Abstract

The increasing of human needs for tracking-based security system that can work automatically, make new methods and techniques appearing in order to meet those needs. For example, the appearing of various methods in terms of feature extraction. In object tracking, feature extraction becomes one of the main tasks in tracking an object in which the characteristics used to be resistant to various conditions because the object always move freely in the video. Therefore, feature extraction that are resistant to all forms of transformation or fully invariant is needed in object tracking. One of the feature extraction method that fully invariant is affine invariant scale invariant feature transform (ASIFT). In this thesis, the author will use the method ASIFT and Mean Shift tracking object to create a system that can track objects in various conditions. The system will initially be given an input such as images and videos that both will be processed starting from preprocessing to the tracking process. The results showed that objects environmental conditions affect the number of possible objects detected appropriately. Controlled environmental conditions tend to have better results from uncontrolled environment. In addition, the threshold value and the radius is used also greatly affect the results of matching objects. Based on research, the threshold value of 0.9 and a radius of 10% have a tendency to be able to detect objects correctly. The results also show that the ASIFT- Mean Shift method can overcome the problem of the change of point of view that occur on the object with an accuracy of 30%.

Keywords: Object Tracking, ASIFT Methods, Computer Vision, affine invariant.