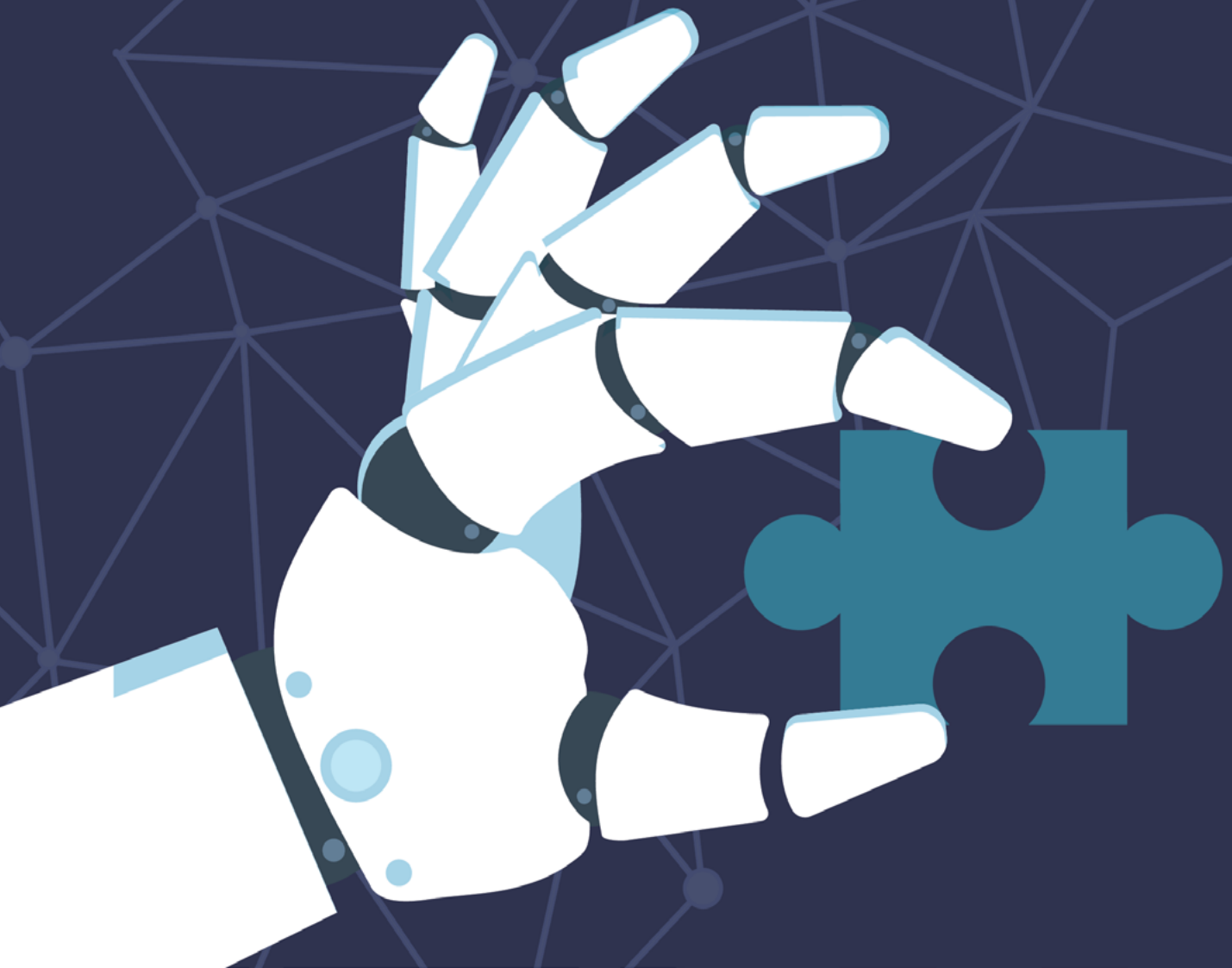# Senior Care

PRODUCTS

OF THE

FUTURE

Technology comes to the **RESCUE** of an aging population

The world's population is aging at a rapid rate putting an unprecedented burden on health-care systems worldwide. The proportion of people aged over 60 years will double from about 11% to 22% between 2000 and 2050.

