

Underfloor Inspection Robots

When buying or planning to renovate a home, underfloor inspection helps assess the life span and condition of the building. Underfloor inspections can reveal damage caused by rot, water leakage, dampness, and termite attacks. The inspection can also help in detecting any possible defects such as improper bearers or joists, which can cause springiness or sagging in the long term. Furthermore, the structure may weaken over time. Buildings are also prone to damage caused by earthquakes which has occurred lately in Canterbury as well as wider New Zealand.

To help the building inspectors in growing their business and adding efficiency to their inspection process, Xlabs team has developed a useful tool for this industry.

How are Xlabs's Robots Useful?

The traditional process of underfloor inspection is time consuming, costly and involves strenuous physical effort. It is not easy for a human inspector to check an underfloor space when height is limited or the architecture limits the crawl space. In fact, there are obvious risks associated with underfloor inspection.

The presence of certain elements can cause rotting and in some cases water leakage can weaken the structure and create puddles under the building, some cases there are exposed electrical wiring which makes the area hostile to inspections. In such scenarios, it is not safe or hygienic for a human inspector to go beneath the floor.

Besides the whole process is time intensive as the inspector has to crawl in cramped spaces and check every corner while carrying recording equipment. Sometimes, the space under the floor is not enough for a person to comfortably move around.



We understand the difficulties associated with underfloor inspection. Xlabs was given the job to design a robust underfloor inspection robot that is not only capable of solving these problems but offer detailed inspection capability. These robots offer all the technical features inspectors needs to assess underfloor structures. Besides that, it is far less risky to send a robot under a supposedly damaged building rather than sending a human inspector. Xlabs's underfloor inspection robots are equipped with cameras and they can crawl over any terrain and reach tricky places. Furthermore, these robots have been developed with high quality parts to ensure longevity and ease of operation.

Capabilities of the Under-Floor Inspection Robot:

- Underfloor inspection robots can operate remotely with a wireless controller over a specific range. The remote operations enable the user to inspect the building without the need to go under the floor physically.
- The robust design enables the robot to comfortably reach parts of the building that are not easily accessible for humans.
- The cameras and communication system installed on underfloor inspection robots makes it convenient to observe the situation remotely.
- For a better experience, the flood lighting system assists in proper illumination of the area.
- Underfloor inspection robots ensure human safety when it comes to inspecting buildings that are structurally weak.

The following are some of the most notable features of underfloor inspection robots.

Controlled Floodlights:

Traditionally when a human inspector goes underfloor, he needs to be carrying heavy gear. The whole experience can be very uncomfortable. But with underfloor robots, the user can remotely access and illuminate the floor from all angles. Underfloor inspection robots are equipped with powerful floodlights, and the operator can remotely control the light intensity.

Live Video Capturing & Streaming:

One of the best features of underfloor robots is their ability to live video stream. These robots are equipped with high-resolution cameras and communication systems for transmitting high quality live video. This feature enables the user to examine in-depth the structural aspects of the building while seated in a comfortable position. Furthermore, the video can be recorded and can be viewed again for a better post assessment.

Differential Driven Robots:

The differential control of a robot's wheels enables the robot to turn while staying on its axis. This feature is useful in places where the robot has tight spaces to turn around. With differential drive the robot requires very little space to maneuver and turns very smoothly. The differential drive also has a self locking mode which allows the robot to stay braked on steep terrains.

All Terrain Inspection Robots:

Due to poor access in some buildings, the surface can be uneven and difficult for a traditional robot to run over. But the all-terrain under floor inspection robot is designed to run smoothly on any kind of surface. Special shock absorbers are installed to withstand tough environments. Notably, the wheels and the suspension systems enable the robot to drive over rough rocky as well as slippery grounds. These robots have the off-road capability and a good grip over difficult surfaces. Their remote viewing system helps to view obstacles from far and avoid them with ease.



Benefits to the business:

- ***Ensures Human safety:*** Underfloor inspection robots provide inspectors safe access to inspect places without engaging in any potential risks.
- ***Reduces human effort:*** The easy to operate design and robust hardware dispenses the need of human inspectors to crawl under low clearance areas and wet under floor areas. They are able to remotely inspect cramped spaces while being seated comfortably.
- ***Saves time:*** The detailed video reporting feature and ability to cover large areas faster saves time.
- ***Quality of service:*** These robots provides a better grade of service for a reasonable price giving the business an advantage over other competing inspection services.

