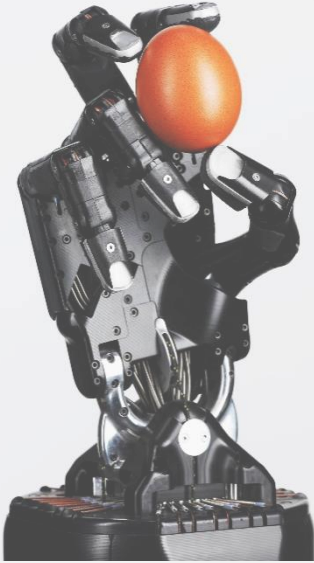


Introducing the Shadow Telehand

Because every glove box should be remote.



How It Works:

ONE:

The Shadow Telehand is set-up at a glove box using the existing glove ports.

TWO:

You control the Shadow Telehand at a safe distance, even in another room or vicinity.

THREE:

The robot mimics your hand and arm movements, handling hazardous materials so you don't have to.

The Shadow Telehand is the forerunner of today's most advanced remote systems. With the Shadow Telehand, you can wave hello to safer, more efficient nuclear decommissioning.

Our custom-made robotics product uses innovative new technology to help transform work within radioactive environments and solve key industry challenges via remote handling in glove boxes. It has specifically been developed to create a pathway to improve safety for nuclear operators.



We're currently in talks with Sellafield and NNL regarding the application of this technology.

7 Key Industry Challenges Solved:

1. Health risks and inherent vulnerability to workers:

Risks of worker exposure is a critical concern for both employees and employers. Even with the best safety culture in the world, accidents do happen, ones that can be fatal and costly to a company's reputation.

The Shadow Telehand allows you to remotely handle materials in a glove box from afar at no risk to your wellbeing. You can even operate the Shadow Telehand in your shirt sleeves at an office desk with full control over the robot's movements back at the cell.

2. Limited working time due to maximum exposure duration:

Presently, one of the easiest ways to safeguard workers is to minimise the time spent in a radiation area (often limited to 2 hrs per operator per day) or to rotate shifts at regular intervals with other personnel. However, both procedures can be highly disruptive and significantly reduce productivity time.

The Shadow Telehand is in the exposure line instead of a human which allows for improved working hours. With more operational hours, you can increase productivity and speed up processes to meet key deadlines.

3. Issues related to radiation protection dosimetry:

Personal external dosimetry (whole body thermoluminescent dosimeter badges and finger rings) measures the amount of ionising radiation delivered to a worker's body. Dosimetry readings must be closely and carefully monitored throughout shift time to ensure workers keep under occupational dose limits. However, this method still allows workers to take in a dose, no matter how small.

The Shadow Telehand introduces a new safety layer to the industry by eliminating dose exposure. You can carry out decommissioning tasks from another cell or vicinity to prevent any inhalation, ingestion and skin contamination and reduce time spent on constant dose-measuring, calculating and recording.

4. Limitations with personal protective equipment (PPE):

PPE is restrictive in nature which can impact on human capability making it slower and at times uncomfortable to perform certain tasks. Air fed suits, in particular, are time-consuming to put on and come with dressing and undressing complexities.

The Shadow Telehand can be controlled from a place that's convenient to you, with your choice of attire. Whether it's a branded company uniform, overalls, or smart-wear, you can increase your comfort and dexterity for critical operations and do away with costly PPE that interferes with ease of movement and performance.

5. Barriers to situational awareness:

Operators often work in limiting conditions such as handling hazardous materials in glove boxes that are flush against walls or dismantling tasks in large glove boxes that require a longer reach than the human arm allows. Both cases can also affect a worker's field of view which increases risks associated with blind spots.

The Shadow Telehand is a highly dexterous, maneuverable deployment mechanism with variable arm lengths to overcome constrained environments. To enable precision and accuracy, multiple cameras can be set-up and/or a virtual reality headset can be worn to improve your line of vision.

6. High cost of decontamination and significant secondary waste:

The process of decontamination and maintenance of equipment involves substantial costs and the industry requires equipment deployed to be either cheap enough to be disposable or robust enough for easy preservation and effective sterilisation. If disposable, the industry requires effective waste management as disposal of air fed suits alone provides significant secondary waste.



How Easy Is It To Use?

Our Shadow Telehand is designed to fit all glove boxes which means:

LOW COST, NO DISRUPTION

Minimal cost to integrate within a company causing little to no disruption

NO SPECIALIST TRAINING

There's little need to invest money into reskilling or retraining staff as the Shadow Telehand is easy to use

FITS WITHIN EXISTING SYSTEMS

It seamlessly fits within current systems and safety practices without changing industry procedures

The Shadow Telehand is the main tool to encounter hazardous materials (reducing the need for other specialised equipment) and yet the robot hand is not overly exposed as it uses the existing glove port. This keeps costs associated with decontamination to a minimum and produces less secondary waste, ensuring more environmentally friendly operations.

7. Lack of new recruits in the nuclear industry overall:

Many skilled workers in the nuclear industry are approaching retirement age and it's vital that their skills and knowledge are passed onto future generations but there is a huge recruitment challenge with one of the barriers being the use of traditional technology which can put off young millennial recruits.

The Shadow Telehand creates a glove box for the digital native. With transformed safety standards and the world's most advanced robotic technology, the industry can attract more suitably skilled staff during a time where the need is greater than ever.

Want To See It In Action? *Book a pilot session or demo now!*

We're offering a free pilot-session (see it live and test it out in person) or demo (see it live through digital channels) throughout Q1 2019.

To pencil a date in the diary, please email Rich Walker, Managing Director of the Shadow Robot Company on rw@shadowrobot.com or Penny Scully, International Relationships Manager on penny@shadowrobot.com.

Pilot session: While the costs associated with transporting, setting-up and running the full system is approximately £30K, we're able to provide a free demo by just bringing the front-end of the Shadow Telehand to your office and running the rest at our headquarters in London. All we need is a working network connection with sufficient bandwidth.