

GTM4Health



Market Insights

Health Monitoring Devices

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About Health Monitoring Devices

The term "health monitoring devices" refers to a broad category of highly developed electronic equipment and technologies created specifically for the purpose of tracking and monitoring various vital signs and health-related indicators of individuals. (*Health Monitoring: The Most Desirable Feature of Wearable Devices*, 2022) These gadgets have increased in popularity and significance over the past several years because of the growing interest in one's own health and wellbeing, technical advancements, and sensor miniaturisation.

The main objective of health monitoring technology is to collect exact, accurate, and current information on a person's physiological state. Users can then gain insights into their health, identify potential health issues, and make educated decisions about their health thanks to the processing, analysis, and clear presentation of this data. These devices are useful tools for raising health awareness, preventing illness, and managing preventative health. The use of health monitoring devices is quite diverse, with everything from tracking general wellness to helping to manage chronic disorders.

The various applications of health monitoring devices make them crucial instruments in a range of healthcare settings as well as for tracking one's own health. The following are a few of the most significant uses for health monitoring equipment:

1. **Personal health and wellness tracking:** Fitness trackers and smartwatches are just two examples of the health monitoring devices that have made it possible for people to take charge of their fitness and health. These devices provide users with real-time information on variables like physical activity, heart rate, and sleep patterns, encouraging them to adopt healthy behaviours, set fitness goals, and monitor their progress over time.
2. **Chronic Disease Management:** Health monitoring devices are extremely useful for people who have chronic health issues such as diabetes, hypertension, asthma, or heart disease.
3. **Remote Patient Monitoring (RPM):** Health monitoring devices are essential in RPM programmes because they allow healthcare personnel to remotely monitor their patients' health state. (*Remote Patient Monitoring Trends & Health Devices in 2023*, n.d.) This is especially useful for people suffering from chronic illnesses or post-operative patients who can recover in the comfort of their own homes.
4. **Data-Driven Healthcare Research:** Health monitoring device data contributes greatly to healthcare research and population health studies.
5. **Sports and Performance Tracking:** Health monitoring technologies are widely utilized in sports and fitness training, in addition to medical uses. Athletes and fitness aficionados use these devices to improve performance, track training progress, and avoid overexertion or injury.

Some Health Monitoring Devices

With ongoing technological improvements and the incorporation of AI and data analytics, these devices are set to play an even larger role in improving health outcomes, lowering healthcare costs, and empowering individuals to live healthier lives.

The following health monitoring equipment are involved:

1. **Electrocardiogram (ECG):** The electrical activity of the heart is measured and recorded by an electrocardiogram (ECG). It is a non-invasive procedure that enables medical professionals to examine the electrical impulses and cardiac rhythm. (S, n.d.) ECGs often include attaching electrodes to the skin of the chest, limbs, or both. The graphic representation of the recorded electrical impulses as waves then reveals information about the heart's rhythm, beat, and any irregularities in its electrical activity.
2. **Heart Rate Monitor:** The number of heartbeats per minute (bpm) is measured by a heart rate monitor (HRM). (*Heart Rate Monitoring: Applications and Limitations*, n.d.) It is available in a range of formats, including smartwatches, wearable fitness trackers, and chest strap monitors. Sensors are used in heart rate monitors to determine the heart's pulse, which is frequently determined by observing blood flow beneath the skin.
3. **Pulse Oximeter (SPO2 Monitor):** A pulse oximeter, also known as SpO2, is a device that gauges the blood's oxygen saturation level. To do this, light is injected into the skin, and the amount of light absorbed by oxygenated and deoxygenated blood is analysed to estimate the blood's oxygen saturation level. (Cattamanchi, 2021) Patients' oxygen levels are regularly checked with pulse oximeters in medical settings, especially those who have respiratory issues or are having surgery.
4. **Blood Pressure Monitor:** A blood pressure monitor detects the force of blood against artery walls, which is quantified as two numbers: systolic pressure (the pressure during heartbeats) minus diastolic pressure (the pressure during periods of rest between heartbeats). (*What Is Blood Pressure and How Is It Measured?*, 2010) Patients with hypertension or other heart-related issues should have their blood pressure tested frequently because it is a key indicator of cardiovascular health.
5. **Temperature Monitor:** A temperature monitor is a device that measures body temperature, which is an important indicator of overall health and can assist detect fever or signs of infection. (Sessler, n.d.) Traditional thermometers contain mercury, however digital thermometers have gained popularity due to their accuracy and convenience of use.

