

Corona pandemic: How Humanoid Robotics can Help

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Editor Note

The new SARS-CoV-2 coronavirus has spread worldwide from China. The metropolis of Wuhan in Hubei province was the center of the outbreak. The associated disease is called Coronavirus Disease 2019 (COVID-19). The SARS-CoV-2 virus has spread very efficiently from person to person in the short time since it was first detected in December 2019, particularly through droplet infection, but also through aerosol infection.

Coronaviruses (CoVs) can cause human illnesses ranging from mild colds to more severe illnesses such as Middle East Respirator Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS).

The SARS-CoV-2 coronavirus is a new virus that has not previously been detected in humans. Friendly-looking humanoid robots are being used in several cities around the world to help the elderly and people suffering from corona. At Circolo Hospital in Italy, for example, a wheeled robot travels to the bedside of Corona patients to gather information about their health. In India, the robots bring medicines and food directly to the bedside. And in Japan, Pepper, a humanoid robot, also provided some comfort for people with mild symptoms: for

example, the robot is equipped with a microphone; a screen and a telepresence application so that patients can keep social contact and communicate with their relatives without risk of contamination. Pepper informs patients about safety rules and also offers relaxation exercises to hospital staff. Assistance solutions like Pepper can also be used in stores to guide customers during a crisis: A salesperson then controls the robot remotely and communicates via video. Companion robots have also proven their worth in institutions

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for the elderly, as they enable social contact with the outside world even in times of social distancing. For example, a startup in northern France has provided about twenty of its companion robots, Cutii, free of charge. Cutii provides nursing home residents with various activities while allowing them to make video calls to their loved ones on screen. The robots also provide gentle gymnastics, storytelling and a zero-waste workshop. Due to the quarantine measures taken as a result of the COVID-19 pandemic, many people are currently living in social isolation. This can have a detrimental effect on their mental health, both in the short and long term. Two groups in particular are vulnerable and in need of protection in this regard: older adults over the age of 65 and children under the age of 16. The use of social robots can potentially prevent or at least minimize these negative consequences. However, it is still unclear what conditions must be met for social robots to be effective in helping vulnerable people mitigate or even reverse the psychological consequences of social isolation. An international collaboration of scientists from the Netherlands, Sweden, Turkey and the University of Hohenheim has now conducted a conceptual study to address the possibilities and requirements, but also the obstacles and adverse effects of social robots. The researchers identified four main types into which social robots can be divided: The entertainer robot primarily serves to distract. It relieves boredom in the short term, awakens the joy of playing and amuses people. Social interactions are mediated by the social pathfinder. Its behavior can closely resemble authentic social contact. Through a

screen, people stay in touch with friends, family, or health care providers. A mentor robot can perform tasks in education, psychotherapy, and physical therapy that normally require the presence of a professional service provider. For example, by engaging in regular physical activity with a mentor robot, older adults remain mobile longer and can lead independent lives. So far, however, such robots have been used exclusively in research. The full spectrum of well-being, however, is only covered by the most complex type of robot, the friend. Through quasi-social interactions, it can mitigate the negative consequences of objective or subjectively perceived social isolation and support both short- and long-term well-being through caring and emotional comfort. For example, social robots are perceived as emotional and social actors, especially by children and the elderly, when they exhibit "social behavior," such as touching and emotional responses. They can comfort and cheer, as well as enhance communication skills and learning experiences, thus enhancing people's personal development. However, the research agenda on social robots also includes the aspect of whether and under what circumstances the use of social robots with vulnerable people can also have a detrimental effect on their well-being, Blaurock emphasizes. For example, there is the ethical question of the extent to which robots can and should replace humans. While social robots can strengthen older adults' sense of autonomy by making them less dependent on care and staff, on the other hand, there are also fears that social robots could replace caregivers, exacerbating

loneliness. In conclusion, due to all these facts, social robotics can play an important role in COVID-19 pandemic and should be

initiated on intensive care units, where, a high incidence of COVID-19 patients occurs.