Population aging has profound implications for healthcare systems worldwide. The fact that healthcare authorities are pressured to cut costs and focus on profits only exacerbates the situation. And current health care systems can't cope with the soaring demands from an ever-increasing number of elderly people.

While most people would prefer to live out their lives at home, the reality is that today's families are no longer able to take care of their elderly family members. Women, who typically assume this responsibility, simply can't risk the family's financial stability to stay at home and care for an elderly family member.

The figures are staggering.

Alarmingly, the senior demographic is growing at a rate of about 3% per year. By 2030, the elderly population will have grown to 1.4 billion. In the US, the demographic is exploding — 10,000 Americans per day are turning 65 according to the Pew Research Center.
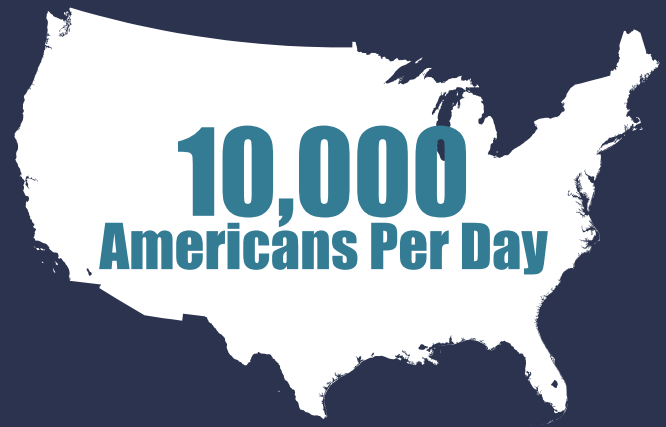
According to the American Association for Retired Persons (AARP), more than 4 in 10 adults care for an adult or child with major health issues, and there are 5 to 7 million long-distance caregivers, creating a vast potential in the health tech market.

This is where gerontechnology comes into its own. Gerontechnology is an interdisciplinary academic and a professional field that combines the scientific study of old age and the process of aging with technology. Innovators in gerontechnology are developing caregiving and support services including apps, software, robot assistants, and wearables aimed at improving the quality of life, health, and safety of older adults.

The technology we will discuss next represent a small section of these innovators who are leveraging technology to revolutionize healthcare for the elderly.

10,000
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65

VIRTUAL REALITY

RENDEVER *by Rendever*

Rendever is a virtual reality platform that can take seniors on a trip down memory lane to experience their childhood homes, visit favorite places, or even experience a wedding in virtual reality. Seniors can simply put on a headset and have an immersive experience.

The startup was co-founded at MIT by Reed Hayes, Dennis Lally, and Tom Neumann. They created Rendever to help address isolation, depression, and loneliness among seniors.

The virtual reality experiences by Rendever bring much joy and stimulation to the lives of the elderly. According to their website, a 40% increase in happiness is reported by the facilities that use Rendever.

VIRTUAL REALITY

MyndVR *by MyndVR*

MyndVR is another virtual reality platform that can help improve the lives of seniors. This company focuses on providing virtual experiences for seniors in assisted living and independent living communities.

Their original programming is designed to help seniors feel calm and happy and to provide them with memorable experiences. The VR technology strives to help seniors smile, laugh, and create new memories.

The company works with universities across the country to study the cognitive benefits of VR for seniors, particularly those with Alzheimer's or dementia.

ALERT SYSTEMS

MEDICAL GUARDIAN *by Medical Guardian*

Medical Guardian offers a range of personal emergency medical alert systems. They offer in-home products and on-the-go devices that are lightweight and feature a water-resistant medical alert button. These portable systems can be worn around the neck, wrist, or on a belt clip.

If a user needs help, they can press a button and get in touch with highly trained emergency operators instantly, ensuring that seniors remain safe wherever they are. Medical Guardian devices even work out of town. A senior can take their alert system with them on vacation by notifying the Customer Care Team of their new location.

Medical Guardian also offers optional fall detection for seniors who are prone to falls and injury. Additionally, some of their devices are GPS enabled and have WiFi capabilities.

