AUTONOMOUS ENEMY DETECTION CAMOUFLAGE GUN

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Abstract— *Border's restricted areas are dangerous for our soldiers. It has been heard a lot about increasing rate of ceasefire violation at the border from neighbor side, causes death of soldier. It provoked us with a feeling of being forced to think about soldiers. So, this study aims to find out the solution of a question that how it looks like to be, if country's border is protected by a third eye instead of soldiers, which save soldiers from being killed by enemy instantly.*

It come up with a solution, friend of a soldier and quietus to an enemy," VAJRA" an autonomous enemy detection camouflage gun which detects enemy and kill them in few minutes under defined range.

Keywords—component, formatting, style, styling, insert *(key words)*

I. INTRODUCTION (*HEADING 1*)

We have many valuable possessions that needs protection but can't be everywhere at once.

Luckily, by using image recognition and motion detection software, we can build automatic gun turrets to protect our border as well as most prized possessions even in our absence. Object Detection is very challenging and practically useful technology in the field of Computer Vision. Object detection deals with identifying the object present in Source image. Considerable amount of research is being done in the territory of object detection in the last decades. Incredible achievement had been accomplished in this area. **Autonomous Camouflage** gun are the best example of this at

instance. Sometimes certain incidents arose at our borders like

ceasefire violation causes death of our soldiers.

As per the data cited in the annual report (2017-18) of **Ministry of Home affairs , government of India ,** The ongoing militancy in the State of Jammu and Kashmir is intrinsically linked with infiltration of terrorists from across the border both from the **"International border"** as well as the
"Line of Control" in J&K.

Presently at Indo-Pak border, 656 BOPs are held by BSF along the IPB. A proposal for construction of 96 Composite BOPs along the Indo-Pakistan border has been sanctioned. Construction of these Composite BOPs will provide necessary infrastructure for accommodation, logistic support and the combat functions of the BSF troops deployed on the Indo-Pakistan borders. The project is targeted for completion by July, 2018. Construction activities in 84 BOPs have been completed and work is in progress in remaining 9 BOPs. So we required a framework that can detect enemies precisely and can work in real time and we find out the solution of a question that how it looks like to be if our border is detected by a third eye instead of our soldiers which saves our soldier from being killed by enemy instantly. If this incident happen in the night time it will also be able to detect the enemy where object detection is very challenging. In planning this framework, several challenges are confronted .Some of the challenges are
detecting enemy and then differentiating it from our soldiers. Other than that it should be applicable for the night vision. In this project we made a motion detection airsoft turret with Raspberry Pi . The gun turret is autonomous so it moves and fires the gun when it detects motion. There is also an interactive mode so that you can control it manually from your keyboard. We used an airsoft gun for thus project but you can easily modify this build to use a nerf instead. This project is small, lightweight and entirely battery operated.

II. HISTORICAL BACKGROUND

Numerous types of devices have been provided in the prior art while these units may be suitable for a particular purpose to which they address but they do not pertain to the teachings of present invention. There are a lot of autonomous gun as well as rotating machine gun present in the defense market which kill enemies but in turn not able to do it on their own because they are manned machine guns. Borders of India faces a lot of cease fire violation which is increasing day by day where the intruder comes from the other side. This will create more breakdown for our soldiers. For this reason, the automatic enemy detection machine gun turret is invented.

According to this which comprising the base plate consisting of mounting brackets and locking arms is assembled on another base plate. This entire assembly is so arranged that it provides precision linear movements along longitudinal and lateral axes as well as rotary axes. This ultimately reduces the process complexity, human effort, time & ensures the safe handling during loading and unloading with accurate positioning of the equipment's. Thus these eliminate specialized operator skill and increase in productivity. 'The machine is compact and its weight is optimized. This ensures portability, which facilitates the equipment to be assembled and locked directly on to the mounting adopter of the Helicopter cockpit structure. The design & build of the machine along with its robustness ensures the critical functional rotation of fixture with Turret gun unit. This in turn ensures the required quality and reduced cycle time for the operation.

Thus, in view of the drawbacks existing in the prior art there exists a dire need for an invisible autonomous enemy detection machine gun turret for the border security purpose. It is being invented by keeping clear vision in mind of the developers to completely destroy the bad intentions of all who want our country in trouble. More specifically, this invention is for protecting our borders and our soldiers, having the capacity to keep tab on doubtful activities, under defined range.

III.DESCRIPTION

The following description is provided to assist in a comprehensive
understanding of exemplary embodiments of the invention. It includes various specific details to assist in that understanding but these are to be regarded as merely exemplary. Accordingly, in one aspect, in one implementation, this invention discloses the method of
invisible autonomous enemy detection gun turret which consist of:

Software which we are using is installed in the microprocessor. Microprocessor is one of the major parts of the gun. Software consist of image recognition and motion detection algorithm. So, our operation is carried out by using virtual environment created using software enable python by implementing some technique to the input for getting real time output.

This gun descries the foe and shoot automatically under the range of 600-800m which can be extended up to 1000m in emergency situation. The gun differentiates between the enemy and our soldier on the basis of a device attached in their fatigue. This gun will stop shooting when it recognizes that the heat will stop emitting from the body of the enemy.

In another aspect, in second implementation,this invention
discloses the procedure of autonomous enemy detection gun turret which consist of:
5 Volt of (1.a) power supply is provided to the (2.) raspberry pi to activate it for which external battery sources are used to supply the power and the whole system comes in action. It starts the (3.) infrared camera which is being responsible for detection of object. It is a detector and lens combination which gives visual representation of heat energy radiated by object, the camera detects this energy and convert it into an electronic signal which is then processed to produce a thermal image and perform the temperature calculations. So, on the basis of this, if a human body is in front of the camera then it detects the heat i.e., enemy.

In this case, it will give signal to the raspberry pi for detection of heat.

Now the next step of it to check out whether the detected person is one of our soldier or enemy then Heat sensor comes in role that identifies our soldier by the heat tag stuck to their uniform which sense heat from their body and get flashed which will act as an identification of our soldier.

Now in other case, if it gets recognized as an enemy then the raspberry pi gives command for firing the gun. Raspberry pi is connected to

(5) Motor driver circuit, which is responsible for the upward, downward or 360-degree movement of the gun as it is connected to two (6.a, b) stepper motor in which one is responsible for upward and downward motion and the other one is for 360-degree rotation.

Motor driver circuit is also connected (7.) relay which acts as a switch of firing of gun so when the enemy is detected then raspberry pi gives command for switching on the (8.) gun to shoot the enemy until it detects the heat and after the temperature falls down as the indication of death relay switched off which also stops the gun from being fired.

Thus, that's how an enemy is being caught and killed by our "VAJRA".

In future, it will be made invisible by which enemy is not able to detect the gun.

IV RESULT

The main aim of this thesis work is to detect the person and automatically fire the gun. We have run our algorithm on the detection of different person and accumulate our gun to fire. When motion is detected then bullet is fire out of the gun. Our system can effectively detect the person and fire the gun till the person is not alive. The person is alive or dead is detected by the radiation of heat ejected from the body of the person. If heat radiation is zero then the person is dead. The bullet is fired from the gun unless and until the death of person. The range of the gun is (80-100) m, and there is no any type of recoil velocity. Our aim is to develop a system which offers low cost solution and save the life of our soldier. Hence the death ratio of soldier at our border line minimizes. It also saves the man effort and money power of the government.