

SOCIALLY ASSISTIVE ROBOTS

“Robotics technology primarily refers to robots, which are physically embodied systems capable of enacting physical change in the world. Robots enact this change with effectors that either move the robot itself (locomotion), or move objects in the environment (manipulation), and often use data from sensors to make decisions.” From [Robotics Technology in Mental Health Care](#) by Laurel D. Riek



According to the [World Health Organization](#), 450 million people worldwide are currently affected by mental health conditions, and one in four people ultimately will be in their lifetime. Companionship has been shown to help alleviate many types of mental health conditions and discourage health-damaging behaviors (Rook, 2015). However, finding companionship may be difficult, especially if you are managing a mental health condition. That’s one of the reasons why many researchers and manufacturers have been developing socially assistive robots (SARs) over the past decade.

SARs are essentially robotic companions that can assist you with managing mental health conditions through social interaction such as providing you with encouragement, conversing with you, or delivering you some other type of social stimulation. Studies on SARs and their effects on people, as reported by the [Association for the Advancement of Artificial Intelligence](#), have shown that regardless of their gender, age, and culture, most people view SARs as caring companions rather than technical devices. This guide provides an overview of some animal and humanoid SARs that are available or soon will be on the market.

Animal Companions

The benefits of animal-assisted therapy in helping their owners with temporary, acute, or reoccurring mental conditions have been well documented over the past few decades (Robinson, MacDonald, Kerse, & Broadbent, 2013). However, if you are unable to have an animal because they are not allowed where you live or you are unable to take care of feeding, walking, grooming, etc., a robotic one may be an alternative for you.

If you are a dog-lover, the [Genibo Robot Dog](#) may be a good animal companion for you. It is designed to act like a real dog toward you. It recognizes voice commands when you instruct it to do something after touching its head, and it makes sounds and expresses emotion when its back is patted. It can even take photos.



Another option if you prefer dogs is the [WowWee CHiP Interactive Robot Pet Dog](#). CHiP is a smart, affectionate, and trainable robotic dog that responds to you through touch, gestures, and even a mobile app. With an adaptive personality, CHiP's character changes over time based on your responses and interactions with it. CHiP recognizes you as its one and only owner—greeting you, following you, and playing with you just like a real puppy. CHiP can play fetch with you using its SmartBall, and it recharges itself on its SmartBed.



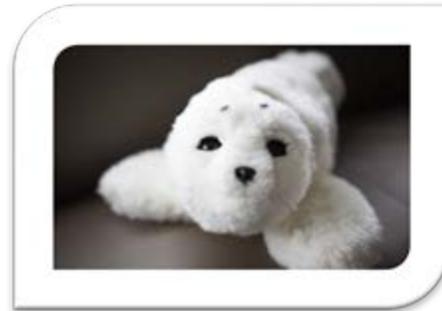
Sega Dream Cat

For cat lovers, the [Dream Cat](#) is touted by its manufacturer, Sega, as being an “interactive feline friend.” The Dream Cat has sensors in the head and both sides of the face, as well as in the back and stomach. When you pet the cat in these places, it will purr and meow. Like a real cat, its ears move, eyes blink, mouth and head move, and tail reacts to show how it is feeling.

Another option for cat lovers is the [Joy for All Companion Pet Cat](#). This cat is designed to look, feel, and sound like a real one. It responds to petting, hugging, and motion using built-in sensors. Catlike movements and sounds, like VibraPurr, makes it feel like a real purring cat. This cat purrs when you pet its back or behind its head, and it rolls on its back for a belly rub when you keep petting it. When you pet your cat's left cheek, it responds by nuzzling its head into your hand. If you do not touch your cat for a few minutes, it goes to sleep. To wake it up, you pet its back.

For a less traditional animal companion, there are other alternatives. One option that has gotten a lot of press for its beneficial companion effects is the [PARO Therapeutic Robot](#). PARO is an advanced interactive robot that has the look and feel of a stuffed

animal seal. PARO features tactile, light, audition, temperature, and posture sensors that allow it to perceive you, other people, and the environment it is in. For example, PARO can distinguish between light and dark and recognize voices and words (e.g., its name, greetings, etc.). PARO responds to your interactions as if it is alive—it moves its head and legs, makes sounds by imitating the voice of a real baby harp seal, and learns to behave in accordance with your preferences. For example, if PARO does something good and you stroke it, PARO will perform that same act again to elicit another favorable response from you.