Medical Guardian is rated as a top medical alert system, having the largest range (1,300 feet). It's also a great value, costing just over a dollar a day.

ALERT SYSTEMS

QMEDIC *by QMedic*

QMedic is a medical care alert system that helps caregivers provide timely care. It provides proactive alerts to caregivers if a user exhibits unusual behavior, like a change in movement or sleep patterns.

QMedic comes as a waterproof wristband or pendant with the option of a cellular or landline base station, which has a larger-than-average radius of 1,000 feet.

Users have the choice of alerting the monitoring center or customizing alerts to go directly to a family member or a caregiver. The device keeps track of wake-up times and notes any behavior out of the norm. Alerts also go out if the device is not being worn.

ALERT SYSTEMS

MINDME LOCATE *by Mindme*

Mindme Locate helps find people who wander due to dementia or other cognitive difficulties. The device is small and light and can be carried in a leather belt pouch, used as a key fob, worn as a pendant or even put in a pocket or bag. The battery lasts 48 hours, and the alert system is accurate up to 10 meters.

Caregivers can also set a radius for the user and will be alerted if the person wanders outside that zone. Because the device reports location approximately every 4 minutes, Mindme Locate gives caregivers peace of mind and users more personal freedom.

Mindme has also developed an alarm for anyone who spends time alone. Mindme Alarm allows the user to alert a Mindme response center in case of a fall or other emergency.
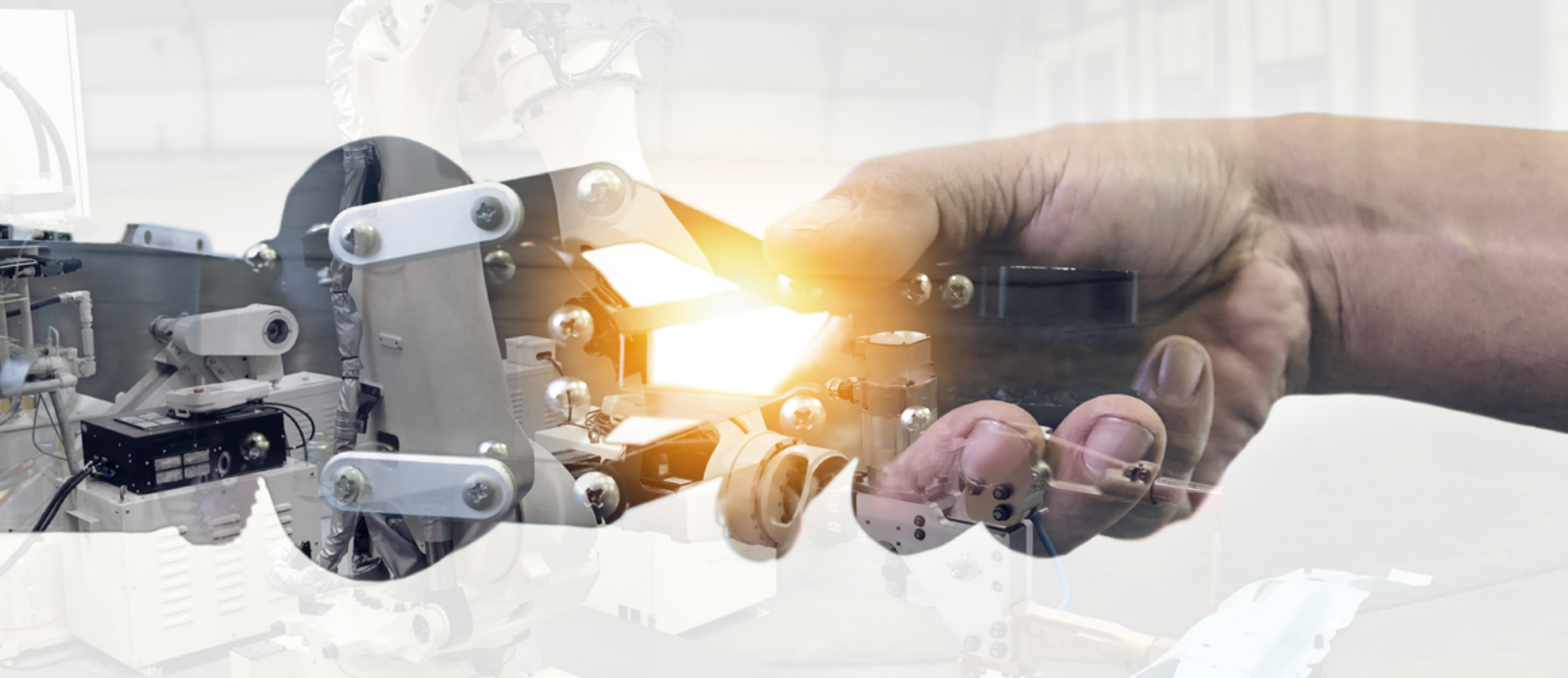
ROBOTS AND AI

