

Automation transforming construction safety

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For decades, the construction site has been a place of grit, sweat, and significant risk. According to the International Labour Organization (ILO), construction accounts for a staggering 20 per cent of workplace fatalities worldwide. But a "robotic reformation" is underway. From the skyscraper projects to bridge repairs, robots are becoming the new "safety shield" for human workers.

ELIMINATING THE RISK

The primary goal of these robots is to remove humans from the "danger zone" completely. This is the most effective form of safety: if the worker isn't near the hazard, they can't be hurt. Whether it is exploring a deep tunnel or entering a crumbling structure, a machine is now sent to do the dangerous work while the human operates it from a safe distance.

BROKK AND HUSQVARNA DXR

In traditional demolition, a worker is seen with a jackhammer, exposed to falling concrete, heavy vibrations, and

toxic dust. Today, remote-controlled robots like the Brokk or Husqvarna DXR are the industry standard. These machines crawl into dangerous, unstable buildings while the operator stands up to 300 feet away with a joystick. If the roof collapses, a machine is crushed, but a life is saved.

BOSTON DYNAMICS' "SPOT"

On massive sites or projects, a bright yellow, four-legged robot is often seen wandering the site. This is Spot. Equipped with 360-degree cameras and LiDAR (Light Detection and Ranging), Spot performs site inspections and "hazard mapping." It can enter confined spaces or gas-filled areas to check for safety before humans set foot inside.

TYBOT

Tying rebar (the steel mesh inside concrete) is one of the most back-breaking jobs in construction. It can lead to chronic spinal injuries. A robot called TyBOT, created by Advanced Construction Robotics, is now used on major bridge projects. It autonomously identifies rebar intersections and tying

them with steel wire.

ICON'S VULCAN

3D printing is moving from the lab to the job site. Companies like ICON use the Vulcan printer to "print" the walls of entire homes using a concrete composite. This removes the need for workers to climb high scaffolding or lift heavy masonry blocks. It reduces the risk of falls, one of the leading causes of death on construction sites.

THE NEW RISK

While these machines save lives, they aren't perfect. Despite becoming industry standards, the risk of accidents during Human-Robot Interaction (HRI) remains. If a robot's sensors are blocked by dust or a software glitch occurs, the machine could collide with a worker. To avoid this, competency-based training is essential. Workers are now being trained in Virtual Reality to communicate with robots. Safety in this era isn't just about the machine; it's about prevention. Predictive maintenance can stop accidents before they occur.



ILLUSTRATION: ADRIN SARWAR

WALTON LIFT setting standards for safety



We live in a country where frequent load shedding is a daily reality. The prospect of being trapped in a stalled elevator can trigger significant anxiety. For individuals prone to claustrophobia, a sudden power failure is a distressing experience that can lead to panic. Walton addresses these concerns by equipping every lift with a standard Automatic Rescue Device (ARD). This system ensures that in the event of a power cut, the cabin does not simply shut down between floors; instead, it automatically navigates to the nearest floor and opens the doors, allowing passengers to exit safely. This system is backed up by TÜV-certified progressive mechanical safety gears. These are designed to prevent free-fall or sudden drops during mechanical glitches. It ensures passenger's safety regardless of power stability or technical faults.

SEISMIC AND FIRE PROTECTION

Safety remains the cornerstone of Walton's engineering philosophy, particularly given that Dhaka sits in a high-risk seismic zone. Walton Lifts are equipped with integrated seismic sensors that automatically navigate the cabin to the nearest floor during an earthquake,



preventing the nightmare scenario of passenger entrapment. This commitment to safety extends to fire protection as well; Walton's landing doors meet the rigorous EN 81-58 fire-rating standards. EN 81-58 is the European standard for testing the fire resistance of elevator landing doors to prevent fire and smoke from spreading from a building floor into the elevator shaft.


Walton has domestic manufacturing infrastructure and dedicated Research and Innovation (R&I) team. By operating its own Lift Testing Tower and adhering to TÜV-prescribed checklists, Walton ensures every unit complies with EN 81-20 standards. This local presence

allows for a level of customisation, from adjusting cabin sizes for older architectural renovations.

IOT BASED SMART LIFTS

The technological prowess of Walton is further evidenced by its leap into the future of "Smart Lifts." The company has successfully integrated IoT-based remote monitoring and destination control systems, allowing for high-traffic management and predictive maintenance. This innovation is already operational in several landmark projects across the country, including Bangladesh Bank, Dhaka Medical College, and various government installations under the PWD and MES. With the capability to install lifts reaching speeds of up to 4 meters per second and capacities of 2000 kg, Walton is proving that local engineering can handle even the most demanding high-rise requirements.

As we move through 2024 and 2025, the perception of locally made lifts has undergone a radical transformation. By prioritising safety certifications, lifecycle costs, and rapid after-sales support, Walton Lift has established itself as a dependable partner in the nation's infrastructure development.



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