6. **Arrhythmia monitor:** An arrhythmia monitor is a device that detects and monitors abnormal heart beats, often known as arrhythmias. (*Arrhythmia Monitoring*, n.d.) These monitors are frequently integrated into ECG equipment or wearable ECG devices. They continually monitor the electrical activity of the heart and inform the user or a healthcare expert if aberrant rhythms are detected.



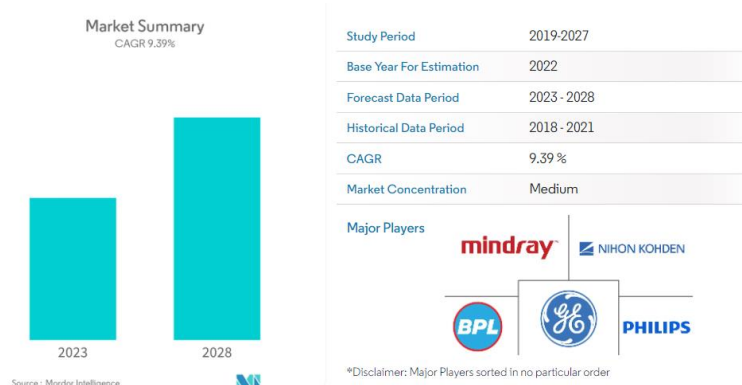
The Indian Market

The Indian health monitoring market has grown rapidly and is expected to expand further in the future years. The market is estimated to be worth USD 1639.28 million in 2022, and it is likely to exceed USD 3679.67 million by 2031. During the predicted period of 2023 to 2031, this growth trajectory implies a significant compound annual growth rate (CAGR) of 9.4%. (*India Patient Monitoring Market Size, Growth Report | 2031*, n.d.)

The increasing demand for advanced monitoring devices capable of capturing, measuring, distributing, and displaying a wide range of biometric data is driving this market increase. Temperature, blood oxygen saturation, and blood pressure are examples of critical parameters. The use of such patient monitoring devices has become more important for healthcare practitioners since they allow for continuous and real-time monitoring of patients' vital signs.

The breakout of the COVID-19 pandemic was a major driver of the patient monitoring market's expansion. With a significant increase in COVID-19 cases, there has been an unusual increase in demand for patient monitoring equipment. Continuous monitoring of patients became an absolute necessity, especially for those suffering from severe COVID-19 infections. (*India Patient Monitoring Market Size, Growth Report | 2031*, n.d.) As a result, the healthcare sector swiftly reacted by increasing manufacturing of essential medical items such equipment for patient monitoring.

The Indian healthcare sector is currently undergoing a transition, and the vital role that this sector will play in enhancing patient care, illness control, and healthcare effectiveness will only grow in importance. As the country's healthcare infrastructure develops, health monitoring devices will remain crucial instruments for offering efficient and customised healthcare services to a rising population.



Mordor Intelligence Research & Advisory. (2023, June). India Patient Monitoring Market Size & Share Analysis - Growth Trends & Forecasts (2023 - 2028). Mordor Intelligence. Retrieved July 30, 2023, from <https://www.mordorintelligence.com/industry-reports/india-patient-monitoring-market-industry>

Indian Companies manufacturing Health Monitoring Devices

1. **Skanray Technologies:** An Indian company called Skanray Technologies Pvt. Ltd. specialises in medical technology and provides a range of healthcare items. Skanray offers a broad range of health monitoring tools that are intended to track and evaluate patients' physiological traits and vital signs. The following health monitoring tools are produced by Skanray Technologies:
 - a. Skanray makes patient monitoring equipment that continuously monitors and displays data from electrocardiograms (ECG), blood pressure, respiration rate, oxygen saturation (SPO2), temperature, and other vital signs.
 - b. The vital sign monitors made by Skanray are compact, straightforward devices that measure and display common vital signs like blood pressure, heart rate, SPO2, and temperature.
 - c. The portable pulse oximeters made by Skanray are used to measure blood oxygen saturation (SPO2).
 - d. Skanray provides cardiac monitoring options, which may include cutting-edge ECG machines for patients' ongoing heart rhythm monitoring.