STEVIE THE ROBOT *by Trinity College Dublin*

Researchers at Trinity College Dublin, Ireland, have unveiled a prototype robot designed to help for seniors in care facilities. The robot was designed to help people live independently.

Stevie is designed to look like a human, with 2 arms and a head, but moves on wheels. The head interface can show facial expressions to give the impression of the robot's "emotions," allowing for social interaction. Stevie has built-in sounds, lights, a camera and a battery of sensors to enable it to interact intelligently. Plus, it has built-in WiFi and Bluetooth, allowing the robot to connect with smart homes and devices.

Stevie will be able to remind users to take medication, alert a human caregiver when the user is in trouble or needs human assistance, and can facilitate social interaction through Skype calls. Stevie's company can also help alleviate boredom and isolation.

Stevie made his debut at the Maker Faire Rome 2018, and a second version was revealed in early 2019. Researchers hope to have Stevie ready for the market by 2021.

Stay up to date on Stevie's progress by following the robot on Twitter: @stevietherobot.
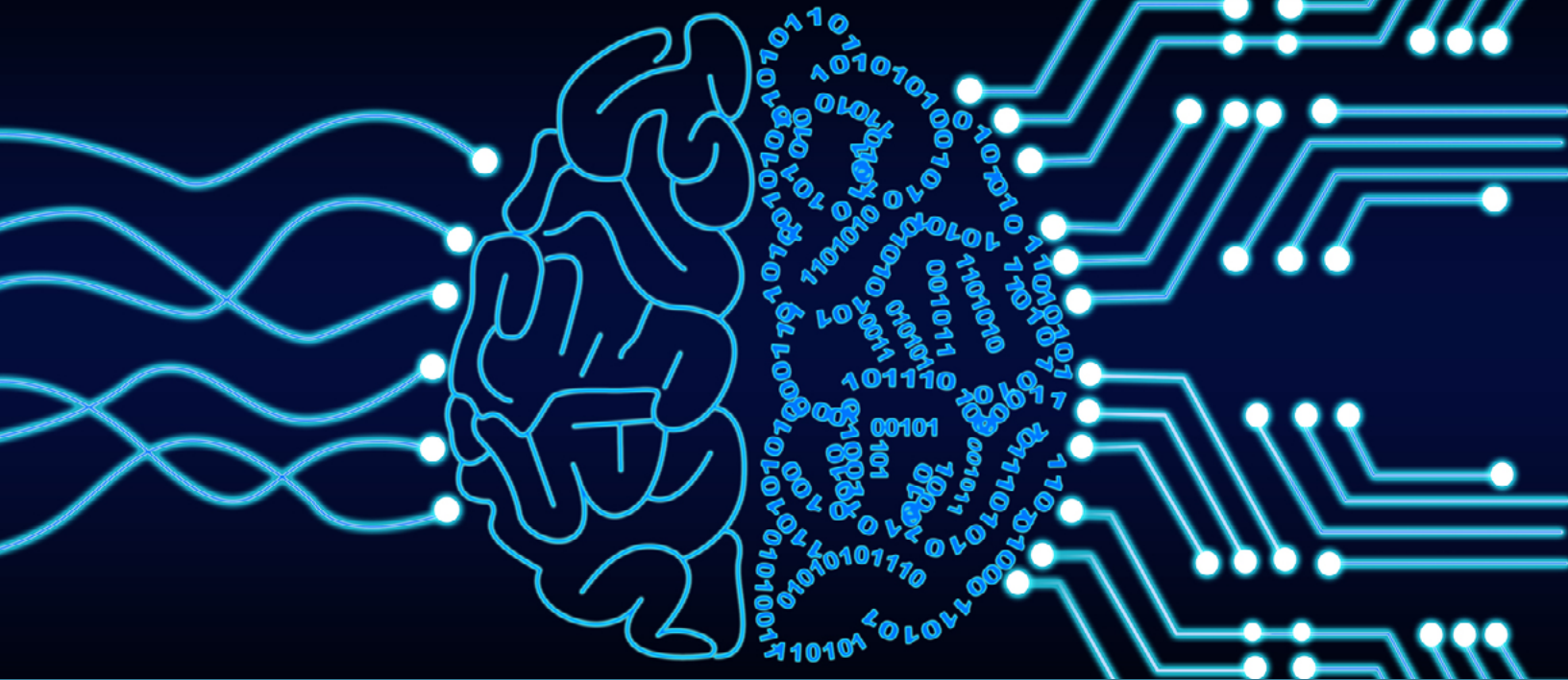
ROBOTS AND AI

