

Future Solider for Future Indian Army; by Artificial Intelligence and Technology

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ABSTRACT: Automation and robotics are two closely related technologies. Every country is being protected by its force guard. As we Engineers got the chance to design the soldiers. With the gaming mode and programmed robots and other gadget's to protect the solider and make fast and furious action in the future war. In this paper we created game trailer and make similar modification and then we focused to conversation. The best way to survey the soldier in army is engaged by the type or the requirement available soldier. It is observed that design of the vehicle and robotics meet the requirement of Indian army and protect the interest of the country against threats by other countries. In order to guarantee and increase the efficient of combat abilities by using means of brain computer interfacing technology and skillful remote control system. BC (brain computer interface as the ability to sense the threats in the battle field. In this paper we made an analysis and study of highly most combat, hybrid method to make the army stronger and sharper than any other. This paper highly concentrated on ground feed soldier in order to secured the human life. Because the 75% of war takes place in the ground state. Finally we propose different attitudinal sophisticated system such as navigation abstract detection sensor, vehicle, highly impacted launches, imaging senses and self-integrated and calculated devices and gadgets.

KEYWORDS: HCGD, EXO, MRBA, RL, CC, SAT

I. INTRODUCTION

The extraordinary Improvements in such information technologies are affecting almost every part of our lives. In particular, connections between individuals, groups and societies are intensifying. The ability of new machines to collect, store and move information around means that traditional organizational structures are less relevant. More often than not we are not making best use of the new technology. For example, the speed at which information moves up and down our formal chains of command usually comes a poor second to the speed that is achieved by the media, by the informal networks used by our own people, and sometimes even by the enemy. This is because networking is as much a social thing as it is technological.

This can make more difference experience and effective battle in futures. All the future war will be in concern level. Thus the amazing multi robots and amazing technology can create more secured ideas. And their invisible advantages can make more offers a secure country. The ghost are elite soldiers that can make challenges in battle field tomorrow. In every battle, soldiers are died due to the incomplete protection and lack of technology weapons and insufficient skilled programmed devices. In this paper we had presented grouped idea to be realized and make it utilized to make all future effectively.

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(a) Border soldier condition in India 2015

Well looking at the picture we can see the soldier died in war at Kashmir (India). This is because of lack of weapon, technology, and other criteria. Now with all the amazing technology it can be rectified, all of these brought under robotics programming and automation. This paper will explain about an access of the robots in the battle field of tomorrow. The research in many countries are trying to improve the robots in defense field as well as the robots for the war.

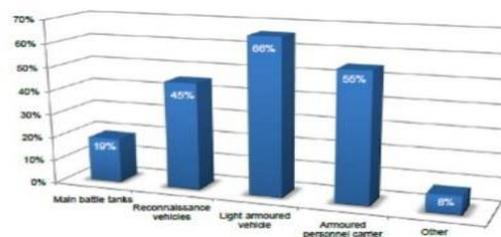
Abbreviation

1. CRPF (Central Reserve Police Force) DRDO (Defense Research and Development Organization)
2. HVAC (Heat, Ventilation and Air Conditioning System)
3. IDF (Israeli Defense Force)
4. IED (Improvised Explosive Device)
5. JLTV (Joint Light Tactical Vehicle)
6. L-ATV (Light Combat Tactical All-Terrain Vehicle)
7. LOS (Line of Sight MRAP Mine Resistant Ambush Protection)
8. NATO (The North Atlantic Treaty Organization)
9. NSG (National Security Guard PDS Product Design Specification)
10. QFD (Quality Function Deployment RPG Rocket Propelled Grenade)
11. RCWS (Remote Controlled Weapon Station) SUV (Sport Utility Vehicle)

Need for requirement

1. Save human life
2. Make battle easier
3. Make country more secure
4. Attain any risks at any time
5. Avoid interference
6. Make powerful country

Demand of various armored vehicles by 2020



(b) Demands of vehicles

According to the Military, the future army operations will range from peacekeeping to irregular warfare and the major combat operations against a well-equipped armored force. The different types of combat put different demands on combat vehicles, particularly the types of weapons that may be fired at the vehicle and the direction from which they strike the vehicle. The emphasis of peacekeeping is on safe guarding the local population with minimal collateral damage, including damage to road infrastructure from the movement of heavy vehicles, in particular, vehicles with tracks. Because threat possess is minimal in peacekeeping missions, [2][3]trucks and light vehicles are often sufficient, but a good combat vehicle may be more useful.

