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CLASSIFICATION OF DIFFERENT KINDS OF ARMED WEAPONS BASED ON THEIR DIRECTION IN THE IMAGE

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ABSTRACT

The increase in terror attacks globally is giving rise to the requirement of early detection and positioning of weapons. The system has proposed approaches that are able to classify armed weapons that are visible in an image and are in attacking position. This work presents an armed weapon classification system based on their directions with in images which is appropriate for both, surveillance and control purposes.

This research focused on limiting the number of incidents that take place by carrying an armed weapon like pistols and rifles. It also managed to specify the positions of pistols and rifles whether it is attacking position or not, by evaluating the linear and perpendicular positioning of arm.

In this report, an automated surveillance system for classifying armed weapons and their attacking and non-attacking situations in cluttered scenes is proposed. To obtain this purpose, we have divided it into two approaches; one approach is for weapon classification and second is for positioning of weapon. The first approach is SIFT combined with SVM and the second is CNN based approach. For the first approach SIFT key-points are extracted from an image then the images are divided into clusters by applying k-means clustering then, histogram is implemented, then the images are classified by using SVM for classification based on the histogram. For our second approach, CNN architecture Inception-v3 is used to get better performance, which is done using Tensorflow.

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