Skanray's **Cardiskan** (ECG) @ Rs. 45,000



Skanray's **Star 90** (Patient Monitor) @ Rs. 55,000

2. **Dozee:** Dozee is an innovative healthcare technology company based in India that focuses on creating solutions for contactless health monitoring. Dozee was developed in 2015 with the intention of revolutionising the way vital signs are tracked and analysed, particularly during sleep or rest periods. Mudit Dandwate and Gaurav Parchani. The company's flagship item, the "Dozee Health Monitoring System," is a novel contactless device that is positioned beneath the mattress to measure and analyse vital signs without making direct contact with the user's body. The primary attributes and capabilities of Dozee's health monitoring products are as follows:
 - a. Dozee's health monitoring system is designed to be tucked under the bed to provide non-invasive, contactless vital sign monitoring. The system employs ballistocardiography (BCG) technology to

- b. identify minute vibrations brought on by the heart and respiratory system's mechanical activity when the user is sleeping or resting.
- c. The technology used by Dozee tracks a number of health indicators and vital signs, including heart rate, breathing rate, stress level, sleep quality, and alertness. Customers receive comprehensive data about their sleep habits and general wellness.
- d. Modern algorithms and AI-driven analytics built into the Dozee device process the data gathered to produce customised health reports.
- e. The Dozee device uses sophisticated algorithms and AI-driven analytics to process the collected data and produce customised health assessments.
- f. Dozee's health monitoring device may be monitored remotely, making it handy for carers, healthcare practitioners, and hospitals.
- g. The Dozee health monitoring device comes with an easy-to-use smartphone app that displays real-time and historical data in a clear format.
- h. A simple-to-use smartphone app that presents real-time and historical data in a comprehensible format is included with the Dozee health monitoring gadget.



Dozee's **Health tracker** @ Rs. 14,249

3. **Agatsa Software Private Limited:** An Indian company called Agatsa Software Private Limited specialises in creating new medical technologies and healthcare products. The business was established in 2015 with the aim of providing everyone with affordable and accessible healthcare, by Rahul Rastogi and Dr. Neha Rastogi. The portable health monitoring devices made by Agatsa are well renowned for enabling users to monitor their vital signs and other health metrics from the comfort of their own homes. Among Agatsa's primary goods are:

- a. Users of the SanketLife ECG Monitor can record and examine electrocardiogram (ECG) data on their smartphones. It is a compact and portable device.

- b. A non-invasive tool used to measure blood oxygen saturation levels (SpO2) is the SanketLife Pulse Oximeter. The SpO2 reading and pulse rate are displayed on a digital screen by the gadget, which is attached to the user's fingertip.
- c. Users may properly track their blood pressure using the SanketLife BP Monitor, a portable blood pressure monitoring device.
- d. Additionally, Agatsa offers a complete telehealth platform that enables remote patient monitoring and data management.



Agatsa's **SanketLife ECG** @ Rs. 4,248.00

4. **BPL Medical Technologies:** BPL Medical Technologies is a medical device firm based in India with a long history in the healthcare industry. BPL Medical Technologies, founded in 1963, has developed to become a major participant in the medical equipment and healthcare solutions markets. The company's product line comprises critical care and diagnostic equipment for hospitals, clinics, and healthcare facilities.
- a. ECG machines from BPL are used to record and interpret the electrical activity of the heart. They come in a variety of sizes and configurations, including single-channel and multi-channel ECG devices.
 - b. BPL offers a variety of blood pressure monitoring devices, both automated and manual.
 - c. BPL provides temperature monitoring solutions for a wide range of applications, from hospital bedside monitoring to wearable health devices for individuals.
 - d. BPL also manufactures smart oximeters.



BPL's **Smartoxy** (Oximeter) @ Rs. 1,668

The Global Market

In 2022, the global patient monitoring devices market is expected to be worth around \$42.3 billion. It is expected to reach a value of \$65.4 billion by 2027, with a remarkable compound yearly growth rate (CAGR) of 9.1% from 2022 to 2027. Because of the increased availability and integration of monitoring technology such as smartphones and wireless devices, the market is experiencing tremendous growth. (*Patient Monitoring Devices Market Growth Drivers & Opportunities*, n.d.) As a result, numerous remote monitoring systems, mobile cardiac telemetry devices, mobile personal digital assistant (PDA) systems, ambulatory wireless EEG recorders, and ambulatory event monitors have been created, helping to expand the industry.