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II. LITERATURE SURVEY

[1]Eyal Lahav* Uri Benzion* Tal Shavit† had researched on ethical risks and controlment of army robots in future wars. The army soldiers are connected by the wireless electronic devices. Which is costumed designed by the upcoming engineers. Requirements for the light armored vehicle over the next decade will concentrated on terms like modular, mobile and adaptable. The demand for light armored vehicles will outrun all other variants, and it shows the fact that the supply chain and end-user must Travel on a proper balance between protection and maneuverability during this age of economic imbalance. When it comes to terrain because routes and strategies can be altered to accommodate the easiest, safest and most effective path. But they cannot mitigate the effect of an IED blast or cannot prevent an RPG strike on the vehicle wall. Suggestion from Brigadier General C.P. Mohanty, North Kivu Brigade Commander, and United Nation Peacekeeping force from India is a key solution to the issues addressed above. According to him, protection can be offset by mobility. To achieve a better protection, light armored vehicles with high power-to weight ratios and high mobility is the most highlighted solution available.

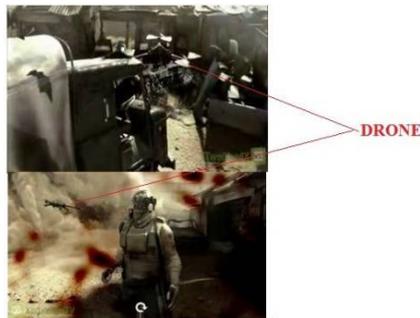
[2]Javier Irizarry, Assistant Professor, Georgia Institute of Technology, Masoud Gheisari, PhD Candidate, Georgia Institute of Technology, Bruce N. Walker, Associate Professor, Georgia Institute of Technology, has developed technology on theusability assessment of drone technology. They had propose a technique relevant on the drone to catty object and identification by using GPS and Identifier by using GPS address.

III. ALTER GHOST PROTOCOL METHOD

Concept and generation

With the ghost technology specified by a tom Clancy ghost recon gaming which is designed by PC games often by the uvibox Xbox gaming has made changes in build to Indian army.

With the alternating method make Indian army more and more secure by additional weapons and vehicles. Also the later military protex can make even better secure.



(c); concept no 1; **Additional robots**

These featured robot has the designed with special codex. It can able travel more distance up to 20 to 30 km away from its robotic command also it can detect the metal(like metal detector) and capture mode build camera.[5]

IV. EXOSKELETON

An additional support that make solider more comfort in all kind of jumping situationalso to make more effective fighting with the enemy.[4]

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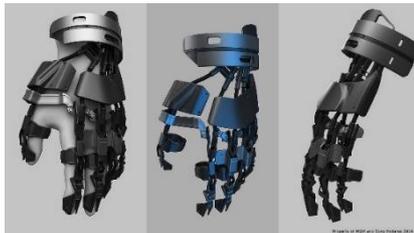
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(d) ; concept no 02

This is very effective that can make five times more than the ordinary jumping the figure show below had good resistance of components that fulfil a set of functional roles including protection, excretion, sensing, and support, feeding and acting as barrier against desiccation in terrestrial organisms. Exoskeletons and have a role in defense from pests and predators support and in providing attachment frame work for musculature



(e) Exoskeletonconcept no 3

This contain chitin: the additional of calcium carbonate makes them harder and stronger. In growth of the arthropod exoskeleton known as apothems serve as attachment sites for muscle. This rifle can focus more on human that had the temperature sensor for multiple focus.

V. MULTI CONNECTING DEVICE (MCD)

With all the amazing Technology here is the multi conference device that can connect more than the 10 connector at a time.



(f) MCD

This device uses the IR wave, radio wave and also works with Wi-Fi, also it has the ability to show GPS system to make them analyses. North east west and south latitude can make them self to show the other peoples. This can help the soldier easily identify and share the information through the air.

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VI. AMAZING QUARDCOPTER



(g) cordcopter with bci

The guard copter has the camera feature and metal detector that can detect the metals and weapons like explosive and alternate weapons other than that.



(h) Imaging process by BCI

The picture (h) shown the travelling of guard copter in dark that controlled by the army soldier. This can controlled by 4 solder at a same time and visually given to the mobile network without hacking other devives. This is a sound less device which has a less noise.



(i) Identifying the metals and weapons

The picture shows the detection of the metal and weapons used by others also the clarified image by the camera.