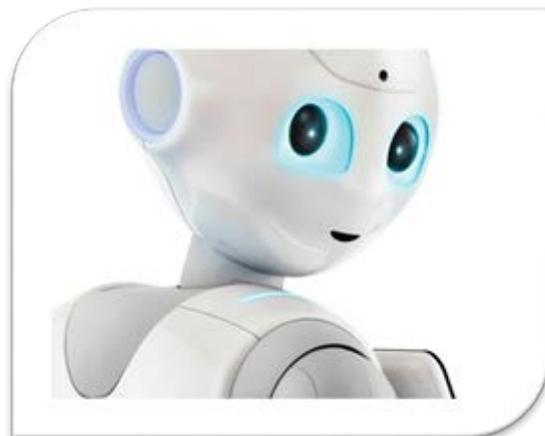
PARO Therapeutic Robot

Another similar product is a baby otter robot, [Ollie](#), that was designed as a therapy robot to help you if you have anxiety and depression. Built by a team at the Massachusetts Institute of Technology, Ollie stimulates a living, breathing animal with washable fur and a waterproof cover over its robotic parts. Like PARO, Ollie offers the benefits of animal-assisted therapy.

Humanoid Companions

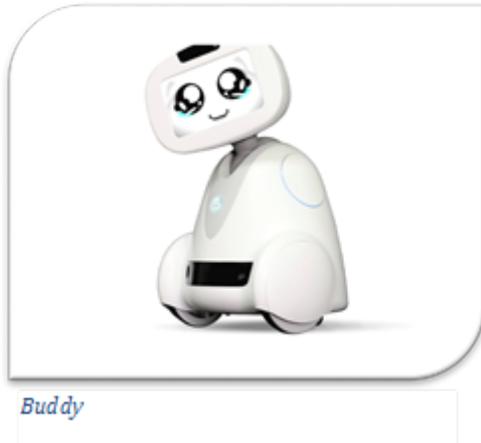
Humanoid companions are a great option if you are looking for an alternative to an animal. Humanoid companions have many of the same features and mannerisms that a real person expresses. [Reeti](#) is a communicative and expressive robot with the ability to express emotions through facial expressions. Reeti can also recognize your voice and is capable of text-to-speech communication.

[Pepper](#) is an autonomous talking humanoid robot that perceives emotions like joy, anger, sadness, and surprise based on the tone of your voice, facial expressions, and body movement. It responds to you through its own voice and body movements in an appropriate manner. It can recognize you by your face or voice and over time it memorizes your personality traits and preferences by asking you questions in order to respond better to your specific needs. Pepper's ability to identify different emotions and respond appropriately is designed to make its interactions with you natural and intuitive.



Pepper

[Buddy](#) is another humanoid companion option for you. Buddy's brain is an integrated 8-inch tablet with built-in WiFi and Bluetooth. Its 3D vision lets it easily track and interpret



hand, arm, and head movements; distinguish among objects, faces, animals, plants, etc.; and gauge the depth of objects in its sight. Buddy is fully mobile with three wheels and a plethora of sensors allowing it to travel, learn, and interact with the world around it. Buddy was built on a modular, flexible open source platform to allow hardware and software developers to build a portfolio of applications specifically targeted to professionals in education and healthcare, as well as in other markets that are realizing the benefits of SARs.

[Nadine](#) is a social companion with very humanlike features. Nadine can look you in the eye, recognize you, and remember the last time you talked to each other. Nadine can converse with you, read you stories, and play games with you. Nadine has the ability to react and change facial expressions depending on what you say. Nadine's short-term memory links to a language database so that when you say something, Nadine has a way of remembering what you say. Nadine is a great alternative to having a constant friend or personal companion with you at all time.

[For More Information](#)

No matter the type of companionship you are looking for—be it from an animal or humanoid—there are a variety of options that can suit your preferences and needs.

[Contact us](#) at AbleData for more information on the products mentioned in this guide and on SARs.

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