

HOW TO SIMPLIFY CONSTRUCTION USING MECHATRONIC SYSTEMS

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Mechatronics is a fast evolving technology branch dealing with the design, production and operation of mechanisms and systems with advanced computer control, which is based on knowledge in the field of mechanics, electronics, as well as microprocessor technology and computer science [1].

Mechatronic objects have a synergetic form of integration of their constituent elements. Construction is a rather extensive and old topic, a lot has been invented in it for simplification and convenience, but much more will be invented, because science does not stand still and is always developing. To ensure the safety and stability of construction sites, devices have been used since ancient times to adjust the horizontal and vertical structures. Various mechanical devices were used to align objects, such as thread plumb lines, water and bubble levels. But the progress has leading to their replacement by digital technologies and laser devices.

Laser level or level is a device that performs the construction of light lines on vertical or horizontal planes of the room. The purpose of the device is to accelerate and ensure high accuracy of marking walls, floors or ceilings of residential or public premises. Using a laser level to repair an apartment, you can significantly save time and labor resources, since the device is ready to work immediately after switching on, and one person can make a marking [2].

Laser levels can be used not only by professionals, but also for household needs. Thanks to intuitive controls and detailed instructions, a person who does not have any skills in working with laser devices will understand how to apply

it. Everyone can glue wallpaper, put tiles or hang a picture, spending only a few seconds to turn on the device and point the beam at the surface. Laser levels can be grouped into pinpoints (used in everyday life for a smooth marking), linear levels (working only in the direction of an object) and rotary ones (cover 360 degrees of action).

Practically everyone has once had to drill a hole in the wall to hang a picture or a shelf, with just one thought in their minds concerning the presence of electrical wiring or accessories in the wall. Nowadays such worries can be eliminated with a help of special devices, e.g. hidden wiring detectors, that will indicate the presence of electrical wiring in the right place. Operating electric wires generate an electromagnetic field around them, that can be easily detected by such mechanisms. Then a special amplifier in the cable detector amplifies the signal and shows the conductor location [2].

In many areas of technology, mechatronic systems are replacing traditional mechanical machines that no longer meet modern quality requirements. The mechatronic approach to the design of new generation of machines relies on transferring the multifunctional load from mechanical components to intelligent, electronic, computer, and information components that can be easily reprogrammed to solve new problems. All these innovations affect all the branches of engineering including repairing and construction.

References

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