The growing demand for monitoring devices capable of measuring, recording, and presenting a wide range of biometric data, such as blood pressure, temperature, and blood oxygen saturation levels, can be credited to the industry's growth. Healthcare facilities are increasingly emphasizing the transition from hospital care to home care settings, which can result in treatment cost savings. The advancement of medical therapies has led to a greater use of patient monitoring devices for chronic illness management at home. The COVID-19 pandemic has hastened this shift towards patient monitoring devices, providing companies with a once-in-a-lifetime opportunity to demonstrate their devices' capacity to improve the ease, cost-effectiveness, and efficacy of healthcare. (*Patient Monitoring Devices Market Growth Drivers & Opportunities*, n.d.)



Patient Monitoring Devices Market Growth Drivers & Opportunities. MarketsandMarkets. (n.d.).
<https://www.marketsandmarkets.com/Market-Reports/patient-healthcare-monitoring-systems-devices-market-678.html>

Global companies manufacturing Health Monitoring Devices

1. **Philips Healthcare:** Philips Healthcare is a worldwide company that produces advanced healthcare solutions such as ECG monitoring devices, heart rate monitoring devices, SPO2 monitoring devices, blood pressure monitoring devices, and temperature monitoring equipment. They also sell cardiac monitoring devices for diagnosing arrhythmias. Philips Healthcare's products are listed below.:
 - a. Philips offers a comprehensive range of patient monitoring systems for use in a variety of healthcare settings, including hospitals and ambulatory care. These patient monitors track and show vital signs like heart rate, blood pressure, respiration rate, oxygen saturation (SpO2), and temperature in real time.
 - b. Philips Healthcare provides innovative ECG devices that record and analyze cardiac electrical activity..
 - c. Philips pulse oximeters are used to non-invasively test oxygen saturation levels in the blood. These devices are routinely used to measure oxygen levels in hospitals, clinics, and homes, particularly during respiratory disorders and physical activity.
 - d. Philips has entered the wearable health gadget industry, selling items such as activity trackers and smartwatches.



Philips' **Health Watch** @ Rs. 20,584.36

2. **GE Healthcare:** GE Healthcare is a branch of General Electric (GE) that makes a wide range of healthcare equipment, including ECG monitoring devices, heart rate monitoring devices, SPO2 monitoring devices, blood pressure monitoring devices, and temperature monitoring devices. They also provide cardiac monitoring technologies for the detection of arrhythmias. GE Healthcare has created a number of health monitoring tools, including:

- a. GE Healthcare offers cutting-edge patient monitoring systems that continually track and display vital signs like heart rate, blood pressure, respiration rate, oxygen saturation (SpO2), and temperature.
- b. GE Healthcare produces high-quality ECG equipment that record and analyze heart electrical activity. These devices are used for cardiac diagnostics and monitoring, allowing doctors to detect and treat various heart diseases.
- c. GE Healthcare offers a variety of blood pressure monitoring devices, including automated and manual types.
- d. GE Healthcare offers GE Healthcare's temperature monitoring solutions include both spot-check and continuous monitoring devices.



GE's **CARESCAPE VC150** (Vitals Monitor) @ Rs. 5,04,353.02

3. **Siemens Healthineers:** Siemens Healthineers is a global leader in medical technology dedicated to defining the future of healthcare. The company operates autonomously as a subsidiary of Siemens AG and focuses on developing innovative solutions that answer the increasing needs of the healthcare industry. Siemens Healthineers' portfolio of health monitoring products includes:
 - a. Siemens Healthineers offers advanced patient monitoring systems that measure and show vital signs such as heart rate, blood pressure, respiration rate, oxygen saturation (SpO2), and temperature in real time.
 - b. Siemens Healthineers provides cardiac monitoring systems such as electrocardiogram (ECG) equipment for capturing and analyzing heart electrical activity.
 - c. Siemens Healthineers offers pulse oximeters, which are non-invasive devices that detect oxygen saturation levels in a patient's blood.
 - d. Siemens Healthineers provides a variety of blood pressure monitoring devices, including automated and manual types.

- e. Temperature monitoring devices from Siemens Healthineers comprise both spot-check and continuous monitoring equipment. These devices measure body temperature effectively, assisting in fever treatment and infection surveillance.



