Internet of Robotic Things in Healthcare Domain: Applications and Challenges

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Background and aims: The Internet of Robotic Thing (IoRT) represents a new concept that is the integration of different technologies including robotics, Internet of things (IoT), cloud computing and artificial intelligence (AI). This integration results in robots that can execute more complicated tasks. In an IoRT system, several robots can be conveniently integrated among themselves, as well as with objects and people, allowing data to be transferred to them without the need for human-to-computer or human-to-human contact. The aim of this study is to investigate of the applications and challenges of the IoRTs in healthcare domain.

Method: In this article, we reviewed of literature on IoRT. PubMed, Scopus‹Web of Science and Google Scholar were searched by using related keywords such as "Internet of things", "robotic", "internet of robotic thing", "internet of medical thing" and "Artificial intelligence". Relevant studies have been selected and reviewed based on the specified inclusion/exclusion criteria.

Results: IoRT can be used in various applications including rehabilitation, surgery, prosthetics, elderly care, long-term care, tele monitoring, mental health, disabilities and disease outbreak management. Based on the review, the application of IoRT in healthcare is associated with some issues and challenges related to security, network infrastructure, cost, high volume of data management, human-robot interaction, and multi-robot coordination.

Conclusion: IoRT is a rapidly growing field in the health sector that will create a great transformation in the healthcare delivery and tele-health in the future. This technology can play a key role in creating smart environments such as smart hospitals and smart nursing house. Despite the advantages and capabilities, the IoRT faces some challenges and issues in healthcare that need to be investigated and addressed.

Keywords: Internet of thing, robotic, Internet of medical robotic thing, cloud computing