VII. HUMMER CLASS GROUND DRANE

This is the most advance robot that has designed in concept of military. This is bullet proof, water proof and inbuilt vehicle. This is about 500 kg in weight that will grounded in earth in all the difficult situations. This is featured by the detection and shooing purpose.[6]

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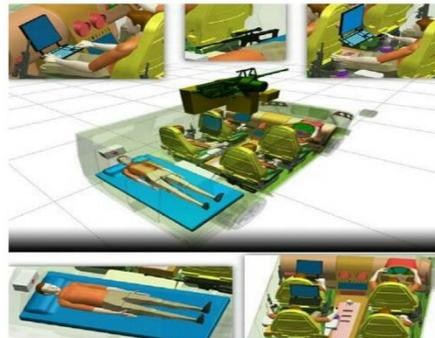
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(j) Ground drone (created using apple iMovie trailer)

Also it is programmed for the bombing spectacles. It can store up to 10, 100, 10 bullets. Also shooting at 100 bullets per minutes. This is a new concept of ground drone, which is a land cursor monitoring system which is made up of the computer and GPS network. This keeps monitoring the full system surrounding about it.

VIII. MOCK UP MODEL OF ARMY VEHICLE



(k) Inside setup of mop army vehicle

The mock-up model is our concept that we created. [7] Sun board was used for the creation of the mockup model. The board is bended and break as required and filled with the metal paste to cover the deformation areas as well as to gain the overall shape and strength. Model is made by splitting into three halves – The front half which is up to B-pillar, the rear portion covers the rest half and the gun man protection covers. Later the model parts are joined with glue and used multiple layers of surface and metal putty over the model. Over the finished surface, spray painting done. To get the styling features, stickers are used over the painted surface. Finally, lacquering done to get the polished surface and desired texture surface quality. Figure no 16 shows the operations involved in making the model.

Features

Besides the two configurations of weapon system, the vehicle is equipped with:

- 1) Deflector plate on bottom to give better protection from explosives.
- 2) Small side windows to offer maximum armor protection without compromising visibility.
- 3) Two piece front window design.
- 4) Detached rear view mirrors offset to the bonnet center location for better visibility on both sides.
- 5) Gun mounting holes on the door below the side windows, so that the soldier can use them in case of emergencies with the protection of door armor.
- 6) Single door entry on back side for placing injured personnel.

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IX. ROCKET LAUNCHER



(l) Rocket launcher

This is a smart technical featured gun that will be explored and controlled by the soldier. The soldier has the key to shoot the target at the pointer to shoot. This is featured by the automatic / manual specification switching.



(m) Smart gun by apple imaging photo app

This is featured by the smart shooting and focusing the terrorists. The photo and concept created by using apple iMovie trailer software. This features the fast detection and more accurate distance for shooting target. This allows the fastest speed than other devices. [8].



(n) Cross cam sensor

This camera created for over all detection the enemy and other life creatures around it. This offered by temperature sensor and target trigger. Which will sense and shown as a red cross mark as a light blink over the display monitor as the computer.

X. OUR DEFINED CONDITIONS AND ASSUMPTIONS

We have defined nine types of behavior that, when well-established across our Army, will create the culture we need:

- Every soldier is an expert in close combat. The confused battlefield and the array of threats that our soldiers will face means that there are no secure areas. Every soldier needs to be able to fight in close combat.
- Every soldier is a leader. In day-to-day activities and on operations, soldiers will need to take charge of themselves and lead their peers.

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- c) Every soldier is physically tough. The physical demands of operations and daily life require resilience and endurance.
- d) Every soldier is mentally prepared. The intellectual and emotional demands of operations and daily life demand psychological endurance.
- e) Every soldier is committed to continuous learning and self-development. From the day they join the Army, soldiers will have to be encouraged to take up opportunities to develop their knowledge and skills
- f) Every soldier is courageous. The combination of intrinsic values and shared ethos ensures that soldiers have the courage to face uncertainty and make the hard decisions required by complex war fighting. This includes the moral courage to do what is right.
- g) Every soldier takes the initiative. Our small teams operations and the complex terrain we will work in demand that soldiers be able to act independently and without prompting. Soldiers need to remain aware of the plan at the higher level in order to exploit fleeting opportunities and assist flanking teams in achieving success.
- h) Every soldier works for the team. Each soldier shares responsibility for his or her team and for the achievement of the team's mission. Soldiers understand that they do not face danger alone. They must rely on the team just as the team relies on them
- i) Every soldier demonstrates compassion. Soldiers will need to show compassion and empathy both in barracks and when deployed on operations

XI. RESULT AND DISCUSSION

In the future, our Nation will demand a great deal of the Army. Technology will deliver wonderful opportunities, but disappointment awaits unless we combine the technology with the skills and creativity of our people. Our true capability advantage is in areas that others cannot readily copy—our culture and our people. Understanding who we are, what we stand for, and what we can do is the wellspring of morale, cohesion, resilience and success on the battlefield. This is our fundamental source of competitive military advantage. This will be the essence of the campaign that we are calling the 'Soldier of the 21st Century. The questions we ask ourselves will shape our plans for the future. At a time when we are busy with operational commitments it is natural to focus on the immediate problems. But to realize the full promise of the Hardened and Networked Army we have to keep asking the difficult long-term questions about our people, our organizations and ourselves. Our future will not be realized through a single initiative or major shift in our approach to training, education or employment. It will be a journey of small deliberate steps—a journey we have already begun. Combined, these small changes will have far-reaching effects on the Army and our people. The aspect of the Indian army make more effective and reality with awesome technology is no longer that a dream come true. On comparing the precious life of human with robots is more powerfully handled the war. With the latest military protect the phase of war is changed and made easier.