ELLIQ *by Intuition Robotics*

ElliQ™ is a social robot that acts as a companion to help older adults stay active and engaged. The setup features the ElliQ body, a screen, and a base charging dock. The body of the device looks something like a desk lamp with the personality of a small dog, with a swiveling head and all.

The small robot can remind senior citizens of upcoming calendar appoint-ments, show pictures from the family, receive and send messages, and make suggestions. Seniors can also set daily reminders, check the weather, and maintain their calendar.

EllieQ is meant to act as a social companion that the elderly can interact with. It can tell jokes and play music and games. ElliQ is not a health tech device as such but will certainly add to the quality of life of lonely seniors and keep them socially, emotionally and mentally engaged.

ROBOTS AND AI

ANGEL *by Care Angel*

Care Angel has created a virtual healthcare assistant called Angel. The device monitors and manages the health of a person with chronic conditions, physical disabilities, behavioral health challenges, disease, or simply old age. The goal of Angel is to reduce hospital readmissions and provide a proactive approach to health management.

Angel monitors their vital signs and mental health daily using simple questions and conversation via a telephone call. Angel has a conversation with the user and collects vitals and other well-being information, delivers care instructions, and even conveys special, personalized voice messages from family members.

Angel notifies the family's Care Circle with messages like, "Mom took her meds," "Dad didn't sleep well and he is in pain," or "Grandma needs medical supplies." The family caregiver can proactively respond through the app or browser's Care Circle tools in real-time.

SMART DEVICES

VETA *by Aterica*

Veta is a Bluetooth EpiPen® Case for an EPIPEN® auto-injector. This device from digital health company Aterica holds one EpiPen® and is connected to a mobile app via Bluetooth. That means the device can connect seamlessly with an iPhone ®, iPad ®, iPod ®, or Android devices.

Veta can support up to 8 EpiPens®. This is a potentially life-saving device for people who need to regularly carry around epinephrine injectors. The app's multiple functions include alerts to remind users about their injectors' expiration dates and to remember their device. Veta also notifies members of the user's support circle if the injector is removed from its case.

Additionally, the device measures the auto-injector's temperature, location, and battery, to ensure that Veta is always at your side and ready to use.

SMART DEVICES

MOTHER *by Sen.se*

Mother is a universal monitoring solution comprising of smart sensors that can monitor just about anything. The device is a white hub that looks like a Russian nesting doll with, blank, shiny eyes.

Essentially, Mother is a data-tracker that comes with 4 remote sensors that can be used to monitor motion and temperature. The sensors communicate with the Mother hub and display useful information on related websites and mobile apps. The user puts the sensors on the object they want to monitor, like a parent's medication dispenser. The sensors gather data if the object is within 65 feet of Mother.

