

Remote Presence Robot for Tele-Conferencing in Healthcare

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Problem statement:

Normally in Hospitals, the ratio of physicians to the patients is very low, the task to maintain the health care level becomes heavier. To compensate for shortages of Physicians and reduce their stress the Remote Presence robots limit the gap between the physicians and patients using advanced technology. This system also helps to communicate to the patients when Physician is unavailable at the patient's bedside enabling a physician, from office, hospital or home, to connect to a Robot in an ICU, patient ward. Physician expertise can now be available at the patient bedside anytime, anywhere.

Remote Presence is a new modality for physician-patient interactions. Wherever access to medical expertise is limited, Remote Presence can effectively extend the physician's reach to manage patient care. Remote Presence is a mobile robotic platform that enables the physician to be remotely present. Through the integration of key technologies, the Remote Presence Robotic System truly allows healthcare to happen anywhere, anytime. Using telecommunications and mobile robotic technology, a physician can visit more often with patients and hospital staff.

Societal need:

Jobs which require speed, accuracy, reliability or endurance can be performed far better by a robot than a human. Since the doctors are requiring more accuracy and speed to prevent the life of patients, the use of robot in this field is really critical. And since the Internet continues to expand exponentially and becomes more ubiquitous in our routine life and mainly due to its low cost and wide availability, it provides a power communication infrastructure for the healthcare robot system. Thus it ensures better comfort and care for the patients.

Predecessor Systems:

Initial technologies used for robot manufacturing.

Systems Function:

The solution to this problem is designing a remote presence robot which can monitor the patients health by using the control of a doctor from anywhere in the world. It mainly includes three subsystems: Robot, control station and connectivity service. Under the direct control of a remote physician seated at a Control Station, this robot can move and allows the patients to interact with the doctor and also it monitors the patients by taking blood pressure, heartbeat irregularities, body temperature etc. This robot submits the medical data into a centralized medical IT system over wireless network. The remote physician controls this robot and interacts within the healthcare facility via the use of a specialized computer called a Control Station. The Control Station and our remote presence Robot are linked by a secure combination of broadband, the Internet and wireless technology. Connectivity Service is the backbone infrastructure providing the reliable link between Robots and Control Stations.

Life Cycle Considerations:

As human life is often at stake, robots must be safe, effective, and reliable systems. To maintain these, redundancy must be incorporated, i.e the use of both online and offline testing, software validation methodology, design considerations for single-point failures, failsafe strategies, and many more.

New Technology Used:

- Remote presence system core
- Sense array 360
- Virtually there
- Holonomic drive

References:

www.intouchtechnologies.com

www.wikipedia.org