Siemens' **NELLCOR PM10N** HANDHELD (Pulse Oximeter) @ Rs. 49,056.00

- 4. **Abbott Laboratories:** Abbott is a global healthcare corporation that manufactures a wide range of medical devices, including ECG monitoring devices, heart rate monitoring devices, SPO2 monitoring devices, blood pressure monitoring devices, and temperature monitoring devices. They also provide cardiac monitoring technologies for the detection of arrhythmias.
 - a. Blood Pressure Monitors: Abbott provides blood pressure monitoring devices that allow people to check their blood pressure at home. These gadgets aid in the detection and treatment of hypertension.
 - b. Arrhythmia Monitoring Devices: Abbott offers implantable cardiac monitors, such as the Confirm Rx Insertable Cardiac Monitor (ICM), that constantly monitor heart rhythms and can help in the diagnosis and management of arrhythmias.
 - c. Abbott manufactures digital thermometers for reliable temperature measurement, fever management, and general health monitoring.



Abbott's **FreeStyle Libre** (Blood Monitor) @ Rs. 4,800

Few Indian startups working on Patient monitoring devices

1. **BeatO:** BeatO is well-known for its smartphone-based glucometer and diabetes-management continuous glucose monitoring solution.



BeatO's **Smart Glucometer** @ Rs. 749

2. **ten3T:** ten3T specialises in wearable medical equipment, such as the Cicer, which allows continuous cardiac monitoring for patients in hospitals and remote places.



ten3T's **Cicer**

3. **Cardiac Design Labs:** Cardiac Design Labs is a company that creates cutting-edge cardiac monitoring products, such as the MIRCaM, a portable cardiac telemetry device.



Cardiac Design Labs' **Patient Monitoring**

Financials of the Indian & the Global companies

Indian Companies

Skanray Technologies Limited reported revenue/turnover in the range of INR 100 crore to INR 500 crore for the fiscal year ending March 31, 2022. The net worth of the company increased by 11.77%, suggesting overall financial progress. However, EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortisation) decreased by -73.14%. On the plus side, total assets climbed by 10%, while liabilities increased by 7.74%. (*SKANRAY TECHNOLOGIES LIMITED - Company Profile, Directors, Revenue & More*, n.d.)

Dozee, a healthcare technology firm, raised \$23.1 million in five rounds of funding. The most recent investment round was a Series A round, which was concluded on April 4, 2023. (*Dozee Company Profile: Valuation & Investors*, n.d.) In the same fiscal year, Agatsa Software Private Limited had a revenue/turnover of less than INR 1 crore. Despite the low income, the company's net worth climbed by 1,684.64%. EBITDA, on the other hand, fell by -55.42%. On the plus side, total assets climbed by 128.92%, while liabilities increased by 53.87%. (*AGATSA SOFTWARE PRIVATE LIMITED - Company Profile, Directors, Revenue & More*, n.d.)

BPL Medical Technologies Private Limited's revenue/turnover was more than INR 500 crore, suggesting a strong financial performance. The company's net worth climbed by 18.94%, while its EBITDA increased by 150.14%. Additionally, total assets climbed by 20.99%, while liabilities increased by 24.39%. (*BPL MEDICAL TECHNOLOGIES PRIVATE LIMITED - Revenue, Net Worth, Profits & More*, n.d.)

Global Companies

Koninklijke Philips reported \$4.874 billion in revenue for the quarter ending June 30, 2023, a 0.72% rise over the same period previous year. However, revenue for the fiscal year ended June 30, 2023 fell by 5.87% compared to the previous year, reaching \$18.757 billion. Annual sales in 2022 was \$18.783 billion, a 7.46% decrease from 2021. Similarly, the company's sales in 2021 was \$20.297 billion, a 9.04% decrease from 2020. (*Koninklijke Philips N.V.*, n.d.)

GE Healthcare's revenues of \$18.3 billion climbed by 4% on an organic basis, mostly due to growth in the Imaging and Ultrasound sectors. Acquisitions contributed 1% to total revenue growth, but foreign exchange had a 4% negative impact. For the entire year, the company's overall book-to-bill ratio was 1.08 times. However, net income for the year was \$1.9 billion, down from \$2.2 billion the previous year, and Adjusted EBIT (Earnings Before Interest and Taxes) was \$2.9 billion, down from \$3.2 billion the previous year. (*GE HealthCare Reports Fourth Quarter and Full Year 2022 Financial Results*, 2023)

Siemens Healthineers reported a current revenue (TTM) of \$22.58 billion in its most recent financial reports. The company's revenue in 2022 was \$22.84 billion, an increase from the previous year's revenue of \$22.32 billion. This suggests that the company's financial performance is improving. (*Siemens Healthineers*, n.d.)

