

**Paper:** Security Risk Assessment of the PeopleBot Mobile Robot Research Platform

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## Abstract

Nowadays, robots are widely ubiquitous and integral part in our daily lives, which can be seen almost everywhere in industry, hospitals, military, etc. To provide remote access and control, usually robots are connected to local network or to the Internet through WiFi or Ethernet. As such, it is of great importance and of a critical mission to maintain the safety and the security access of such robots. Security threats may result in completely preventing the access and control of the robot. The consequences of this may be catastrophic and may cause an immediate physical damage to the robot. This paper aims to present a security risk assessment of the well-known PeopleBot™; a mobile robot platform from Adept MobileRobots Company. Initially, we thoroughly examined security threats related to remote accessing the PeopleBot robot. We conducted an impact-oriented analysis approach on the wireless communication medium; the main method considered to remotely access the PeopleBot robot. Numerous experiments using SSH and server-client applications were conducted, and they demonstrated that certain attacks result in denying remote access service to the PeopleBot robot. Consequently and dangerously the robot becomes unavailable. Finally, we suggested one possible mitigation and provided useful conclusions to raise awareness of possible security threats on the robotic systems; especially when the robots are involved in critical missions or applications.