Applications) Market: Sales Value (in Million US\$), 2018 & 2023

Figure 40: Global: Haptic Technology (Other Applications) Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 41: North America: Haptic Technology Market: Sales Value (in Million US\$),



#### 2018 & 2023

Figure 42: North America: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 43: United States: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 44: United States: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 45: Canada: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 46: Canada: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 47: Asia Pacific: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 48: Asia Pacific: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 49: China: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023 Figure 50: China: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 51: Japan: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023 Figure 52: Japan: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 53: India: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023 Figure 54: India: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 55: South Korea: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 56: South Korea: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 57: Australia: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 58: Australia: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 59: Indonesia: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 60: Indonesia: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 61: Others: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 62: Others: Haptic Technology Market Forecast: Sales Value (in Million US\$),



2024-2032

Figure 63: Europe: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 64: Europe: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 65: Germany: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 66: Germany: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 67: France: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 68: France: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 69: United Kingdom: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 70: United Kingdom: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 71: Italy: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023 Figure 72: Italy: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 73: Spain: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023 Figure 74: Spain: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 75: Russia: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 76: Russia: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 77: Others: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 78: Others: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 79: Latin America: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 80: Latin America: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 81: Brazil: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023 Figure 82: Brazil: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 83: Mexico: Haptic Technology Market: Sales Value (in Million US\$), 2018 &



2023

Figure 84: Mexico: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 85: Others: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 86: Others: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 87: Middle East and Africa: Haptic Technology Market: Sales Value (in Million US\$), 2018 & 2023

Figure 88: Middle East and Africa: Haptic Technology Market Forecast: Sales Value (in Million US\$), 2024-2032

Figure 89: Global: Haptic Technology Industry: SWOT Analysis

Figure 90: Global: Haptic Technology Industry: Value Chain Analysis

Figure 91: Global: Haptic Technology Industry: Porter's Five Forces Analysis



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