Similarly, Abbott reported sales of \$43.7 billion in 2022, representing an organic rise of around 6.4%. Furthermore, their earnings-per-share (EPS) hit \$5.34, showing a positive financial outcome for the corporation. (*Annual Reports / Abbott Laboratories*, n.d.)



Products to look out for

1. **Sunfox:** With merely the aid of your smartphone, the Spandan 12 Lead ECG gadget provides heart monitoring and limitless ECG testing at home with a 99.7% accuracy rate.



Sunfox's **Spandan ECG** @ Rs. 7,328

2. **Vigocare:** A Holter monitor from Vigocare can continuously record a single lead ECG for a long period of time.



Vigocare's **Holter 1 Lead ECG**

3. **AliveCor:** With its patented cutting-edge AI technology, the AliveCor KardiaMobile can identify four of the most prevalent arrhythmias.



AliveCor's **Single Lead ECG Device** @ Rs. 7,499

4. **Vital Connect:** In order to record heart rate, electrocardiography (ECG), heart rate variability, R-R interval, respiratory rate, body temperature, skin temperature, fall detection, activity (including step count), and posture (body position relative to gravity including fall detection), the VitalPatch device is worn on the torso.



Vital Connect's **Vital Patch**

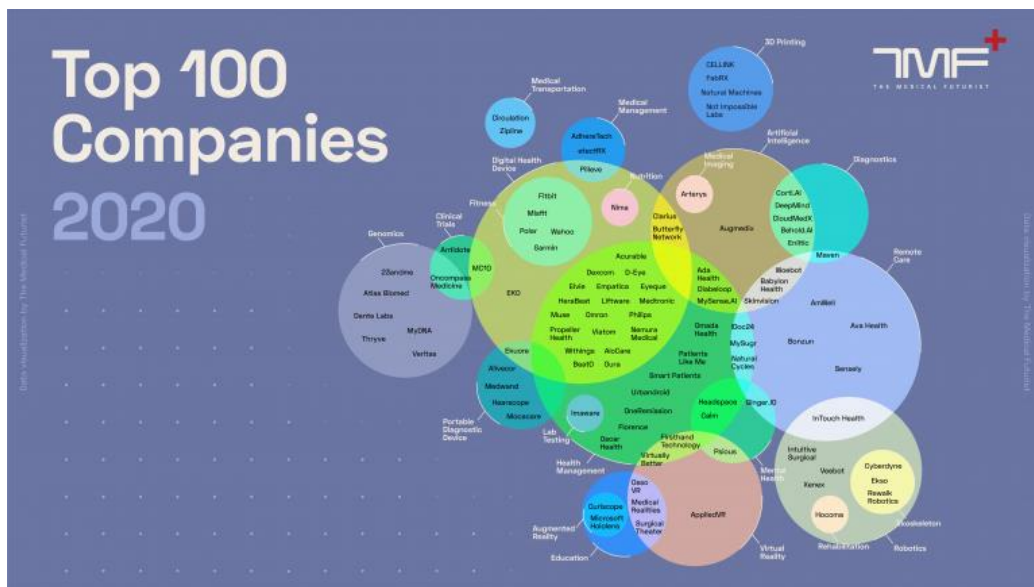
5. **UpBeat:** Carefully developed to obtain precise tracings in ambulatory environments. Correct tracings result in a correct diagnosis.



Upbeat's **Sensor**

Is it a crowded space?

The market for health monitoring devices is very competitive and constantly changing. Demand for these devices is being driven by increased personal health awareness and the incidence of chronic diseases. Companies are actively developing and producing health monitoring devices, including established healthcare behemoths, startups, and technology firms. To remain competitive, businesses provide new features, improve accuracy, and create user-friendly designs while adhering to regulations and quality requirements. The integration of health monitoring devices with digital platforms, as well as the growing emphasis on preventative healthcare and remote patient monitoring, are driving market expansion. The market is likely to become more dynamic and competitive as new technologies such as wearable biosensors and artificial intelligence emerge.



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