**SYSTEM ANALYSIS:**

**EXISTING SYSTEM:**

* Weapon or Anamoly detection is the identification of irregular, unexpected, unpredictable, unusual events or items, which is not considered as a normally occurring event or a regular item in a pattern or items present in a dataset and thus different from existing patterns. An anomaly is a pattern that occurs differently from a set of standard patterns. Therefore, anomalies depend on the phenomenon of interest . Object detection uses feature extraction and learning algorithms or models to recognize instances of various category of objects.
* **DISADVANTAGES OF EXISTING SYSTEM:**
  + - Deep learning combines SSD and Mobile Nets to perform economical implementation of detection and following. This rule performs economical object detection whereas not compromising on the performance.
    - This is not a completely automated system. Every gun detection warning will be verified by a person in charge.
    - Algorithm: R-CNN ( **regions with convolution neural networks**)

**PROPOSED SYSTEM:**

proposed implementation focuses on accurate gun detection and classification. Also concerned with accuracy, since a false alarm could result in adverse responses . Choosing the right approach required to make a proper trade-off between accuracy and speed. Figure 1 shows the methodology of weapons detection using deep learning. Frames are extracted from the input video. Frame differencing algorithm is applied and bounding box created before the detection of object. SSD algorithm reached new milestones in terms of precision and performance detection. SSD speeds up the process by eliminating the need of region proposal network. To overcome the drop in accuracy SSD brings a few technology including default boxes and multi-scale features. These improvements allow SSD to match the Faster R-CNN’s accuracy using lower resolution images, which further pushes speed higher. Average scoring is around 74% MAP and 59 fps on COCO dataset.

* + - **ADVANTAGES OF PROPOSED SYSTEM:**
    - SSD algorithm reached new milestones in terms of precision and performance detection.
    - it can be implemented for larger datasets by training us ing GPUs and high-end DSP and FPGA kits.
    - Algorithms: SSD(single-short detecter)