



We continue the conversation about demining robots that began in our previous newsletter. This issue is dedicated to humanitarian demining robots developed by LeoTronics Robotics in close cooperation with iTrend, Slovakia.

## Endless Mine Warfare

Some wars never end. Even when the opponents have ceased hostilities, unexploded ordnance left behind in combat areas, such as anti-personnel mines, maim or kill thousands of civilians, mostly children, every year around the world and prevent large sites from being used by civilians. On the other hand, the detection and removal of warfare devices are one of the most dangerous jobs

in the world: when it comes to defusing a mine, those who first step into the minefield are most at risk. One of the main objectives for the LeoTronics engineers: is to develop technical solutions to make humanitarian demining more effective and safer. It became apparent during the development process that one robot model is not enough for effective demining.

## Humanitarian robotic demining technology

The new project aims to divide the demining functions into several collaborative robots that operate on the reclaimed land, ensuring maximum efficiency and safety for the deminers. The process is structured as follows:

- First, the impact robot passes the area, effectively disarming the anti-personnel mines on the ground's surface.
- Then the robot, equipped with a metal detector,

scans to detect mines in a metal.

- The third robot equipped with a geo-radar can detect explosive devices in steel and plastic housing. The distribution of specialized functions among different robots improves the functionality of the robots. It makes them lighter and more mobile, making them suitable for working in any terrain, including rugged terrain. Thus, let me introduce three new models of sapper robots from LeoTronics.

## TrackReitar CleanField MH (MineHunter)

The first robot in this range was named TrackReitar CleanField MH. MH is the abbreviation from MineHunter. Remotely operated demining robot TrackReitar CleanField MH intended to work primarily in areas contaminated with anti-personnel mines. Also, this robot can be used to neutralize tripwire mines without endangering a person. This wonderful machine can be used both during hostilities and for humanitarian demining. Demining system is characterized by the highest

speed and efficiency in clearing anti-personnel mines, tripwire mines, and explosive remnants of war. Mine clearance systems are intended for the destruction of anti-personnel and unexploded ordnance. TrackReitar MH can perform some engineering in addition to demining. This machine is a rotating working body brought forward, to which dozens of chains with loads are attached. Such a machine easily neutralizes anti-personnel mines, destroying them or causing them to detonate.

## TrackReitar CleanField MD (Metal Detector)

The second robot from this range is TrackReitar CleanField MD (Metal Detector). This machine is equipped with a special metal detecting sensor designed to find mines. This device can detect and provide 2D images of objects on or under the ground. Metal detectors are considered the most reliable sensors for mine detection work.



## TrackReitar CleanField GPR (Ground-Penetrating Radar)

The third one is TrackReitar CleanField GPR, equipped with Ultrawideband impulse Ground-Penetrating Radar. This robot is intended to detect and define coordinates of subsurface objects with electrical properties that differ from the surrounding soil. The primary purpose of this machine is to see plastic antipersonnel mines (APMs) and improvised explosive

devices (IEDs). Particular challenges for deminers are APMs and IEDs. Plastic APMs cannot be detected by metal detectors (MDs). IEDs are difficult to defend against because they can be made in different ways, using materials that are intended to shield them from detection. The best tool for such dangerous things is ground-penetrating radar.

## The Major Benefits of TrackReitar CleanField robots

**There are about ten manufacturers on the market offering their robotic demining solutions. These heavy, expensive machines show high efficiency in defusing anti-tank mines but insufficient efficiency in combating anti-personnel mines. It is not always possible to use these excellent machines because they are not economically viable or cannot be used due to the very high cost of these deminers. In addition, highly qualified, specially trained personnel are required to operate these machines.**

LeoTronics demining robots occupy the niche of cost-effective, lightweight robots for generally humanitarian demining. Efficiency is achieved by using three models of TrackReitar CleanField robots together and at the same time. After the TrackReitar CleanField MH disarms anti-personnel mines, the subsequent work is carried out more quickly and efficiently, as there is no risk of damage from landmines. In addition, these robots of small size can work in cramped spaces - where a large machine will not pass. The relevance of such robots is confirmed by the research conducted by NATO in the project SPS G5731 Multi-sensor cooperative robots for shallow buried explosive threat detection DEMINING ROBOTS.

Demining Robot TrackReitar CleanField MD



## Significant benefits of Demining Robots TrackReitar CleanField

- High cost-efficiency
- Ability to be repaired in the field
- Significant increase in clearing speed
- Versatility - robots can be used to perform other tasks due to the

possibility of equipping with interchangeable equipment. Don't forget to subscribe to our YouTube channel LeoTronics EU, and you will always be aware of our news.