XII. CONCLUSION

The main aim is to increase the protection and survivability of the combat soldiers. The nano materials and smart structures can also provide In the future, combat soldiers can be dressed in high-tech uniforms, fitted with everything, from navigation and water purifying systems to climate control. More than a decade will pass before super suits make the combat soldiers stronger, smarter, and perhaps even invisible. The future soldiers with super strength, protection against bio- weapons, and even a way to communicate covertly. Another goal is to help soldiers to do everything they need to do with smaller equipment and a lighter load. If electronics and optical technologies could be integrated successfully into the textiles, there could be a striking improvement in the battlefield communications. The future warrior systems include global positioning systems, combat identification sensors, monitors, chemical detectors, and Electronically- controlled weapons, all connected to the soldier. Computer to provide him instant access to information. But getting the wire, and more futuristic technologies such as optics, into the uniforms and smart vests, and making these easy to use, is challenging. Wires must be flexible enough to be comfortable, carry signals, be safe to the soldier, and not give away his or her position. In the future, by the development of the high- tech textiles, the battle dress uniform can be hardened into an instant shield with the push of a button; also there can be chameleon-like battle suits that can change their color depending on the surroundings. If a combat soldier is hit in the leg, sensors relay

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information about his injury and location to the field headquarters. Sensors inform the field headquarters about the soldier who is the closest to the wounded soldier; new orders and the target's position appear on the rescuer's head-up display.

1. The materials of the new era will benefit the soldiers in the following ways:
2. Lightweight, high-durability fabrics: Uniform, packs
3. Lightweight materials: Rock-frame, bayonet, rifle, ammo, tools
4. Reduced weight ballistic protection: Small arm plates, fragmentation vest
5. Laser eye protection
6. Next generation displays: Ultra-thin high-resolution displays
7. Information processing and storage: Small, massive durable storage devices, distributed micro sensors, conductor fibers embedded in the fabric
8. Artificial muscles: Actuator for increased human performance .

REFERENCES

- [1] EyalLahav* Uri Benzion* Tal Shavit; The effect of military service on soldiers' time preferences — Evidence from Israel, Concept design of special vehicle for Indian military. 2011 Vol 6, no 3, pp.130-138 .
- [2] Javier Irizarry, Assistant Professor, Georgia Institute of Technology, Masoud Gheisari, PhD Candidate, Georgia Institute of Technology, Bruce N. Walker, Associate Professor, Georgia Institute of Technology, Journal of Information Technology in Construction - ISSN 1874-4753, September 2012 at <http://www.itcon.org/2012/12>
- [3] Andrew Elwell, Armoured vehicles, [www. Hourofthetime.com/1](http://www.Hourofthetime.com/1), Retrieved on 21st June 2013. Defense news, India needs more vehicles, but spending less, <http://www.defencenews.com/article/20130319/DEFREG03/303190014/>, Retrieved on 28th July 2013.
- [4]H.C. Bennet-clark (1975) “the enegetics of the jumping of the locust, schistocercagregia” Zhang (2003) predator terminal neoproterozoic
- [5] Hugh Herr Exoskeletons and orthoses: classification, design challenges and future directions. Journal of neuro engineering and Rehabilitation 2009, <http://www.jneuroengrehab.com/content/6/1/2>. In 2009
- [6] Carter, Ashton B. 2012. “Department of Defense Directive: Autonomy in Weapons Systems.” Last modified November 21, 2012. www.dtic.mil/whs/directives/corres/pdf/300009p.pdfKrishnan, Armin. 2009. Killer Robots: Legality and Ethicality of Autonomous Weapons. Surrey, UK: Ash gate Publishing Limited.
- [7]Defense forum India, Indian Army armored vehicles, <http://defenceforumindia.com/forum/indianarmy/5240-indian-army-armored-vehicles5.html>, Retrieved on 12th Sept. 2013
- [8]Indian defense forum, Indian Special Forces, <http://defenceforumindia.com/forum/strategicforces/33520-indian-special-forces-5.html>, retrieved on 10th Sept. 2013.