Smart Technologies for Infantry Soldiers

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Smart Bullets

The increase in instances of irregular warfare has resulted in proliferation of technologies to equip and protect a soldier in an uncertain environment. Increasingly, regular armies are being involved with non-state actors who do not follow regular rules of engagement. Development of smart bullets is a step to enhance kill probability of the opponent while reducing the stress on the soldier in locating him. ATK, an American firm and Germany's Heckler & Koch are designing a rifle that negates the advantage of cover. They have developed a new gun called XM25 which weighs about 6kg (13lb) and fires a 25mm round. The weapon has to be aimed at the probable location of the enemy rather than having him at cross hairs.

Each rifle bullet has to be programmed before it is fired, by a second computer located in the rifle. The firer determines the distance to the target by pointing the inbuilt laser range finder in that direction at the nearest object which may be a tree, vehicle or so on. Looking through the rifle's telescopic sight, the gunman would estimate the distance from the object to the target. He presses a button near the trigger to add that value to (or subtract it from) the distance determined by the rangefinder. Once fired, the onboard computer in the bullet monitors the flight trajectory and when the computer calculates that the round has flown the requisite distance, it issues the instruction to detonate. The explosion creates a burst of shrapnel that is lethal within a radius of several metres and kills the

enemy. The weapon has been found to successfully engage targets upto 500 metres.

The development of similar weapons will lead to re-writing basic drills as cover will not be an advantage any longer. Also, smart technologies will now be to available to a foot soldier giving him considerable edge over the enemy.

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Smart Phones and Military Applications

The advent of smart phones has led to advanced computing and connectivity among the users. Most importantly, it has enabled the user to run multiple applications from a single gadget. The soldier uses numerous devices during operations. Radio sets for communication, GPS for navigation, language translators for communication with locals and so on. Also, development and induction of the equipment takes time and resources. An off the shelf application like a smart phone can be easily made available to all and reduces the number of devices a soldier may have to carry. A smart phone with available and under-development applications will enable a soldier to undertake multiple functions in a single device.

Encrypted software is being developed to provide secure communication between a group of soldiers. The Soldier-Eye application provides the exact location at any time thus obviating the need to carry a GPS device besides giving location of fellow soldiers. Also, available digital maps can be effectively used for navigation. The zoom in feature can be used to pinpoint precise location of enemy and convey their co-ordinates to the command centre for destruction. Also, the application can be used to destroy the enemy after coordinates have been received by the individual soldier indicating the presence of an enemy nearby. The Evernote application can be used to record/take pictures to be used as later for making reports. The Pageonce application works as a personal assistant reminding all tasks to be done at the appointed time. Vcommunicator application can be used for translation and interacting with locals by having spoken and written translations.

A major advantage apart from having to operate a single device is that soldiers are using many applications daily and thus there is hardly any time spent on training. Amount of weight carried by an infantry soldier is always an issue. Use of smart phones can reduce three to four kgs worth of other equipment and will lighten up the soldier.

Smart Choice: Someone to Carry Your Pack

The load carried by a soldier has an inverse reaction on his ability to perform the given task. The vast assortment of equipment carried by a soldier for the mission has increased exponentially and has impacted the soldier's performance. Movement in an inhospitable terrain can be made easier if the soldier's pack is carried by someone else. To this effect, US Army is carrying out trials of Big Dog, a robotic mule to reduce load and remove the pack from soldier's back.

The robot derives its name due to its dog like motion, can carry up to 150 kilograms of assorted equipment to assist the mission. It navigates by means of two stereo cameras mounted on its head integrated with a laser range finder which produces a 3D image enabling the robot to navigate. The robot moves with the help of four hydraulically controlled legs and the multitude of sensors fused with the onboard computer control enable it to crawl, walk and trot to the destination at an average speed of 3.5 kmph. Its bigger and powerful version, Alpha Dog is also under trial.

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