Mother sensors are called Motion Cookies. Mother's sensors can keep users informed on all manner of data, including when it's time to take medication or to get up and get moving because you've been immobile too long. Mother can also play an audio reminder if a person has forgotten to take medication.

Users can view monitoring data on a single app with an easy-to-read interface.

SMART DEVICES

RXPENSE® *by Medipense*

RxPense® is an intelligent, secure, and automatic pill dispenser for seniors at home, hospitals, and care facilities. It can also be used for disabled veterans and people with complex medication regimens.

The device ensures that the right person takes the right medications at the right time. It notifies caregivers, pharmacists, psychiatrists, clinicians, and physicians if an individual misses a dose. It also accurately records and documents the consumption of PRN "as-needed" and OTC medications. RxPense® can capture, monitor, and store vitals along with the electronic patient record thanks to external sensors.

RxPense® is also the only devices that secures, stores, and automates the dispensing of pharmacist-filled and sealed, weekly multi-dose blister-packaged medications. The device helps reduce prescription drug abuse through its high security measures, including biometric identification, pin, and password.

WEARABLES

WALKJOY *by WalkJoy*

Falling is an ever-present risk for the elderly and people with gait problems. WalkJoy is a multiple award-winning device that restores natural balance and mobility.

The walking-assistance device restores a sensory feedback loop created when you're walking. This feedback loop is essentially the communication from the brain, to the eye, to the feet, and to other areas of the body during walking. This loop can become damaged due to peripheral neuropathy, resulting in pain, numbness, loss of balance, and other issues. Losing the ability to walk naturally can result in falls and injury.

WalkJoy helps restore the sensory feedback loop by replacing the feeling of the foot hitting the ground as a person walks. Devices are attached to the knees that re-establish signals to the brain through healthy nerves around the knees. These nerves signal the brain that the heel just struck the ground. The brain's central nervous system incorporates the signal from the device, and the motor cortex responds normally — as if there was no loss of sensation in the foot.

Because WalkJoy is unobtrusive, is a great option for seniors with peripheral neuropathy. Plus, it is quiet, effective, cost-efficient, and easy to use.

WEARABLES

HEXOSKIN *by Hexoskin*

The Hexoskin Smart Garments can track heart rate, breathing rate, and other data and reports it in real time via a companion app. The garments contain body sensors for precise health monitoring.

The Hexoskin Smart Garments are embedded with non-obstructive sensors that monitor vital signs over long periods. They measure heart rate, breathing rate, breathing volume, movement, heart rate, sleeping patterns, and stress. Hexoskin can also obtain physiological data after a fall, which helps caregivers to study the person's health condition in real time.

Data are synced to local and remote servers for health data management and analysis. Plus, Hexoskin Smart Garments are machine washable, offer UV protection, and are extremely breathable for maximum comfort.

While these garments are great for athletes to reach peak performance, they are also ideal for seniors who may need to track their health.

WEARABLES

APPLE WATCH SERIES 4 *by Apple*

The Apple Watch is nothing new, but the Series 4 Apple Watch now has the ability to detect hard falls and run an electrocardiogram, which can be extremely useful to seniors. The device was cleared by the FDA as a "proactive health monitor."

When the Apple Watch detects a hard fall, it automatically displays a message on screen asking if you need help. If there is no response, it automatically places an SOS emergency call. However, this setting is only enabled automatically for seniors over 65 years old.

With a 30% larger screen than previous Apple Watch models, seniors have an easier time viewing the screen and utilizing apps. Additionally, the Apple Watch can detect heartrate, temperature, sleeping patterns, movement, and other basic information. It can use that data to prompt seniors to exercise or take it easy as needed.

In addition to the health benefits, the Apple Watch provides a way to stay connected with friends and family members as seniors can place calls or respond to text messages from the watch itself. Siri can also help with voice commands and reminders to help seniors in their daily activities.

An ever-expanding range of new technology is making it possible for seniors to live longer on their own, while lightening much of the caregiving burden for families as well as the overextended health system. Innovators in gerontechnology are developing apps, software, wearables, and AI assistance that help improve the quality of life for seniors thanks to technology like sensors, voice activation, GPS, Bluetooth, and smartphone connectivity.