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Technology and Humanity:
Robotics, AI and and IoT to support the elderly alone

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INTRODUCTION

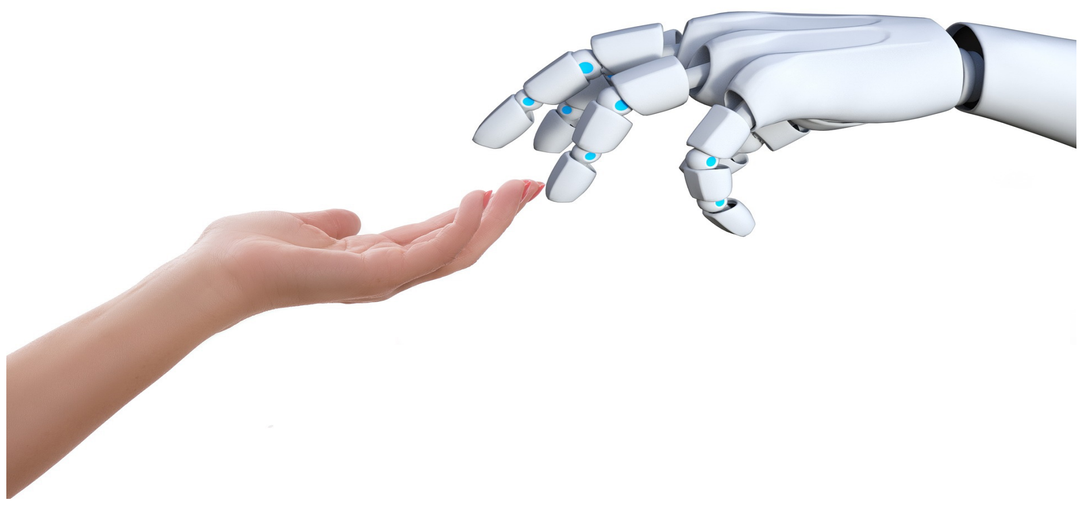
Man has traditionally been recognized as a "social animal" that develops its potential within the community in which he lives. Society is conceived as a set of relationships, maximized by the advent of the digital dimension. Despite technological progress, the feeling of loneliness is still widespread in the social fabric, especially among the weak and marginalized people, such as the elderly (over-65). The situation is even more difficult in emergency contexts, such as central Italy, hit first by the earthquake of 2016 (seismic sequence Amatrice-Norcia-Visso) and then by the well-known pandemic Covid-19. In this framework of isolation, intelligent technology can provide solutions to the need for social integration of elderly and lonely people.

OBJECT OF RESEARCH

An example of technology to support the elderly is represented by "social robots", intelligent devices that assume human or animal appearance, and can interact with people. These robots are equipped with a software called Artificial Emotional Intelligence, so they can capture the mood of the interlocutor through a multimodal emotional recognition algorithm.
Elderly people can also use an IoT system, consisting of household items equipped with sensors and connected to the Internet. This technology is useful to check their routine and facilitate them in daily activities. Smart devices can also adapt to the habits of the users and become "tailormade". In addition, in the event of an emergency, the system can immediately alert family members or rescuers, even at a distance.

RESEARCH GOALS

The aim of the research is to demonstrate that the use of intelligent technology counteracts the social isolation of the elderly, especially in areas of low population density and/or affected by environmental disasters. Interaction with social robots can reduce loneliness, increase the therapeutic adherence of patients and, overall, improve the lifestyle of users. Home automation relieves the commitment of family members, who can also remotely control the state of health of their elderly and distant family member.
These systems work by registering, collecting and transmitting personal data in real time. For these reasons, the research also focuses on specifically legal aspects, such as privacy, the processing of personal data and informed consent, in addition to liability for damage to the user caused by defective device.



CONCLUSIONS

From an ethical point of view, the provision of digital care to the elderly in place of human relationships could generate some criticism. It should be remembered that technology remains a tool that improves social relations but does not replace personal and family affections.
On the other hand, the use of intelligent devices reduces the sense of loneliness and neglect of the elderly, cancels geographical distances and compensates for the territorial deficit of health infrastructure. For these reasons, the technology of care for the elderly contributes to the social revitalization of the inner areas affected by the earthquake, thanks to the attention to a category of vulnerable people who still live there today.

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