

Robot, Attention!

They will never ask to go home for the weekend. You will never hear them complain about the food. They do not dream of the day they will be released from the army, and when the order comes – they will be the first to charge. Small, mobile and rugged – please meet the next generation of the IDF fighters.

By: Yossi Yehushua

Dad, Look it is Wall E! Shouted in exhilaration my 4 year old son Roy when he saw the photos of the robots I had scattered on my desk, “Dad, I want to play with it...”

Little Roy would probably not be soon keen on playing with the robot in the photo, if he met it face to face. It is true he resembles the cute robot from the animated movie Wall E, but instead of clearing the rubbish all day long, its job is to locate terrorists and to secure soldiers lives as much as possible.

During “Cast Lead” operation, for example, one of the elite units of the infantry corps, were required to pass by a tall building, which observes a main traffic axes, and could have easily been an ideal hiding place for the Hamas to hide and hit the passing IDF soldiers.

In an ordinary situation, a squad of fighters would have been sent into the building, in order to scan and clear it from hostile elements. Except this time the fighters took a different approach. A massive robot equipped with a mechanic arm with a camera on top of the arm was sent in ahead to scan each room in order to assure that there is no threat hiding behind a door, wall or sofa. “It saved valuable time, and prevented having to endanger fighters’ lives”, says one of the soldiers who participated in this event.

Robots - that is the newest hit used in the infantry corps units of the IDF, particularly since the “Cast Lead” operation. Throughout the years robots have been used by the IDF in a similar way to the ones used by the police force, for removal and destruction of bombs and explosive devices, however at the IDF’s school for counter terrorism some extensive thinking has been done over the last year, with the purpose of customizing the robots to the needs of the infantry units.

“The robots that were developed and customized for the demands of the infantry units, are in fact mobile eyes”, explains Y, head of robotics at the IDF School for counter terrorism (LOTAR) they are designated more for scanning, and real time intelligence gathering. These robots, as apposed to robots that dismantle bombs, have to suit and answer all the fighters’ needs: the operational needs - they need to be light because the fighters carry them on their backs, they have to be durable so they can operate in unexpected ground conditions, and they have to be

quick and convenient for use as the fighters can not afford to waste time during operational activity.”

Lined in threes

All purpose robots

According to the needs gathered by the personnel at LOTAR from the fighting units of the IDF, and under the supervision of the defense industry, three kinds of robots were developed to fit the needs of the infantry units: EyeRobot, EyeDrive and EyeBall. The three differ in size capabilities and objectives.

The EyeRobot is the oldest of the bunch, the big brother. Its origin is in the United States where he is also used by the American Army. The IDF purchased it a year and a half ago for testing purposes. It weighs 20Kg and it comes with a control unit of 6Kg, its reception range, depending on the terrain, varies from 30 -700 meters.

“The EyeRobot is massive and using it is relatively cumbersome” explains Y, “its big advantage is its navigability much like an All-Terrain Vehicle, it can climb stairs and cross whole buildings, it has an arm that has a camera on top and the camera transmits the occurrences in the area scanned by the robot. It can also be placed at a distant guard post or dangerous guard post instead of a soldier. The robot can “lie down” during an observation while on an ambush instead of a soldier. Its disadvantage is namely the weight, a fighter that needs to carry the robot with the control unit on his back, is actually carrying an extra 26Kg on top of his personal equipment and that is not easy at all”.

The EyeDrive is the smaller brother; it is already operational in the field but is still in the final stages of development and improvement. “The major advantage is its weight”, tells us Y, “between two and a half to three Kg only, it does not break it just drops and is simpler to use compared to his big brother. It can be deployed faster and has 360 degree circumference cameras that transmit all the time. It has been in the IDF’s use for a year, its range is between 30 to 400 meters, it is actually a ‘little spy’ quick and agile, that can be sent to any place in which you need to see what is happening”.

The EyeBall is much more basic, doubtful if it can be called a robot. “Its purpose is quick intelligence gathering” explains Y, “it is very simple and stationary, actually we are talking about a ball that has a camera installed in it, the ball is built in such a way that it will always fall upright, but you can not control the direction in which the camera will fall, after the ball has been thrown and has fallen, you can rotate the camera via remote control find what you are looking for”.

The robot ball used to be in use by several IDF units, but use was not done in an orderly fashion and therefore abandoned for the time being. The subject of robots is still in its assimilation stages in the infantry units, says Y, presently we, the personnel from LOTAR, accompany the

robots to the different infantry units or operate them ourselves. The aim is that every infantry unit will eventually have its own robot formation”.

According to N, one of the fighters who assisted in defining the robots’ requirements, and helped in training the soldiers to operate the robots, the IDF’s robots are still to undergo a massive ‘baptism of fire’ from the terrorists, and that is why there have been no robot loses. “The ability of the robot to comb a closed house on its own, before forces enter the house, is an enormous addition”, says N, “even if it is shot at, the robot is the one getting hit and not one of the fighters”.

For the robots that break or just need maintenance, a special “hospital” was authorized as part of the armament corps, its staff have gone through the needed training, both in Israel and abroad, for the treatment, repair and maintenance of the robots”.

The long term thinking is that in every combat unit there will be a person operating the robot, just like you have a person operating the MAG”, says N. As far as technology is concerned we are already there, now it is the learning and insertion stage. Will this work and will this be adopted by the Infantry units? I believe it will, when it is proven that these robots save lives. This is what will bring to its success, and this is where it will be measured”.

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