INTELLIGENT PATIENT TRANSFER HOIST

Our SmartHoist has a combination of sensor inputs to provide intelligent, powered assistance for care providers when manoeuvring patients.

Technology

The SmartHoist is designed to assist carers with transferring patients from their bed for toileting and washing, transferring patients from bed to chair or wheelchair, or rescuing a patient after a fall. It uses multiple sensors to intuitively assess the user’s requirements and provides powered assistance without the need for explicit controls or commands. In-built intelligence enables the SmartHoist to safely overcome some of the user’s physical limitations. Its sensors, including a pressure array on the handles and image sensors on the boom, recognise the intention of a user through posture, pressure placed on handle bars, motion history, patterns of behaviour and location.

Manoeuvring patients within confined or cluttered spaces can be problematic. The SmartHoist gathers information about the 3D environment in which it is located, and through the application of user-intention control, is capable of assisting the care provider in positioning the hoist for safe and efficient lifting of the patient. The physical exertion and risk of injury to the care provider is minimised as the SmartHoist actively helps with manoeuvring the patient. The SmartHoist was developed with the support of the Illawarra Retirement Trust (IRT) Foundation and has been trialled and tested in several of their aged care facilities and received positive endorsement from care staff.

Benefits

- Improved patient safety.
- Reduced carer injuries.
- Automatic hoist positioning to reduce time for patient transfers.
- Obstacle avoidance and navigation through doorways.
- Smooth motion, reducing the ‘patient pendulum’ effect.
- Simultaneous weighing of the patient during transfer.

Applications

- Hospitals, rehabilitation clinics, aged care facilities and in-home.
- Aged care and disability care.

Status and IP position

A prototype has been built and tested by UTS and IRT. We are seeking partners to work with our researchers to further develop the technology.