easterseals Crossroads

Internet of Things
for People with Mobility-Related Disabilities

Internet of Things (IoT): the inter-networking of physical devices, vehicles, buildings and other items embedded with electronics, software, sensors, actuators and network connectivity which enable these objects to collect and exchange data

People with mobility-related disabilities include those with: spinal cord injuries; cerebral palsy; multiple sclerosis; muscular dystrophy; spina bifida; chronic fatigue syndrome; arthritis; stroke; Parkinson's disease; partial or complete paralysis; and musculoskeletal disorders, or MSDs, such as tendinitis and fibromyalgia

For users with mobility-related disabilities, IoT-connected technology allows them to control things in their home that may be physically difficult to reach, like lights, door locks or security systems.

SMART HOME

It allows a person with a disability to be more independent and increase the quality of life by making tasks in and around the home or office easier to perform. Interacting with things in one's environment, like a light or fan, can be difficult for some people, and smart home IoT allows them to control it more easily by allowing for voice or switch activation.

- **Amazon Echo, Google Home, Apple HomePod**: stream music; create tasks or to-do lists; create a shopping list and/or order items directly from Amazon; make voice calls; message other Echo users; prepare for the day by asking about the weather and news; set prompts/alarms for different times; use voice control for several 3rd party smart devices

- **Smart Plugs** (Insteon, Wemo, TP-Link): control lights, fans, radios, TVs, ovens and other appliances

- **Smart Thermostats** (Honeywell, Nest, ecobee): change the temperature in the home

- **Smart Locks** (Schlage, Kwikset, Yale): lock and unlock doors; Many people with disabilities have home health aides who provide care and assistance, and they often let themselves in and out of the home using IoT-connected devices.

- **Smart Cameras** (Nest, Ring Doorbell, Samsung): see and talk to a person at the door

HEALTH AND FITNESS

People with disabilities often have more complex medical needs, and close monitoring of their health and fitness will improve well-being and allow medical professionals to provide better care with more accurate, real-time/recorded data at a moment's notice.

- **Fitness Trackers** (FitBit, Garmin, Jawbone, Pebble, Apple Watch, Nuband): track steps; monitor heart rate, sleep patterns and calories burned; connects with app or website and provides the user with an activity summary

- **Glucose Monitors** (iHealth, Dario)

- **Heart Rate Monitors** (iHealth, Kito Plus, Kardia Mobile, Tinke, Angel, AliveCor)

- **Blood Pressure Monitors** (iHealth, Withings)

- **Temperature Monitors** (Scanadu)

- **Sleep Monitors** (Beddit)

- **Smart Scales** (iHealth, Withings)

WEARABLE DEVICES

Limited range of motion, dexterity and fine motor control are often associated with physical impairments and can make it difficult to handle and use technology effectively. Wearable technologies like fitness bands, smart watches and smart glasses can make it easier to interact with technology.

- **Activity-Tracking Bands** (FitBit, Garmin, Jawbone, Pebble, Apple Watch, Nuband): track steps; monitor heart rate, sleep patterns and calories burned; connects with app or website and provides the user with an activity summary

- **Smart Watches** (Apple Watch, Samsung Gear, LG Watch, Asus ZenWatch, Moto 360, Pebble): prompting; email/calendar reminders; health tracking; routing; connects to apps or websites

- **Smart Clothing** (Digitsole, Lechal Haptic Footwear, Dorothy, AIO smart sleeve, Owlet Smart Sock, Neopenda Smart baby hat, Samsung NFC suit): call a cab; call the police; track location, turn-by-turn directions; monitor heart rate, breathing and posture

indata project
eastersealstech.com